



# What's what FSKM

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## UNBOXING FEELINGS:

MEASURING IPHONE  
HAPPINESS THROUGH  
SENTIMENT

## INNOVATION COMPETITIONS:

GROWING CREATIVE  
MINDS FROM PRIMARY  
SCHOOL TO UNIVERSITY

## LEARNING BY DOING:

ROBOTICS VERSUS  
MICRO:BIT FOR STEM  
EDUCATION

## THE FUN SIDE OF MATH:

MAGIC TRICKS AND  
PUZZLES



COLLABORATING FOR  
SMARTER MOSQUES

How Chess  
Sharpens Your  
Mind and Math  
Skills

BEYOND THE CLAIM  
OF RANDOM  
SAMPLING

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# WHAT'S WHAT FSKM

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WHAT'S WHAT FSKM

# EDITOR'S NOTE



First and foremost, a big thank you to all our amazing authors for supporting What's What FSKM by sharing your articles, ideas, and experiences with us. We are truly grateful for the overwhelming response this round! It's wonderful to see so many of you excited to contribute.

For this 2/2025 edition, we received more submissions than expected. However, due to space, we're only able to publish 25 articles. Every single piece we received was valuable, and we hope to feature more of your work in future editions. The articles published this time have already received great feedback, along with thoughtful suggestions for improvement, and we're confident this edition will bring fresh insights and inspiration to all readers.

For those who are new here, What's What FSKM is the official e-bulletin of Fakulti Sains Komputer & Matematik, UiTM Cawangan Negeri Sembilan, Kampus Kuala Pilah. It's our little corner to share academic write-ups, creative thoughts, teaching and learning experiences, event highlights, and the many achievements of our department.

We'd love for you to continue being part of this journey, whether it's by writing, sharing your stories, or simply reading and supporting the bulletin. And if you didn't get the chance to submit this time, no worries, you're most welcome to share in our next edition!

Thanks again for being part of this growing platform. Keep reading, keep sharing, and let's continue to grow together. Can't wait to see you in the next edition!

*Dr Farizawana Akma Zulkifle*

**Chief Editor,  
What's What FSKM**

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# READER DIGEST

## READER DIGEST





# UNBOXING FEELINGS: MEASURING IPHONE HAPPINESS THROUGH SENTIMENT

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## INTRODUCTION

The iPhone is widely recognised not just as a smartphone but a global icon of innovation, style, and technological advancement. Each new release generates significant public attention, with millions of users expressing excitement, sharing opinions and occasionally, voicing concern. Common issues raised include pricing, battery performance, and camera quality, often in comparison with competing brands (Kumar et al. 2025). Understanding this user sentiment is crucial for evaluating overall product satisfaction. This study investigates how sentiment analysis can produce an accurate classifier model for examining text to detect opinion or emotional tone that can be applied to measure iPhone users' happiness and satisfaction level. Besides that, this study can uncover recurring themes and highlight key concerns within the feedback.

Sentiment analysis involves collecting and processing textual data from sources such as customer reviews, online forums, and social media discussions (Bourequat & Mourad, 2021). Using natural language processing (NLP) techniques, each comment is classified as happy or unhappy. This allows researchers to identify the trends in user satisfaction at scale rather than relying on individual opinions

## METHODOLOGY

This study adopted the Cross Industry Standard Process for Data Mining (CRISP-DM) framework to guide the sentiment analysis of iPhone product reviews. CRISP-DM provides a structured and iterative approach consisting of six phases: business understanding, data understanding, data preparation, modelling, evaluation, and deployment, as depicted in Figure 1. Its flexibility makes it widely applicable in data-driven research, particularly in text mining and sentiment analysis (Kurniawan & Yasir, 2022).

In this study, CRISP-DM was used to systematically analyse user-generated content related to iPhones to uncover patterns of customer happiness and unhappiness. The business understanding phase established the research objective of identifying prediction model of iPhone sentiment, key sentiment trends in product reviews, and gaining insights into customers' experiences, preferences and areas for improvement about iPhone products. The data understanding phase involved collecting review data from bestbuy.com, trustpilot.com, consumeraffairs.com and walmart.com using the Instant Data Scraper method. A total of 1331 records were gathered, followed by conducting an initial exploration of sentiment distribution. The dataset collected consists of a few important features such as user name, date and the review comment. During data preparation, textual data underwent preprocessing steps such as aggregation of data from different sources, removing duplicate records, tokenization, stop-word removal, stemming, and vectorization to ensure suitability for modelling. The polarity of the records was determined using a sentiment dictionary and manually rechecked to ensure accuracy

The modelling phase applied sentiment classification techniques to categorize reviews into happy and unhappy sentiments. Model performance was assessed in the evaluation phase using accuracy, precision, sensitivity and specificity to ensure reliability of insights. Finally, the deployment phase focused on interpreting the results to highlight consumer perspectives and provide actionable insights for product improvement and customer engagement strategies.

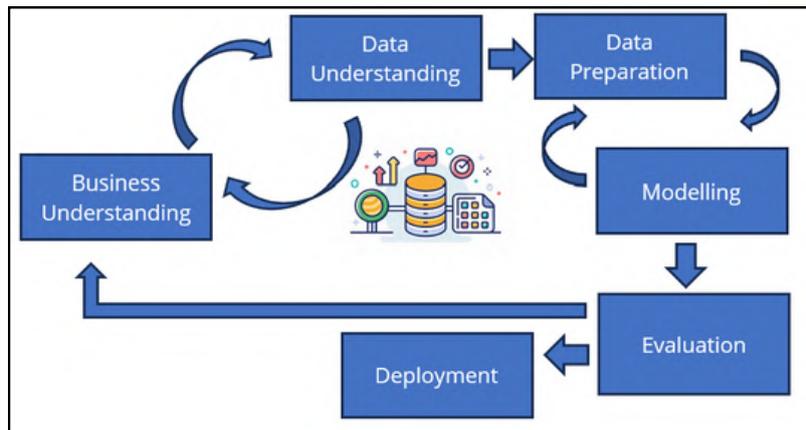


Figure 1: Crisp-DM Methodology of Sentiment Analysis of iPhone Product

## RESULT AND DISCUSSION

This section presents the findings of the iPhone happiness through sentiment analysis, focusing on both descriptive and predictive insights. The descriptive analysis highlights sentiment trends over time, enabling the monitoring of customer perceptions and the identification of recurring issues and satisfaction drivers. Similarly, the predictive analysis evaluates the performance of sentiment classification models in predicting future sentiment patterns.

Reviews from 2013 to 2025 were collected from different websites and sorted into happy and unhappy categories during preprocessing. From all the reviews collected, 85.5% expressed happy sentiment, and 14.5% expressed unhappy sentiment or bad experience. Based on Figure 2, from 2013 to 2016, the number of customer reviews was relatively low but a significant increase occurred in 2017 and 2018. However, the volume of reviews declined between 2019 and 2022. The highest number was recorded in 2023 with 276 reviews, peaking at 253 happy reviews. Although the total decreased to 229 in 2024, it still remained relatively strong. In 2025, the number of reviews rise again to 261, reflecting renewed customer engagement. Meanwhile, happy reviews followed a similar trend, remaining low from 2013 to 2016, then increasing in 2017, before dropping again between 2019 and 2022, with a low review in 2020. Unhappy reviews remained consistently low between 2013 and 2016, followed by a slight increase in 2017 and again in 2021, before reaching their peak in 2025. Overall, customer satisfaction with the iPhone varied, with high satisfaction in 2023 and a spike in unhappy reviews in 2025, suggesting periods of dissatisfaction linked to certain product releases. This emphasizes the importance of continuous product improvement and responsiveness to user feedback.

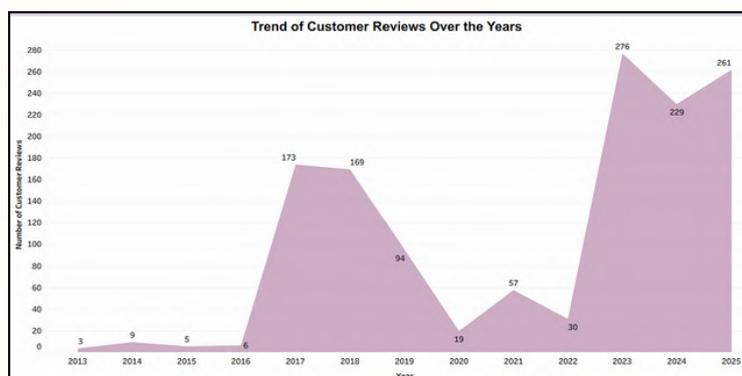


Figure 2: Trends of Customer Reviews Over the Years

Figure 3 below shows six most popular words in reviews which are application, battery, work, camera, purchase and screen. Among the analysed keywords, camera was associated with the highest proportion of positive sentiment, with 88.65% of reviews classified as happy. In contrast, the keyword 'application' recorded the lowest percentage of positive sentiment at 66.96%. The analysis indicates that iPhone users are most satisfied with the camera. In contrast, 'applications' were associated with the lowest level of positive sentiment, suggesting that while core features such as the 'camera' are strong contributors to customer satisfaction, software-related experiences may still require for improvement.

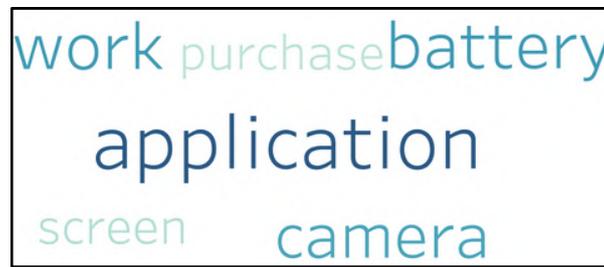


Figure 3: Popular Words in iPhone Review

For predictive insight, the experiments were conducted to identify the most effective prediction model of iPhone sentiment using three different classification algorithms; Decision Tree, Naive Bayes and K-Nearest Neighbour. The performance of the model was evaluated using accuracy, sensitivity, specificity and precision. The table 1 present the results of the experiment.

Table 1: Model Performance of iPhone Sentiment Happiness Prediction

Algorithms	Accuracy	Sensitivity	Specificity	Precision
Decision Tree	99.39%	99.91%	100%	99.38%
Naive Bayes	66.42%	72.79%	33.33%	86.99%
K-Nearest Neighbor	85.23%	98.13%	11.95%	86.48%

The Decision Tree achieved the best overall performance with 99.39% accuracy, 99.91% sensitivity and 100% for specificity. Naive Bayes showed the weakest performance, with moderate accuracy (66.42%) and very low specificity (33.33%). K-Nearest Neighbor performed better than Naive Bayes with 85.23% accuracy and high sensitivity (98.13%), conversely its specificity was low (11.95%). These results indicate that the Decision Tree model is highly effective in distinguishing between happy and unhappy user sentiment.

In conclusion, the analysis of iPhone reviews highlights a fluctuating customer sentiment, with periods of high satisfaction and dissatisfaction. To maintain positive user experiences, the iPhone company should focus on addressing customer concerns, enhancing product features, and improving its NLP and machine learning algorithms for more accurate sentiment analysis. Additionally, refining business strategies and development based on customer feedback will help ensure continued growth and success in a competitive. However, this study has a few limitations. The dataset was imbalanced, with many more happy reviews than unhappy ones, which reduced the models' ability to detect negative sentiment. In addition, the reviews were only collected from a few websites, so they may not fully reflect the experiences of all iPhone users. For future work, more diverse data sources should be included, and data balancing techniques or advanced models can be used to improve the accuracy and reliability of sentiment detection.

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# INNOVATION COMPETITIONS: GROWING CREATIVE MINDS FROM PRIMARY SCHOOL TO UNIVERSITY

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## BEYOND SPORTS: THE RISE OF INNOVATION COMPETITIONS

When we think about competitions, the first thing that comes to mind is usually sports. However, in today's fast-changing world, innovation competitions have become just as exciting, and maybe even more impactful. From primary school pupils with bright ideas to university students solving real-world problems, these competitions are shaping the next generation of problem-solvers, thinkers, and leaders.

Unlike traditional classroom learning, innovation competitions offer students the freedom to explore their creativity, test ideas, and present solutions in ways that textbooks alone cannot offer. Whether it's a robot built by 12-year-olds or a mobile application pitched by final-year students, these platforms are nurturing skills that last a lifetime.

### WHY START YOUNG?

At the primary school level, innovation competitions spark curiosity. Kids are naturally creative, and when they're given a chance to design simple solutions—whether it's a water-saving gadget or a recycling project, they learn that their ideas matter. It builds confidence, teamwork, and presentation skills at an age when learning is all about discovery.

A critical role of innovation competitions in schools is their ability to stimulate the students' capacities. Research indicates that contests with diverse solver participation yield higher quality solutions, as the competitive environment encourages participants to explore multiple creative pathways [1],[2].

### HIGH SCHOOL: BUILDING SKILLS AND IDENTITY

For secondary school students, innovation competitions provide a platform to apply classroom knowledge to real-life challenges. They learn how to brainstorm, research, and test ideas. More importantly, they begin to see themselves as creators, not just consumers of technology. These experiences often shape their interests and even influence their future career paths.

At this stage, Robotics and Internet of Things projects are very popular. From building autonomous robots to designing IoT sensors that monitor water quality, students get hands-on experience in solving problems around them. This exposure often sparks an interest that carries into university studies.

### UNIVERSITY LEVEL: REAL-WORLD IMPACT

At university, innovation competitions go one step further. Students are challenged to solve problems that reflect real industry or community needs; the sustainability, digital solutions, health tech, you name it. Here, innovation isn't just about creativity; it's about practical application, entrepreneurship, and impact. Competitions also encourage collaboration across faculties, giving students a taste of multidisciplinary teamwork they'll experience in the workplace. Common themes include:

- Sustainability & Green Tech – renewable energy, waste reduction, sustainable farming.
- Digital Health & Wellbeing – apps or devices for healthcare and wellness.
- AI & Data-Driven Solutions – smart cities, predictive analytics, automation.
- Fintech & Smart Economy – blockchain, inclusive finance, digital marketplaces.
- EdTech & Learning Tools – gamified learning apps, XR, and digital platforms.

## LIFELONG BENEFITS

Across all levels, the benefits are clear. Students develop critical thinking, communication, and problem-solving skills—competencies no textbook alone can teach. They also learn resilience: not every idea works on the first try, and that’s okay. The process of iterating and improving is itself a valuable lesson.

Whether it’s a primary school child proudly showing a handmade prototype or a university team pitching to judges, innovation competitions remind us that every student has the potential to contribute to the future. These platforms nurture creativity, build confidence, and prepare young minds to face tomorrow’s challenges with courage and imagination.

## UiTM CAWANGAN NEGERI SEMBILAN AS A HUB OF INNOVATION

A local example is UiTM Cawangan Negeri Sembilan, which actively organises competitions like The Fourth International Competition on Sustainable Education 2025 (SUSED2025), Inovasi Masjid Pintar Sheikh Hj Ahmad - UiTMCNS, and Negeri Sembilan International Exposition & Research Symposium (NSIEx+RS2025). What makes these events unique is their inclusivity: they welcome participants from primary school pupils to professionals. This creates a rich ecosystem where young learners, university students, and industry experts can learn from one another. Figure 1 to 3 depicts examples of innovation competitions held by UiTMCNS.



Figure 1: Inovasi Masjid Pintar Sheikh Hj Ahmad - UiTMCNS



Figure 2: Sustainable Education 2025 (SUSED2025)



Figure 3. Negeri Sembilan International Exposition & Research Symposium (NSIEx+RS2025)

In conclusion, innovation competitions are more than contests. They are platforms that inspire, empower, and equip students to dream bigger and think differently. With institutions like UiTM Negeri Sembilan leading the way, the future of innovation in Malaysia looks brighter than ever.

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# Learning by Doing: Robotics versus Micro:bit for STEM Education

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## INTRODUCTION

Science, Technology, Engineering, and Mathematics education (STEM) plays an essential role in preparing the younger generation for the demands of the future workforce (Wan Ghani, Gobil, & Noradzan, 2025). Among the available tools, robotics and microcontrollers such as the micro:bit have emerged as effective platforms to support experiential learning, also known as *learning by doing*.

## LEARNING BY DOING IN STEM

Experiential learning allows students to acquire knowledge and skills through hands-on engagement rather than passive observation. Robotics projects encourage students to design, assemble, and program mechanical systems, thereby strengthening problem-solving and engineering skills. In contrast, the micro:bit provides a simpler and more cost-effective entry point to coding and digital literacy. This microcontroller enables students to execute commands and witness real-time outcomes such as lighting LEDs, triggering sensors, or producing sounds (Quyen, Van Bien, & Thuan, 2023).

Both approaches foster creativity, logical thinking, and collaboration among young learners. Robotics offers tangible and dynamic outcomes through movement and interaction, while the micro:bit introduces students to computational thinking in a highly accessible format.

## CURRENT ISSUES IN SEREMBAN PRIMARY SCHOOLS

Despite the clear pedagogical benefits, several challenges impede the widespread adoption of robotics and micro:bit in Seremban primary schools:

- 1. Teachers' limited coding expertise** - While many educators are strong in core science and mathematics, their proficiency in coding and digital technologies remains limited, even when teaching technology design (*Rekabentuk Teknologi*) subjects. This constraint reduces their ability to guide students effectively in programming-based activities (Noordin, 2024).
- 2. Financial constraints** - Robotics kits can be a big investment, and for schools with limited budgets, this becomes a major challenge. Although micro:bit devices are relatively affordable compared to other robotics kits, purchasing them in bulk so that every student can participate still strains school finances. On top of that, accessories and maintenance costs add up over time. This makes it difficult for many schools to scale up robotics programs to reach all students.
- 3. Restricted opportunities for participation** - Information regarding innovation competitions and STEM-related programs is often insufficiently disseminated. Schools are largely aware of major competitions such as the National Robotics Competition (NRC), yet such platforms are costly, resource-intensive, and often unsuitable for most primary-level students.

## FINDING A WAY FORWARD

Despite these obstacles, there are ways to make robotics more accessible. Training programs can help teachers gain the confidence they need to teach coding alongside robotics. Schools could also look at partnerships with government agencies, tech companies, or community organizations to help reduce costs. Affordable options, such as virtual coding platforms or DIY robots made from everyday materials, can provide students with an introduction to robotics before schools invest in advanced kits.

## UiTM SEREMBAN'S CONTRIBUTION TO ROBOTICS EDUCATION

One inspiring example of how robotics is being introduced in schools comes from the Faculty of Computer and Mathematical Sciences (FSKM), UiTM Cawangan Negeri Sembilan, Kampus Seremban. The faculty has actively shared its expertise through training sessions on micro:bit and robotics, creating real opportunities for hands-on learning.

Through the USR Masjid Sheikh Haji Ahmad program, UiTM lecturers trained special needs students, giving them opportunities to explore robotics and express their ideas through innovative activities. This initiative has opened new doors for students who might not have access to such technology, allowing them to embrace creativity and innovation in a supportive environment. In addition, UiTM also collaborated with Kelab Robotik SK Mambau to conduct micro:bit workshops, which eventually enabled the school to participate in an innovation competition. These efforts show that with the right support, robotics education can reach a wider range of students and inspire them to achieve beyond the classroom (Figure 1).



Figure 1: Participants of Masjid Sheikh Ahmad and Kelab Robotik SK Mambau.

Another major milestone is the Pertandingan Inovasi Masjid Pintar Sheikh Haji Ahmad-UiTM CNS, Peringkat Daerah Seremban 2025, a flagship innovation competition that brought together schools from across the Seremban district (Figure 2). This event has encouraged students to apply robotics and coding knowledge to solve real-world problems, fostering a competitive yet collaborative spirit.



Figure 2: Participants of Masjid Sheikh Ahmad and Kelab Robotik SK Mambau.

In addition, FSKM also organizes a Junior Robotics Program during every school holiday (Figure 3), giving students extra opportunities to learn, experiment, and prepare for international robotics competitions. These continuous efforts ensure that young learners are not only exposed to robotics education but are also motivated to pursue it at a higher level.

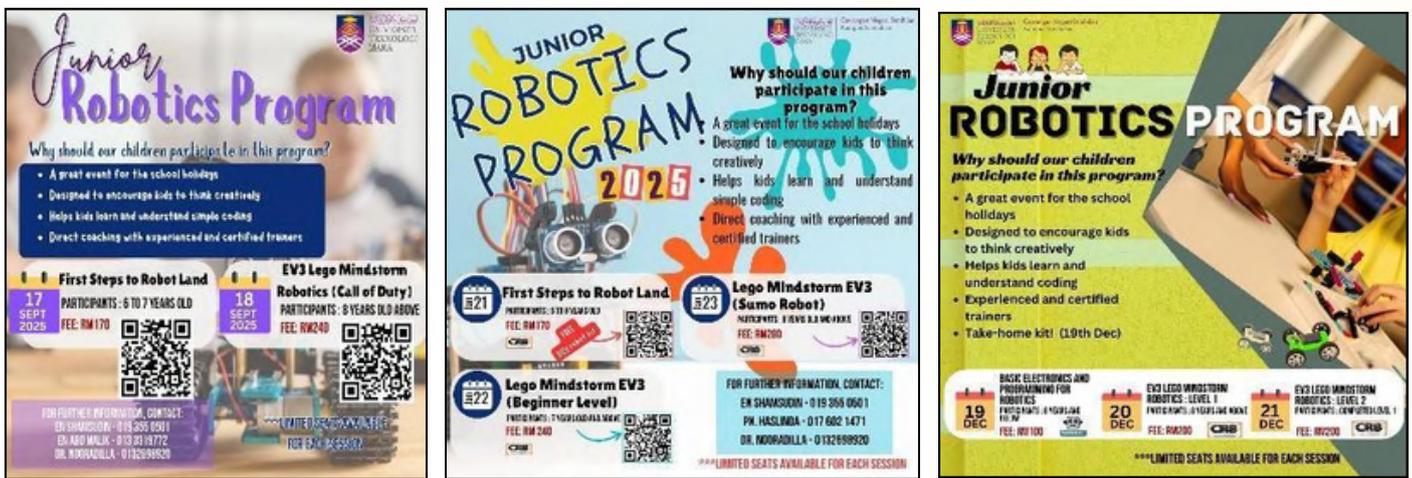


Figure 3: Posters for the Junior Robotics program organized by FSKM UiTM CNS

Together, these initiatives demonstrate how strong partnerships between universities and schools can empower the next generation of innovators in Malaysia.

## CONCLUSION

Both robotics and the micro:bit offer distinct benefits in fostering STEM enthusiasm among primary school students. For the Seremban district, adopting a progressive model by introducing the micro:bit as a foundation tool and the gradual integration of robotics provides a practical and sustainable pathway. With proper teacher training, affordable resources, and accessible platforms for innovation, *learning by doing* can effectively foster STEM engagement and prepare young learners for future challenges.

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# THE FUN SIDE OF MATH: MAGIC TRICKS AND PUZZLES

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## SECRETS OF MATHEMATICAL MAGIC

When people think of mathematics, they often imagine complicated formulas and endless calculations. But **math has another side**, it can be **entertaining, surprising, and even magical!**. Throughout history, **magicians** have secretly **used mathematics** to amaze audiences. Here's a simple trick that you can try with your friends:

### The Nine Card Mystery

This classic card trick uses simple math to find a spectator's chosen card. By dealing 9 cards into three columns and repeating the process, the chosen card is revealed [1].



1. Take **9 playing cards**.
2. Ask your friend to secretly **choose one card** and **remember** it.
3. Deal the cards face up in **three piles of three cards each**.
4. Ask your friend: "Which pile is your card in?"
5. Gather the piles, always making sure the **chosen pile goes in the middle**.
6. **Repeat** steps 3-5 two times total.
7. By the end, the **chosen card will always be the 5th card** in the stack. The secret lies in how the cards are mathematically redistributed each round.



This trick works perfectly when **the number of cards** is a **power of 3**:

- **9 cards** ( $3^2$ ): After 2 rounds, the chosen card will be in the **middle (5th card)**.
- **27 cards** ( $3^3$ ): After 3 rounds, the chosen card will be in the middle (**14th card**).
- **21 cards** (Special case): after 3 rounds, the chosen card will be the **11th card**.

### The Secret of 5

This trick show how algebraic manipulation can produce a predetermined outcome[2]. Choose any number you like and **multiply it by 2**. Then, **add 10** to the result. Next, **divide** this new number **by 2**. Finally, **subtract the original number** you first picked. No matter what number you choose, **the answer will always be 5!**

### The 9 Divisibility Magic

This magic illustrates number properties like divisibility rules [3]. Pick any number and **multiply it by 9**. Then, **add up all the digits** of the result. The final answer **will always be 9!**



If the sum is more than one digit, keep adding the digits together until you get a single digit.



## Calendar Magic

Adding three consecutive numbers is a simple math trick to see number patterns [4]. Pick **three consecutive dates**. Example:  $14 + 15 + 16 = 45$ . The **total** will always **equal 3 times the middle number**.

## The Four 4's Puzzle

It's a fun way to practice creativity in math. Make the numbers 1 - 10 using **only four 4s** and **any mathematical operations** [5]. Example:

$$1 = (4 + 4) / (4 + 4)$$

$$2 = (4/4) + (4/4)$$

$$3 = (4 + 4 + 4) / 4$$

## Kaprekar's Constant (6174)

Kaprekar's Constant is a special number discovered by Indian mathematician D. R. Kaprekar. By rearranging the digits of any four-digit number and subtracting the smaller from the larger repeatedly, you always reach 6174 in at most seven steps [7].

1. Choose any **4-digit number** where **not all digits are the same**.  
(For example: 3524)
2. **Rearrange** the digits to form the **largest and smallest numbers** possible.  
(Largest: 5432 | Smallest: 2345)
3. **Subtract** the **smaller number from the larger**. ( $5432 - 2345 = 3087$ )
4. **Repeat the process** with the result:  
 $8730 - 0378 = 8352$   
 $8532 - 2358 = 6174$

No matter which number you start with, **you will always reach 6174**.



Figure 1:

D. R. Kaprekar discover Kaprekar's Constant and exploring fun number patterns [7].

## LOGIC PUZZLES THAT CHALLENGE THE MIND

**Mathematics** isn't only about numbers. It's also **about patterns, problem-solving and logical thinking**. Math can be exciting when explored through **fun puzzles, riddles and challenges** that make us think outside the box. These puzzles have entertained people for centuries and show that **math can be both fun and magical!**

## Missing Dollar Riddle



Three children buy ice creams for \$30. The seller realizes he overcharged and gives back \$5. The delivery boy keeps \$2 for himself and gives \$1 back to each child. Now each child paid \$9. If we add the \$2 the delivery boy kept, it makes \$29. Where is the missing \$1?

### Answer:

There is no missing coin! The \$27 already includes the \$2 kept by the delivery boy. The correct breakdown is: \$25 for the ice cream + \$2 for the delivery boy = \$27. The puzzle tricks you by adding the \$2 again incorrectly. This puzzle dates back to at least the 1930s and has been used to illustrate how our brains can be misled by faulty reasoning [8].

## The 1089 Trick

It is a classic math magic trick that always results in the number 1089, no matter which 3-digit number you start with [6]. It demonstrates the surprising patterns hidden within numbers and is often used to introduce students to fun mathematical phenomena.

1. Think of any **3-digit number** with different first and last digits.  
(Example: 421)
  2. **Reverse** the digits. ( $\rightarrow 124$ )
  3. **Subtract** the **smaller number from the bigger one**.  
( $421 - 124 = 297$ )
  4. Now **reverse** the result. ( $\rightarrow 792$ )
  5. **Add** the two numbers. ( $297 + 792 = 1089$ )
- The result is **always be 1089!**

## The River Crossing Puzzle



Figure 2:

Propositiones ad acuendos juvenes or Puzzles to Sharpen the Young [9].

A farmer needs to cross a river with a wolf, a goat, and a cabbage. He can only take one at a time. If left alone, the wolf eats the goat, and the goat eats the cabbage. How can the farmer get them all safely across?

### Answer:

The farmer takes the goat first. Then he goes back and takes the wolf, but brings the goat back. Next, he takes the cabbage across. Finally, he returns for the goat. This puzzle is a classic logic puzzle from the 9th century, first appearing in the manuscript Propositiones ad Acuendos Juvenes by Alcuin of York, a scholar and advisor to Charlemagne [9].

## The Strange Age Puzzle

Ali is 10 years old. His sister is half his age. When Ali is 20, how old will his sister be?

### Answer:

15 years old (not 10, because she's always 5 years younger). This puzzle is based on the "boy greeting his father" problem in the manuscript *Propositiones ad Acuendos Juvenes* by Alcuin of York [10].

## The Monty Hall Problem

In this game, you pick one of three doors. Behind one is a car, and behind the other two are goats. The host then opens a door with a goat. Should you stay with your first choice or switch?

### Answer:

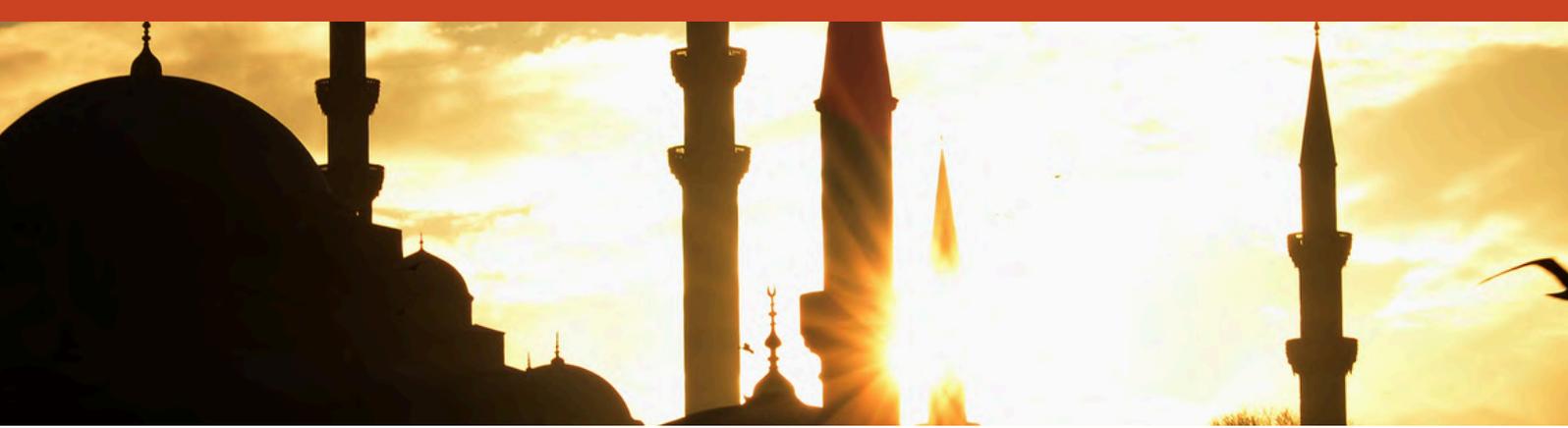
You should switch! If you switch, your chance of winning is 2 out of 3. If you stay, it's only 1 out of 3. This puzzle shows how probability can be tricky but fun [11].

## CONCLUSION

Who says math is boring? With the right tricks and puzzles, it turns into pure fun and mystery! Through simple tricks like the Nine Card Mystery, the 1089 trick or the magic of Kaprekar's Constant, we see how patterns in math can create surprising results that feel like real magic. Classic puzzles such as the River Crossing or the Strange Age Puzzle remind us that math also sharpens our problem-solving and logical thinking. By exploring the playful side of mathematics, we not only enjoy its magic but also build confidence, creativity, and curiosity. Math is not just something to study, it's something to experience and enjoy. Behind every puzzle lies a little piece of magic.

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# COLLABORATING FOR SMARTER MOSQUES

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## INTRODUCTION

The transformation brought by intelligent technology calls for an intelligent community that connects to its environment. In this context, a smart mosque represents community vis-à-vis spirituality, where innovation strengthens facilities and bonds among people, especially neighborhood children. A smart mosque (or *masjid pintar*) refers to a mosque that integrates advanced or modern technologies, digital systems, and sustainable design features to enhance its functions. Transformed into a *smart building* through emerging technologies, it optimizes energy use, enhances security, and improves user comfort.

Using digital technologies and automation, technology embedded in smart mosques reduces energy and water waste, lowering operational costs that often rely on public donations. It improves worshippers' comfort through smart ventilation, lighting, and sound systems, while also ensuring accessibility for the elderly and people with disabilities. They also solve problems of overcrowding and facility management during peak times, and predictive maintenance systems help detect issues early, reducing repair costs. This article explores how community-driven innovation, in collaboration with experts from a university, shapes the development of innovative mosque products as part of this broader transformation.

## CREATIVITY OF YOUNG INNOVATORS

Digital innovation is one of the factors that influenced the transformation of mosque management as a community hub that contributes to the sustainability of social and religious programs (Amin et al., 2024). Thus, an inspiring initiative took shape when the mosque management collaborated with a nearby university. This collaboration provided an avenue for children to grow a culture of innovation. Rather than learning in the classroom, the children were given a platform to put their problem-solving and STEM skills into practice. With guidance, they began sketching ideas, experimenting, and building simple prototypes to turn their creativity into innovative solutions that could one day benefit the mosque and its community.

## SMART MOSQUE PRODUCTS

Smart building technologies are gaining attention everywhere, especially for their ability to save energy and improve quality of life (Mohammed et al., 2024). When brought into mosques, these innovations enhance the way the community experiences and interacts with the environment.

The success of smart mosque innovation lies in collaborative effort. Universities provide guidance and theoretical development, while innovators focus on designing products that meet community needs. Community leaders, mosque committees, and parents then help ensure these innovations are implemented and utilised effectively. By working together, they transformed the mosque into a classroom where children could get hands-on with ideas rather than just reading about them. With encouragement from parents and community leaders, schoolchildren sketched, fiddled, and eventually showcased prototypes such as energy-saving systems, digital notice boards, and auto-detection tools. Some of the products showcased are shown in Figure 1. Children of all ages turned out to explore the programme, which was held as part of the collaboration. The university staged a fascinating series of demonstrations, hands-on experiments, and talks, giving the wider community a chance to share in the excitement of innovation. The effort highlighted the mosque as a hub of innovation and gave children new ways to learn and the community a stronger sense of connection.



Figure 1: Innovation in Action: Smart Mosque Prototypes

## LOOKING AHEAD

The journey of creating smart mosque prototypes is just the beginning. By connecting campuses with communities, these initiatives highlight how young minds can shape meaningful solutions for everyday life. Looking ahead, this collaboration promises smarter mosques and stronger and more connected communities. Designed to inspire their understanding and enjoyment of intelligent technology, the prototypes allowed children to work with the people who shape their community and see how their ideas could grow into something real. The extremely high standard that the students had achieved, along with the practical, discursive, and teamwork skills they demonstrated in producing their work, was highly commendable.

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# CHECKMATE! HOW CHESS SHARPENS YOUR MIND AND MATH SKILLS

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Chess is more than a board game. It's a mental workout that strengthens your brain and enhances mathematical your math skills. Every move requires calculation, strategy and pattern recognition, making it a perfect tool for learning logical thinking and problem-solving [1]. From counting possible moves to analyzing positions, chess is full of hidden mathematics.

## Math in Every Move



Each chess piece moves in a unique way on the 64-square board, creating many possibilities. Calculating all possible moves involves combinatorics and probability. In fact, there are around  $10^{120}$  possible chess games which is far more than the number of atoms in the universe [2].

## Patterns, Geometry and Strategy



Chess is all about patterns and spatial reasoning. Recognizing diagonals, controlling the center and coordinating pieces require geometric thinking [2]. A knight's L-shaped move or a bishop's diagonal attack can be analyzed mathematically to maximize strategic advantage.

## Chess as a Brain-Boosting Tool

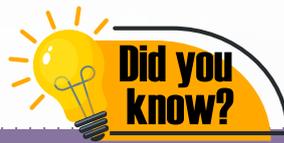


Chess helps you think ahead, plan, and solve problems [3]. Teachers often use puzzles like "checkmate in two moves" to practice analytical thinking. These exercises teach students to break problems into smaller, manageable steps just like solving math problems.

## Gamifying Chess for Learning



Gamification makes learning chess and math more fun. Students earn points for solving puzzles, winning mini-games, or completing challenges. Online platforms like Chess.com and Lichess track moves and show strengths and weaknesses [4]. This encourages practice while teaching math skills like probability, planning and optimization.



- The first four moves of both players alone can create over 288 billion different positions!
- The quickest checkmate, called "Fool's Mate," can happen in just 2 moves.
- Chess uses math, like counting moves and patterns. A knight has 8 moves in the center but only 2 in a corner.

## Historical Connections



Chess originated in India as Chaturanga and later spreading to Persia and Europe, where it evolved into the game we know today [1]. Famous mathematicians and scientists, like Emanuel Lasker, a World Chess Champion used chess to sharpen their minds. This demonstrates the timeless connection between math, logic, and strategy.

## Conclusion

Chess is a game, a math lab, and a puzzle all in one! It strengthens logic, spatial reasoning, and problem-solving skills. The Next time you sit at a chessboard, remember: every move is a mini math adventure waiting to be solved.

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# BEYOND THE CLAIM OF RANDOM SAMPLING

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## SAMPLING TECHNIQUES

Sampling techniques refer to the methods used to select a subset of individuals/ items from a population for the purpose of data collection. Sampling techniques can generally be classified into two types, as illustrated in Figure 1.

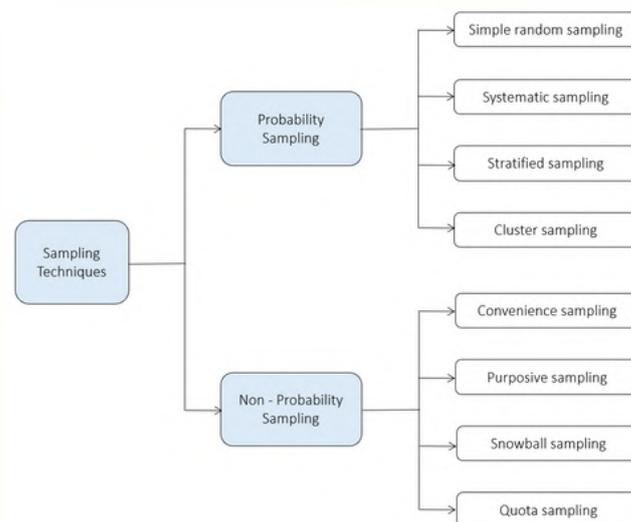


Figure 1: Types of Sampling Techniques

Probability sampling refers to methods where every individual in the population has a known and equal chance of being selected. This approach relies on randomization such as using random number tables or computer-generated sequences which helps ensure that the sample is representative of the larger population. The figure illustration can be seen in a previous article by Jamil (2025).

On the other hand, non-probability sampling involves selecting individuals in a way that not everyone in the population has an equal chance of being chosen. Instead, participants may be chosen based on convenience, judgment or specific criteria which makes the method more practical but less representative of the population.

It is important to note that in research, the term 'random' has a precise definition. Although researchers occasionally claim to have used 'random' sampling, in practice the procedure actually reflects on non-probability techniques as participant selection is frequently based on convenience rather than strict randomness. This article focuses on stratified sampling and quota sampling as both techniques aim to ensure representation across important subgroups within a population. Stratified sampling can be categorized into proportionate and disproportionate approaches. Moreover, quota sampling can be considered as a form of proportionate stratified sampling but on convenience basis (Sekaran, 2003).

Figures 2 and 3 respectively provide a visual comparison between stratified sampling and quota sampling. In both approaches, the population is initially divided into homogeneous strata (or group) such as faculties. The principal distinction lies in the selection procedure of stratified sampling which employs random selection within each stratum to ensure proportional representation, whereas quota sampling utilises non-random methods such as convenience sampling or purposive sampling to fulfil specified quotas.

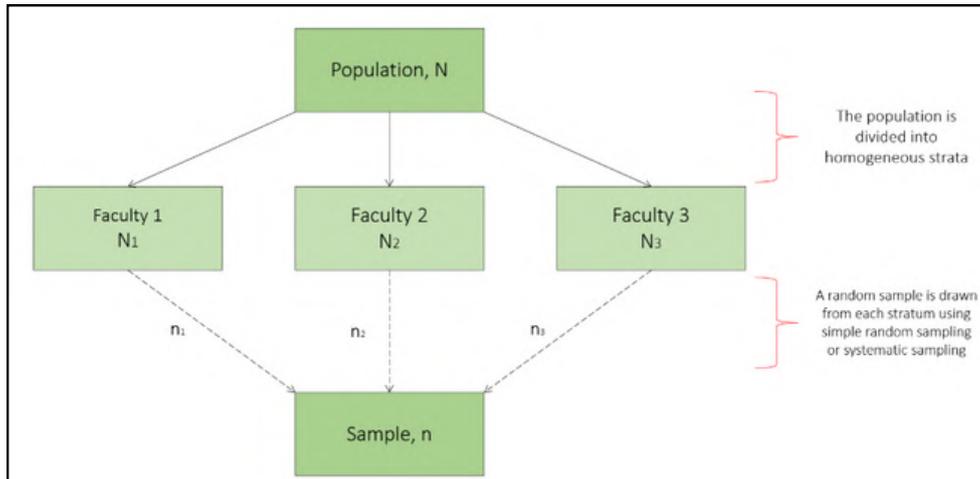


Figure 1: Stratified sampling

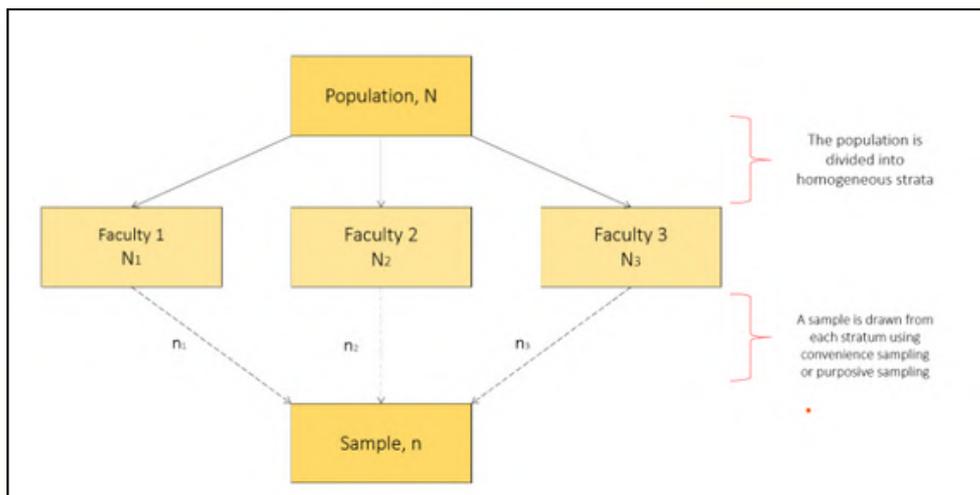


Figure 2: Quota sampling

In summary, both stratified and quota sampling ensure subgroup representation but differ in rigor and applicability. Stratified sampling enables greater accuracy and stronger statistical inference though it requires more planning and detailed population information. Quota sampling offers faster implementation but with higher risk of bias and limited generalizability (Groves et al., 2009). The choice between these methods should be guided by research objectives, resources and the required level of precision.

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# FSKM ACTIVITIES

## FSKM ACTIVITIES



# TALKING CIRCLE FSKM 1/2025: Sharing & Tips for the Student Icon Award

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## EXECUTIVE SUMMARY

The FSKM Colloquium 2025 Series 1/2025 was held on March 19, 2025, as a platform for knowledge sharing and experience exchange among lecturers from the Faculty of Computer and Mathematical Sciences (FSKM). The program attracted 11 lecturers who were interested in enhancing their understanding of student leadership and the impact of co-curricular activities. The sharing session, delivered by Ts. Dr. Tuan Norhafizah Tuan Zakaria, focused on strategies for nomination and participation in the Student Icon Awards, along with the importance of documentation in award evaluation. As a result of this session, participants gained deeper insights into the key elements of organizing high-impact student programs, including sponsorship, collaboration, and documentation to improve the quality of academic and co-curricular programs at the university.

## INTRODUCTION

The Talking Circle FSKM 1/2025 was organized to provide a platform for lecturers to exchange ideas and best practices related to student development, leadership, and impactful co-curricular activities. The session was designed to help educators better understand the criteria and processes involved in the Student Icon Award, emphasizing the significance of structured program planning and execution. By fostering discussions on effective strategies, the program aimed to empower lecturers with the knowledge required to guide students toward achieving national-level recognition in leadership and co-curricular excellence.

## RESULTS /ACHIEVEMENTS:

Feedback from participants indicated a high level of satisfaction with this colloquium session, as shown in Figure 1:

- All participants (100%) rated the speaker's delivery, course content, and topic relevance as excellent.
- No negative feedback was received, indicating that the session successfully met participants' needs and expectations.

Additionally, participants suggested several topics for future sessions, including innovative teaching methods, research techniques, and innovations in teaching and learning. These suggestions reflect a strong interest in further expanding academic and leadership skills among FSKM lecturers.



Figure 1: Participant Satisfaction Levels on Course Organization

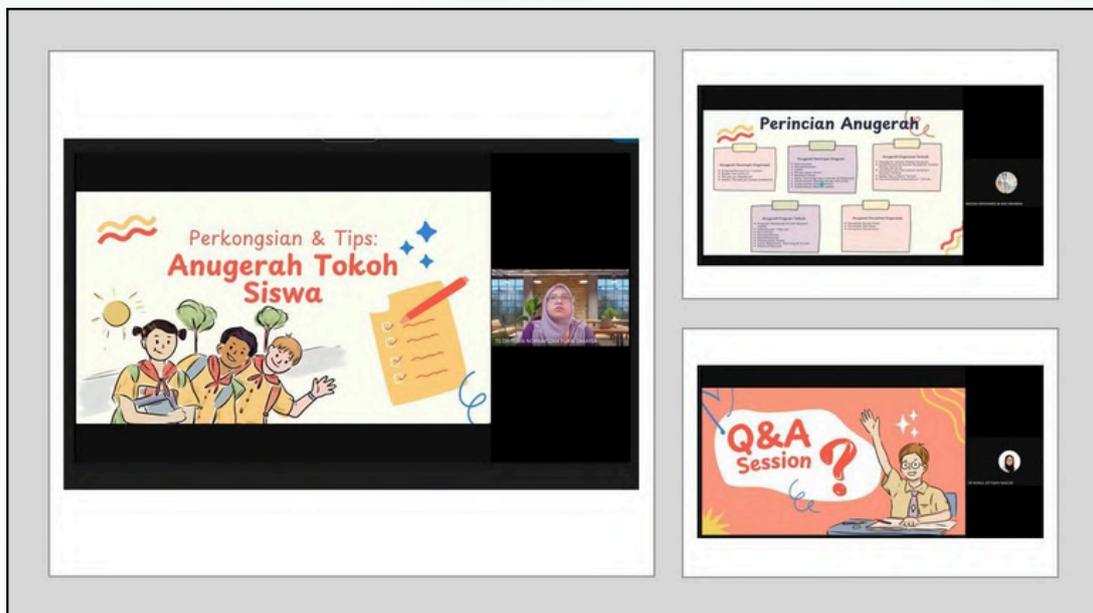


Figure 2: Images from the Program

## CONCLUSION

The Talking Circle FSKM 1/2025 provided an opportunity for lecturers to enhance their skills in organizing academic and co-curricular programs. This program demonstrated that effective knowledge-sharing strategies contribute significantly to excellence in student and institutional development. Moving forward, more colloquium sessions are recommended to ensure the continuity of knowledge sharing and the improvement of academic quality. Successful participation requires careful planning, solid documentation, and strategic value generation. Programs that create a significant impact involve knowledge sharing, collaboration, and broad recognition.

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# SMART CALCULATOR 6.0

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## EXECUTIVE SUMMARY

**Smart Calculator 6.0** was successfully conducted on 19 April 2025 at UiTM Cawangan Negeri Sembilan, Kampus Kuala Pilah. This initiative aimed to strengthen students' knowledge of scientific calculators through independent learning. Students from various programs, including Pre-Diploma, Diploma in Applied Sciences, and Diploma in Halal Management (IC120), participated by engaging with the learning module and submitting video demonstrations of practical applications. The workshop outcomes indicate a positive impact, with participants reporting significant improvements in confidence, knowledge, and efficiency in solving mathematical problems using the scientific calculator.

## INTRODUCTION

The scientific calculator is an essential tool for students in higher education, particularly in mathematics-related courses, yet many students tend to underutilize its full range of functions. Recognizing this gap, **Smart Calculator 6.0** was developed to support students who struggle with the correct use of calculators, while also introducing them to advanced features that are rarely covered in secondary school mathematics (Ahmad et al. 2025). Beyond improving technical proficiency, the workshop served as a preparatory platform for students to practice efficient calculator usage ahead of quizzes, tests, and final examinations. Through this approach, the programme not only provided additional guidance for weaker students but also promoted broader awareness of calculator functions and encouraged strategic, accurate, and time-efficient problem-solving. Participants from MAT083, MAT013, MAT112, and MAT133 courses were invited, with the workshop designed around an independent-learning model where students engaged with learning modules and demonstrated their understanding through recorded video submissions.

## RESULTS /ACHIEVEMENTS:

Smart Calculator 6.0 received 52 student responses. The majority of participants (57.7%) were from the IC120 programme, while 34.6% were Pre-Diploma students. This diverse representation illustrates the programme's relevance across multiple academic pathways, from management-related courses to applied sciences. The analysis of the post-workshop questionnaire revealed encouraging results. A large proportion of students (63.5% strongly agree, 28.8% agree) indicated that their knowledge of scientific calculators increased after studying the provided notes. Similarly, when attempting the practical exercises, students reported significant gains in confidence, with 63.5% strongly agreeing and 30.8% agreeing that they felt more assured in using the calculator to obtain correct answers. These findings align with recent studies in mathematics education, which emphasize the importance of integrating digital tools to boost students' confidence and competence (Andu et al., 2025).

Efficiency in mathematical problem-solving also emerged as a key achievement of the programme. A substantial 67.3% strongly agreed and 32.7% agreed that the correct use of the scientific calculator enabled them to solve mathematical problems more quickly and effectively. This suggests that the workshop not only improved conceptual understanding but also contributed to enhancing problem-solving speed, consistent with evidence that calculator training reduces cognitive load and supports strategic thinking.

Another significant outcome of the workshop was its role in promoting independent learning. With 65.4% strongly agreeing and 34.6% agreeing, students affirmed that the programme allowed them to learn at their own pace. This independent-learning framework is consistent with recent findings highlighting the importance of self-regulated learning in developing higher-order mathematical reasoning and adaptability in academic contexts.

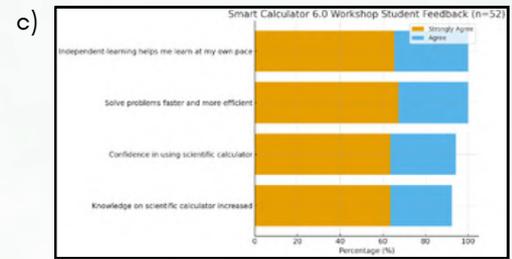
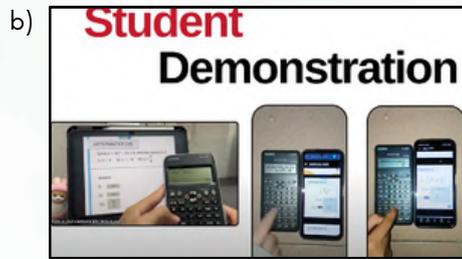
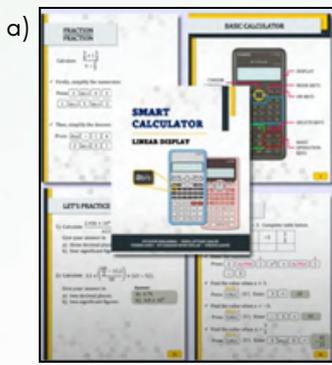


Figure 1: a) Smart Calculator module b) student video submissions and c) percentage of positive student feedback

Overall, the results demonstrate that **Smart Calculator 6.0** successfully achieved its intended objectives, equipping students with the necessary skills and confidence to use the scientific calculator effectively in their academic studies, which is consistent with the findings from Andu et al. (2025).

## CONCLUSION

Smart Calculator 6.0 has proven to be a valuable initiative in supporting UiTM Negeri Sembilan students' academic journey. By empowering students with enhanced calculator skills, the program not only strengthens mathematical proficiency but also builds confidence for future assessments. Looking ahead, such workshops can be expanded across more faculties and programmes, ensuring that all students benefit from the efficient and effective use of scientific calculators in their academic pursuits.

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# LIGHT OFF! MOVIE ONZ! 2025 A NIGHT OF ENTERTAINMENT AND TOGETHERNESS

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## EXECUTIVE SUMMARY

Cybermath Club successfully organized Light Off! Movie Onz! on 11 May 2025 at Dewan Anjung Sri Perpatih, UiTM Cawangan Negeri Sembilan, Kampus Kuala Pilah. The program gathered 107 participants and 18 committee members, offering students a chance to relax, socialize, and gain meaningful insights from the movie screening. With the theme "Art Class Vibe", the program delivered entertainment with meaning, while also instilling values of empathy, responsibility, and creativity.

## INTRODUCTION

University life can sometimes feel overwhelming with assignments, exams, and the constant pace of academic life. That's why moments of relaxation and connection are so important for students. Light Off! Movie Onz! 2025 was more than just a movie night, it was an opportunity to unwind, laugh, and bond as a campus community.

With the creative touch of the "Art Class Vibe" theme, the hall came alive with colors, outfits, and artistic energy. Students not only enjoyed a film together but also expressed themselves through the theme, making the night uniquely theirs. Beyond entertainment, the program created a space where friendships were strengthened, creativity was celebrated, and positive values were shared in a fun and meaningful way.

## PROGRAM HIGHLIGHTS

The night began with registration and a warm welcome, followed by the much-awaited screening of Drawing Closer. The film offered more than just a story, it carried lessons of resilience, empathy, and human connection that vibrated with the audience. To make the night even more exciting, participants joined in fun side activities, including the best-dressed contest, where creativity through themed outfits, and the lucky draw session, which brought cheers and laughter as winners celebrated their prizes.

## ABOUT THE MOVIE

Japan: Drawing Closer is a story of connection showing how Japan reaches out to the world through culture, innovation, and diplomacy. Blending tradition with modern ideas, the narrative highlights Japan's journey to build stronger bonds of friendship and cooperation with its neighbors and beyond. It's a story of unity, progress, and shared growth, offering students inspiration that extends beyond the film screen.

## KEY ACHIEVEMENTS

- **Meaningful Entertainment:** Drawing Closer entertained and inspired with its touching story and strong values.
- **Theme Atmosphere:** The Art Class Vibe theme gave students the chance to express creativity and individuality.
- **Social Bonding:** The program provided a platform for students to mingle, connect, and create lasting friendships.
- **Skill Development:** Exposure to foreign-language content with subtitles enriched students' vocabulary and language skills.
- **Student Well-being:** The program offered a refreshing break from studies, promoting balance between academics and leisure.

## FEEDBACK

Overall, feedback from participants was highly positive. They enjoyed the unique blend of film, creativity, and community interaction. Some suggestions for future improvement included:

- Ensuring better punctuality among committee members.
- Using a larger screen for clearer subtitle visibility.
- Providing additional snacks and beverages to enhance the movie experience.

## VISUAL MOMENTS

The night was filled with color, creativity, and excitement, all beautifully captured in a few memorable highlights. The official poster that built the buzz and set the tone for the program is shown in Figure 1.



Figure 1: Poster Promotion of Light Off! Movie Onz! 2025

Smiles, laughter, and togetherness filled the hall, with cherished memories from the movie night captured in Figure 2.



Figure 2: Cherished Memories from the Night

To top it all off, the crowd cheered with joy during the lucky draw, as enthusiastic participants celebrated their wins as shown in Figure 3.

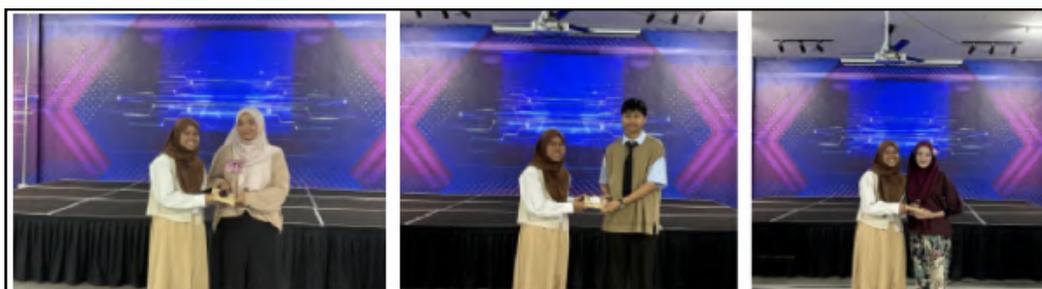


Figure 3: Exciting Lucky Draw session with enthusiastic participants

## CONCLUSION

Light Off! Movie Onz! 2025 proved to be more than just an ordinary movie night, it was an experience that brought students together, sparked creativity, and shared meaningful values in a fun and relaxed setting. With such positive feedback and enthusiastic participation, the organizing team is excited to continue this program in the years to come, making it an even bigger and brighter tradition for the UiTM student community.

# MATHMARVEL 4.0

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## EXECUTIVE SUMMARY

The *MathMarvel* 4.0 program was successfully conducted on May 23rd, 2025, at UiTM Negeri Sembilan, Kuala Pilah Campus. This initiative brought together 161 students and 9 facilitators from diverse academic backgrounds with the shared goal of enhancing students' mathematical understanding and academic performance. The primary objective of this program was to strengthen peer tutoring practices and improve exam preparedness through a variety of question-solving techniques, particularly in response to the high failure rates in mathematics-related subjects. Throughout the event, participants demonstrated noticeable improvements in both learning engagement and facilitation skills, alongside increased confidence and enthusiasm in tackling mathematical challenges. Despite the program's success, several challenges were identified, notably the difficulty in assigning subject-specific facilitators and monitoring student attendance. These issues highlighted the need for more structured coordination and follow-up mechanisms in future implementations. To sustain the positive impact and continue addressing the root causes of underperformance in mathematics, it is recommended that *MathMarvel* be institutionalized as a semesterly initiative. Regular execution of this program will support the Department of Mathematical Sciences Studies in elevating student outcomes and progressively reducing failure rates in critical mathematics courses.

## INTRODUCTION

The *MathMarvel* 4.0 program is an academic enhancement initiative organized by the Faculty of Computer and Mathematical Sciences, UiTM Negeri Sembilan, Kuala Pilah Campus. Building on the success of previous editions, this semester's program focused on fostering mathematical thinking, collaborative learning, and peer tutoring among students from various science-based diploma programs.

Specifically, the program targeted participation from students enrolled in Diploma in Halal Management, Diploma in Food Technology, Diploma in Microbiology, Diploma in Textile Technology, Pre Diploma Science, and Pre Diploma in Science (STEM C and Arts Streams). These groups were selected due to their consistent engagement with mathematics-intensive subjects and the need to strengthen foundational skills in preparation for final examinations. The initiative is part of a broader effort to address the high failure rate in mathematics-related courses by offering students a supportive and dynamic learning environment. By combining collaborative problem-solving sessions with facilitator-guided activities, *MathMarvel* 4.0 aimed to create a more engaging and impactful academic support system.

## RESULTS /ACHIEVEMENTS

The *MathMarvel* 4.0 program recorded positive outcomes based on student feedback and facilitator observations. Participants reported improved understanding of mathematical concepts, increased confidence in problem-solving, and better preparedness for examinations. Facilitators also noted enhanced peer engagement, effective collaboration, and active participation throughout the session. The structured guidance provided during the program enabled students to grasp alternative solution techniques and apply them independently. Additionally, the program successfully fostered a sense of academic motivation and peer support, particularly among students from mathematics-heavy diploma programs such as Diploma in Halal Management, Diploma in Food Technology, Diploma in Microbiology, Diploma in Textile Technology, Pre Diploma Science, and Pre Diploma in Science (STEM C and Arts Streams). These achievements indicate the program's strong potential to contribute to long-term academic performance improvements and a reduction in failure rates within the department. Figure 1 illustrates the activities throughout the program.



Figure 1: Students engaged in group discussions and problem-solving activities.

## CONCLUSION

The implementation of *MathMarvel* 4.0 has proven to be a meaningful and impactful initiative in addressing the challenges faced by students in mathematics-related courses. Through structured peer tutoring, interactive problem-solving sessions, and the commitment of dedicated facilitators, the program successfully enhanced students' confidence, engagement, and academic preparedness. Despite minor logistical challenges, the positive outcomes underscore the program's relevance and effectiveness in supporting student success. It is therefore recommended that *MathMarvel* be continued and further refined in future semesters as a sustainable academic support mechanism within the Faculty of Computer and Mathematical Sciences.

# CREATIVE POSTER CONTEST: WARNA-WARNI MALAYSIA

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## EXECUTIVE SUMMARY

The Creative Poster Contest: Warna-Warni Malaysia, organized by the Cybermath Club, UiTM Negeri Sembilan Kampus Kuala Pilah, was successfully held online from 12 May to 5 June 2025. More than just a competition, it was a colorful celebration of creativity, culture, and unity. Students were given the chance to unleash their artistic talents through digital poster design while proudly showcasing the cultural heritage of their home states. The contest not only strengthened cultural awareness but also provided participants with an enjoyable way to sharpen their digital design skills and express their pride as Malaysians.

## INTRODUCTION

The program aimed to provide students with the opportunity to present the unique cultural identity of their home states, while also raising awareness of the importance of preserving Malaysian arts and culture. At the same time, it encouraged creativity and innovation through digital poster design, utilizing tools such as Canva and Adobe Photoshop, and provided participants with valuable experience in combining culture with modern technology. The contest was conducted fully online, allowing students to submit their posters virtually while gaining experience in creative digital design. The official promotion materials, which helped attract participants to the contest, are shown in Figure 1.



Figure 1: Poster for the Creative Poster Contest: Warna-Warni Malaysia

## HIGHLIGHTS, ACHIEVEMENTS, AND OUTCOMES



Figure 2: Example of Student Poster Submission

An example of a student's poster submission is displayed in Figure 2. In addition, the top three winners were celebrated for their outstanding creativity and originality, with their winning posters highlighted in Figure 3.



Figure 3: Winning Posters from the Top 3 Participants

## STUDENT FEEDBACK

Students shared that the contest was not only enjoyable but also a valuable opportunity to unleash their creativity while celebrating Malaysia's cultural diversity. They appreciated being able to earn e-merit points and, at the same time, sharpen their digital design skills. Many described the program as inspiring and exciting, as it brought together art, culture, and technology in a meaningful and creative way.

## CONCLUSION

The Creative Poster Contest: Warna-Warni Malaysia became a vibrant showcase of student creativity and cultural pride. More than just a competition, it was a celebration of art, unity, and education that left participants inspired and motivated. By blending culture with creativity, the program supports UiTM's mission to develop graduates who are talented, innovative, and proud to carry Malaysia's cultural identity into the future.

# WRITING WORKSHOP: FROM IDEA TO ARTICLE – A WRITING GUIDE FOR BEGINNERS

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## EXECUTIVE SUMMARY

**Writing Workshop: From Idea to Article – A Writing Guide for Beginners** was held on 13 June 2025 via Google Meet. The session was attended by 26 lecturers and students and facilitated by Dr Nur Izzah Binti Jamil, senior lecturer from FSKM UiTM Cawangan Negeri Sembilan, Kampus Rembau. The program was designed to raise awareness about academic writing standards, strengthen effective writing skills, and encourage collaboration among participants. The workshop was highly successful, as reflected in participant feedback, with more than 92% reported improved knowledge, increased confidence, and stronger motivation to engage in writing and publishing activities.

## INTRODUCTION

Academic writing is an essential skill that underpins career progression and scholarly contribution within higher education. In recognition of this importance, this program was organised to guide lecturers in transforming their ideas into publishable academic work. The workshop was designed to meet three core objectives. Firstly, it sought to raise awareness and deepen understanding of the criteria and requirements necessary to meet key performance indicators in academic writing, while emphasising their role in professional development. Secondly, it aimed to build participants' practical skills in writing by offering guidance on effective techniques, research structuring, and strategies for securing high-quality publication outlets. Finally, the workshop encouraged the cultivation of collaborative networks, particularly international partnerships, which play a crucial role in co-authorship opportunities and in extending the global reach and impact of research.

## RESULTS / ACHIEVEMENTS

The workshop had a significant impact on the participants. Most of them agreed that there has been an increase in their knowledge and understanding of academic writing standards, as well as a clearer awareness of how these standards contribute to long-term career advancement. Through practical guidance and examples, the participants also enhanced their ability to structure research papers, apply effective writing strategies, and navigate the publishing process. Importantly, the session encouraged participants to explore opportunities for international collaboration, providing them with insights into building scholarly networks that could lead to co-authorship and publication in indexed journals. Participation in this program also reinforced a culture of professionalism, as the lecturers demonstrated their commitment to continuous improvement in academic writing and publishing.

The delivery of the speaker was highly rated, with 69.2 % of participants describing it as very good and 30.8% rating it as good. Prior to the workshop, 92.3 % of participants reported that their knowledge and confidence in writing articles were neutral or below average. However, after the program, the same percentage was observed among the participants who strongly agreed or agreed that they felt more confident in their ability to write academic articles (Figure 1b). In addition, the content of the program was considered highly relevant and easy to understand, with 34.6 % rating it as good and 65.4% strongly agreeing that the material provided was clear, useful, and applicable to their work. These findings demonstrate that the workshop effectively addressed knowledge gaps, boosted participants' confidence, and provided practical tools for academic writing and publishing.

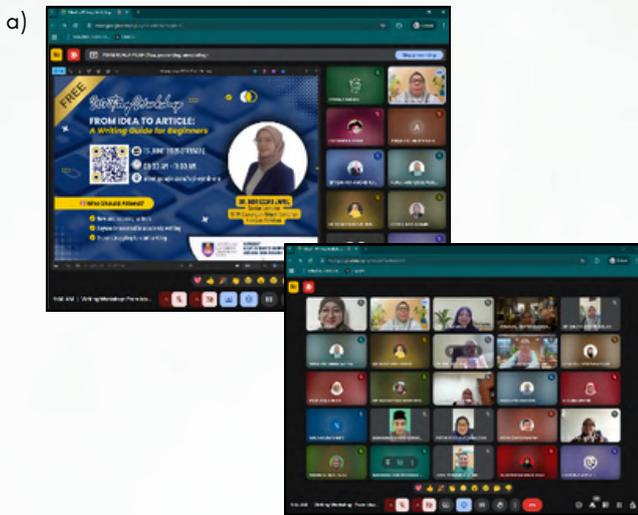
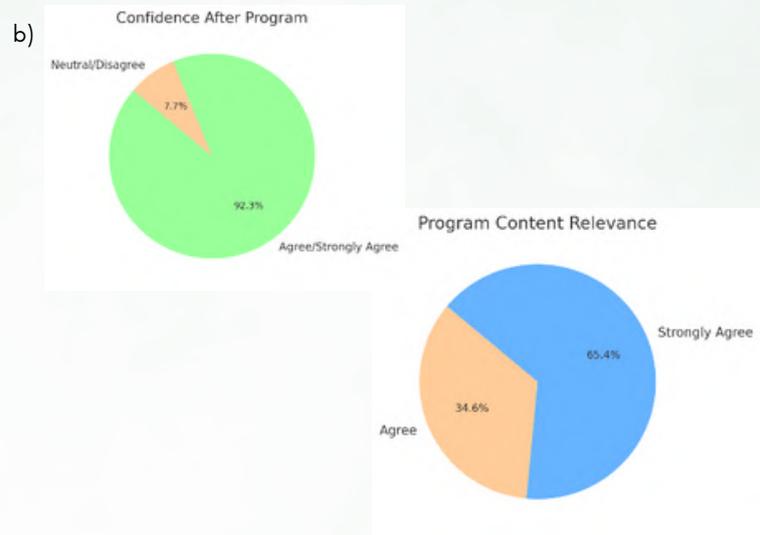


Figure 1: a) Participants and speaker



b) Participants' feedback of the program

## CONCLUSION

The Writing Workshop: From Idea to Article – A Writing Guide for Beginners successfully achieved its objectives of raising awareness, enhancing writing skills, and promoting collaboration among lecturers. Participants completed the program with increased confidence, practical writing strategies, and stronger motivation to publish their work in reputable academic journals. The overwhelmingly positive feedback highlights the importance of such initiatives in building a strong culture of academic writing, particularly in UiTM Cawangan Negeri Sembilan. In the future, similar workshops can be conducted as they play an important role in helping lecturers build the skills and networks they need to start writing and publish successfully.

# CANVA GENIUS WORKSHOP 2025: EMPOWERING STUDENTS WITH CREATIVITY AND DIGITAL SKILLS

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## EXECUTIVE SUMMARY

The Canva Genius Workshop 2025, organized by the Cybermath Club, UiTM Negeri Sembilan Kampus Kuala Pilah, was successfully held on 15 June 2025 from 8:00 a.m. to 1:00 p.m. at Dewan Sri Perpatih. The half-day event brought together 19 student participants and 16 committee members, with guidance from two academic advisors. This program aimed to provide students with hands-on exposure to Canva, a versatile digital design tool widely used in academia and professional careers. The workshop successfully enhanced students' creativity, digital competency, presentation design skills, and confidence in using Canva for academic purposes such as poster creation, infographic design, and professional slide presentations.

## INTRODUCTION

In today's digital era, visual communication skills are increasingly essential for students' success, both academically and professionally. Recognizing this, the Cybermath Club introduced the Canva Genius Workshop as a platform for students to:

- Learn basic and advanced Canva functions through interactive sessions.
- Gain exposure to real-life applications of digital design in research, presentations, and self-marketing.
- Enhance soft skills such as teamwork, problem-solving, and time management through collaborative learning.

The workshop was conducted in a blended format of lectures and practical exercises, where students were encouraged to use their own devices to explore Canva's features in real time.

## UNLOCKING DIGITAL CREATIVITY: WORKSHOP HIGHLIGHTS AND IMPACT

The workshop started at 8:15 a.m. with the registration of participants, followed by welcoming remarks from the Program Director and the Advisor. The highlight of the event was a keynote session delivered by Dr. Ida Aniza Rusli from the Faculty of Computer and Mathematical Sciences (FSKM), UiTM Kuala Pilah, who emphasized the importance of visual communication and introduced advanced design strategies that can be applied in both academic and professional settings. Her session inspired students to see Canva not just as a design tool, but as a medium to communicate ideas more effectively.

Participants were guided step by step in exploring Canva's basic and advanced features, such as using templates, editing graphics, incorporating animations, and customizing designs. Through this approach, students were able to apply their knowledge immediately, ensuring that learning was both interactive and practical. After a short refreshment break, the workshop resumed with the final practice session, where students worked on creating their own presentation slides and posters. The various interactive sessions and activities conducted throughout the program are illustrated in Figure 1.



Figure 1: Highlights of the Workshop Activities

The workshop officially concluded with the presentation of souvenirs to the speaker, followed by a group photo and the completion of e-merit feedback forms. The event ended on a positive note, leaving students motivated and equipped with valuable new skills.

## ACHIEVEMENTS AND OUTCOMES

The workshop achieved its intended objectives by equipping students with practical skills and boosting their confidence in digital design. The following table 1 summarizes the main goals of the program and the outcomes successfully achieved by participants:

Table 1: Workshop Goals and Achievements

Goals	Outcomes
Create engaging slides	Participants produced structured, professional, and visually appealing presentations
Practice Canva tools	Participants confidently used templates, animations, and graphics
Build confidence in Canva	Students independently designed posters and slides
Improve presentation skills	Participants delivered clear, creative, and professional content

## PARTICIPANT FEEDBACK

From the feedback collected, students highlighted several key benefits of the workshop. They gained new skills in digital design that can be applied to both assignments and research projects. The sessions were described as interactive and enjoyable, making the learning process more engaging. Participants also appreciated the practical approach, which enabled them to directly apply Canva features during the training. Many expressed that the workshop boosted their confidence in creating academic posters and slides. An example of student work produced during the training is shown in Figure 2.



Figure 2: Examples of Student Designs Created with Canva

## CHALLENGES AND FUTURE IMPROVEMENTS

While the event was largely a success, some minor challenges were identified, particularly in terms of miscommunication among committee members. To address this, the organizing team recommended conducting regular discussions both before and during the event, as well as establishing clearer communication channels to ensure smoother task execution in future programs.

## CONCLUSION

The Canva Genius Workshop 2025 was not only a platform to learn Canva, but also an avenue for students to explore creativity, strengthen teamwork, and develop digital competencies crucial for their future careers. Participants left with enhanced design knowledge, greater confidence in academic presentations, and stronger professional communication skills.

By empowering students with both technical and soft skills, this program aligns with UiTM's mission of producing holistic, digitally competent, and competitive graduates ready to meet the demands of the modern workforce.

# ENHANCING STUDENT COMPETENCIES THROUGH DATACAMP: PYTHON PROGRAMMING WORKSHOP AT FSKM

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## EXECUTIVE SUMMARY

In line with the rapid growth of information technology and the era of big data, mastering programming languages is no longer considered an added advantage but has become a fundamental necessity in education and careers. Recognising this need, the Faculty of Computer and Mathematical Sciences (FSKM), Universiti Teknologi MARA (UiTM), Negeri Sembilan Branch, took a meaningful initiative by organising the DataCamp: Python Programming Workshop. This program was successfully held on 13 and 20 June 2025 at Labs 1 and 2, FSKM. Figure 1 below shows the official poster for the workshop.

The main objective of this workshop was to introduce students to the basics of Python programming through an interactive, enjoyable, and practical approach. Python was chosen due to its strong standing as one of the most popular programming languages today, with wide applications in data analytics, machine learning, artificial intelligence, and modern system development. The faculty viewed this effort not only as an opportunity to enhance students' skills but also as a platform to open their minds to career pathways increasingly driven by data and technology.



Figure 1: Official poster of the DataCamp: Python Programming Workshop

## LEARNING WITH DATACAMP

The workshop was conducted over two days of intensive learning, carefully structured to maximise student benefits. Throughout the program, six main sessions were conducted, covering essential topics such as an introduction to Python basics, data structures, file handling, basic data visualisation with Pandas and Matplotlib, an introduction to data science with Pandas and Numpy, and the increasingly relevant concept of Big Data across industries. Interestingly, the workshop concluded with a mini-project session, allowing students to apply the knowledge they had gained by analysing a real dataset and presenting their findings to peers and facilitators.

The workshop approach combined interactive lectures, live demonstrations using the DataCamp platform, and hands-on practice by participants. Each student was provided with individual access to DataCamp, an industry-based online learning platform offering up-to-date programming modules. This method made learning more flexible and allowed students to acquire skills at their own pace. Through this approach, they did not merely memorise syntax but also learned to understand the real-world applications of Python in data analysis.

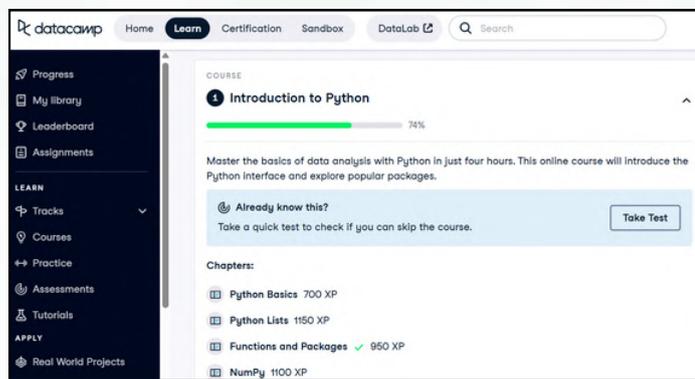


Figure 2: The online learning platform DataCamp provides structured Python lessons for the workshop.

To ensure effective delivery, two senior lecturers, Mr Mohd Azdi Maasar and Ms Zaitul Anna Melisa Md Yasin, were invited to lead the sessions. With their expertise and approachable teaching style, both facilitators successfully created an engaging and interactive learning environment, making complex technical topics easier to understand. Their presence not only provided academic value but also inspired students to further explore the world of programming.

### MAKING AN IMPACT

The participation of 50 final-year students from the DSC551 course clearly reflected the positive engagement toward this program. Students attended with great enthusiasm and demonstrated active involvement throughout the workshop. Among the most significant achievements was the noticeable improvement in students' technical skills in Python, particularly in basic data analysis. Many students admitted that they now felt more confident in using Python as a problem-solving tool, both for academic assignments and as preparation for their future careers.



Figure 3: Participants actively engaged in hands-on Python programming exercises during the DataCamp workshop.

In addition to technical skill development, the workshop had a major impact on students' personal growth. The mini-project activity trained them to think analytically, work in groups, and present their results with confidence. These elements are vital in equipping students with the communication and technical skills demanded by industries. One participant even remarked, 'This workshop really opened my eyes to the fact that Python is not just for professional programmers, but also for anyone who wants to understand data and make better decisions.'

From the faculty's perspective, the program brought added value by generating income through participation fees and the issuance of certificates. More importantly, the successful organisation of this workshop opened doors for the faculty to build strategic collaborations with industry, particularly in terms of licensing, sponsorships and support for technology and data science-related programs. This achievement further strengthened the faculty's reputation as a proactive academic centre producing high-quality graduates.

### NEXT STEPS AHEAD

To ensure the sustainability and effectiveness of future programs, several recommendations were proposed. These included providing printed modules to assist students with quick reference during sessions, increasing participation quotas to accommodate high demand, and involving more industry speakers to provide broader real-world perspectives. These suggestions reflect the aspiration to make future programs more comprehensive, inclusive, and impactful.



Figure 4: Participants receiving recognition for outstanding performance symbolise the spirit of encouragement and achievement fostered in the workshop.

Overall, the DataCamp: Python Programming Workshop successfully achieved its objectives. It not only strengthened students' foundations in Python programming but also boosted their self-confidence, sharpened their analytical thinking, and enhanced their digital literacy, which is highly essential in today's modern era. This program stands as clear proof that when academia merges with cutting-edge technology, the result is a meaningful, enjoyable, and industry-relevant learning experience.

It is hoped that similar workshops will continue and expand so that more students can benefit from them. With the faculty's ongoing commitment, the support of dedicated lecturers, and the unwavering enthusiasm of students, there is no doubt that UiTM will continue to produce graduates who are competitive, innovative, and well-prepared to face the challenges of an ever-changing workforce.

**"The knowledge we master today is the bridge to success in the future."**

# MATH IS EASY 5.0

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## EXECUTIVE SUMMARY

The Math is Easy 5.0, held on 27 June 2025, involved Pre-Diploma and Diploma students enrolled in mathematics courses at UiTM Cawangan Negeri Sembilan, Kampus Kuala Pilah. This initiative aimed to strengthen students' readiness for their final examinations by engaging them in guided practice sessions using past year examination papers relevant to their respective course codes. This initiative not only aims to strengthen students' understanding of essential mathematical principles but also equips them with practical strategies to maximize their marks during final assessments. By engaging in targeted problem-solving exercises and receiving tips on efficient exam answering techniques, students are better prepared to achieve improved academic performance.

## INTRODUCTION

The Math is Easy 5.0 was designed to support students in strengthening their mathematical understanding and preparing for their final exams. Many students often face challenges in recalling early-semester topics and applying effective strategies during examinations. This initiative provided a structured platform for revision and practice through the use of past year examination papers, enabling students to build confidence and improve their problem-solving skills.

## RESULTS /ACHIEVEMENTS:

The program provided significant benefits to participating Pre-Diploma and Diploma students by enhancing their mathematical skills and exam preparedness. The following key achievements were observed as outcomes of the program:

- **Improved Understanding**

Students successfully revisited and reinforced their understanding of early-semester mathematical concepts, ensuring a stronger foundation for final exam preparation.

- **Enhanced Problem-Solving Skills**

Through intensive practice with past year examination papers, students improved their analytical and critical thinking skills in solving mathematical problems.

- **Better Exam Answering Strategies**

Participants learned effective techniques to approach different types of questions, helping them maximize marks and manage time efficiently during examinations.

- **Increased Confidence Level**

Regular practice and guided revision boosted students' confidence in handling challenging questions and reduced exam-related anxiety.

By applying the strategies learned and reinforcing essential knowledge, students are expected to achieve better performance in their final examinations.

Overall, the program successfully served as a focused revision platform, bridging gaps in understanding and empowering students with the right techniques to excel in their final examinations.

## CONCLUSION

The Math is Easy 5.0 successfully fulfilled its objective of preparing Pre-Diploma and Diploma students for their final exams. By revisiting key topics, practicing with past year papers, and learning effective exam strategies, students demonstrated greater readiness and confidence to face their final exams. This initiative not only strengthened their foundational knowledge but also equipped them with practical skills to improve their problem-solving approach and time management during exams. Moving forward, the program is expected to contribute to improved academic performance and encourage students to adopt more strategic study methods in future semesters.

Figures 1-5 illustrate the student's attendance in the workshop, categorized according to their subject codes.



Figure 1: Students that participated in the workshop for the course MAT013



Figure 2: Students that participated in the workshop for the course MAT083

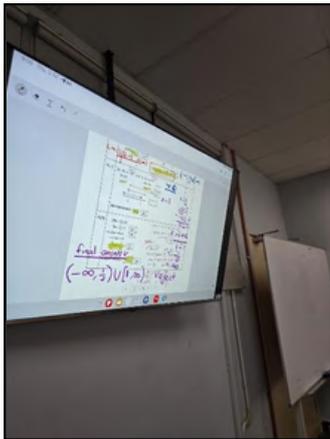


Figure 3: Students that participated in the workshop for the course MAT133



Figure 4: Students that participated in the workshop for the course MAT112



Figure 5: Students that participated in the workshop for the course MAT014

# MISI MICRO:BIT CILIK AT SK MAMBAU: UiTM'S COMMITMENT TO STEM EDUCATION

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Following the success of the Micro:bit Kick-Offs and community engagement initiatives featured in Vol. 1/2025, UiTM Negeri Sembilan continued its mission of empowering young learners through the *Misi Micro:bit Cilik* program. Organized by the Faculty of Computer and Mathematical Sciences (FSKM), this initiative was conducted in collaboration with the *Kelab Robotik*, Sekolah Kebangsaan Mambau and held across four series of workshops between May and July 2025.

The program was specially designed for a group of 35 enthusiastic robotics club members aged 10 to 12, providing them with continuous exposure to Science, Technology, Engineering, and Mathematics (STEM) through coding and robotics activities. With UiTM lecturers serving as facilitators and mentors, the program aimed not only to teach technical skills but also to inspire creativity, teamwork, and problem-solving.

## PROGRAM TIMELINE - FOUR SERIES OF LEARNING

The *Misi Microbot Cilik* program was built on a strong foundation of clear objectives. It aimed to improve students' understanding of Micro:bit applications in daily life, while at the same time building their confidence to create innovative projects. Beyond technical skills, the program promoted a culture of fun, collaboration, and creativity in learning. It also opened opportunities for students to work on projects with the potential for real-world application.

- **Series 1 - 28 May 2025:** Introduction to micro:bit, exploring inputs and outputs such as LED displays and button controls.
- **Series 2 - 2 July 2025:** Hands-on exploration of sensors and conditions, applying coding to real-world problem-solving tasks.
- **Series 3 - 16 July 2025:** Creative project development, where students combined coding blocks to design mini STEM-based solutions.
- **Series 4 - 30 July 2025 (Closing Ceremony):** Final project presentations, reflection, and a symbolic closing ceremony celebrating the students' achievements.

This step-by-step approach allowed students to gradually build confidence and mastery, while keeping the sessions engaging and fun. Each series was carefully crafted to blend theory, practice, and creativity.



Figure 1: Group photo of participants, facilitators, and teachers during the *Misi Micro:bit Cilik* program at SK Mambau, symbolizing UiTM's commitment to fostering STEM education through collaboration and innovation.

## POSITIVE OUTCOMES - BUILDING CONFIDENCE AND SKILLS

Evaluation results revealed strong evidence of the program's impact. Students showed a remarkable increase in enthusiasm to explore new knowledge, with interest scores rising from 2.0 (fair) before the program to 4.7 (good) after it concluded. Their confidence in learning with the support of teachers and friends also improved significantly. The role of facilitators proved essential in creating a supportive learning environment. Students agreed that the UiTM facilitators

were approachable and patient, which encouraged them to ask questions and engage more actively in the sessions. Confidence in approaching facilitators increased from 2.0 (fair) to 4.5 (good), reflecting how the human connection enriched the overall learning experience.



Figure 2: Workshops were delivered in a highly interactive format that combined hands-on coding activities, group projects, and continuous guidance from facilitators.

Technical skills and knowledge also advanced considerably. Many students became proficient in connecting Micro:bit devices, understanding basic coding structures, and applying these skills in STEM-related contexts such as Mathematics and Science. Importantly, the program nurtured the belief among students that they could produce meaningful projects. They expressed confidence in developing school-based projects (mean score 4.2) and even believed their work had the potential for commercialization (mean score 4.3)

### EVIDENCE OF IMPACT

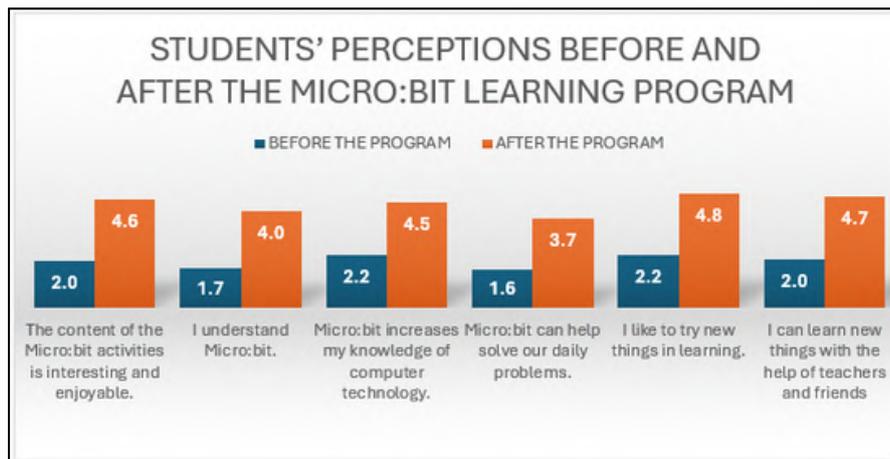


Figure 3: Student interest, confidence, and readiness to learn before and after the program, showing significant improvement across all indicators.

The figure above illustrates how the program boosted students' readiness, interest, and confidence in using Micro:bit. The sharp rise in scores highlights the effectiveness of UiTM's mentorship model in fostering both technical and soft skills among young learners.

### MOVING FORWARD - SUSTAINABILITY AND EXPANSION

The success of Misi Microbot Cilik underscores the importance of continuous engagement rather than one-off events. Recommendations drawn from the program suggest expanding the initiative to include all Level 2 (Upper Primary) students at SK Mambau, and potentially replicating it in other schools across the district. To sustain the momentum, innovation competitions or project showcases could be organized at the school and district levels, giving students a platform to demonstrate their creativity to the wider community.

Another key recommendation is the need for continuous teacher training, ensuring educators are equipped with additional modules to guide students beyond the workshops. There is also strong potential to integrate Micro:bit activities into core subjects such as Science, Mathematics, and Design & Technology (RBT), making STEM learning a natural part of the school curriculum.

### CONCLUSION

The *Misi Micro:bit Cilik* program at *Kelab Robotik, Sekolah Kebangsaan Mambau* enhanced students' creativity, confidence, and problem-solving skills, while also strengthening friendship and teamwork. UiTM Negeri Sembilan remains committed to guiding young learners towards becoming future-ready innovators.

# SMART MOSQUE INNOVATION COMPETITION: MASJID SHEIKH HJ AHMAD AND UiTMCNS - FOSTERING INNOVATION, EMPOWERING THE COMMUNITY

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## EXECUTIVE SUMMARY

In the current educational landscape, technological advancements have significantly redefined the approaches to teaching and learning. One such innovation, the micro:bit, plays a crucial role in preparing school children to navigate and contribute to an increasingly digital society. By introducing young learners to coding, problem-solving, and creative thinking, the micro:bit helps develop essential digital competencies from an early age. UiTM Cawangan Negeri Sembilan (UiTMCNS), Masjid Sheikh Hj Ahmad and Pejabat Pendidikan Daerah Seremban was jointly organised the Smart Mosque Innovation Competition, which aims to develop smart solutions for the mosque by using micro:bit tools. The competition emphasised human governance values, shaping not just knowledge and skills but also ethics and integrity.

## INTRODUCTION

On 16 August 2025, Masjid Sheikh Hj Ahmad in Bandar Sri Sendayan was transformed into a hub of creativity and innovation during the Smart Mosque Innovation Competition. This program brought together primary, secondary, and special education students to showcase their innovative projects that combined technology, creativity, and community values.

The innovations presented during the competition were driven by the creativity of students, who utilised micro:bit tools to develop smart solutions for the mosque. Micro:bit, a versatile microcontroller designed for educational purposes, enabled students to explore technologies such as sensors, automation, and connectivity. By integrating these tools with their creative ideas, students developed projects that enhanced the mosque's functionality and efficiency. Each design showcased a thoughtful combination of technology, innovation, creativity, and the core values of the mosque community. The event officially commenced at 8:00 a.m., with the mosque becoming a vibrant hub of activity. The space was filled with enthusiastic participants, dedicated educators, supportive parents, and engaged members of the local community, all contributing to the lively and inclusive atmosphere. The day began with participant registration and booth preparation, followed by vibrant project exhibitions. The students demonstrated remarkable determination and enthusiasm, which were clearly reflected in the creative solutions they presented. Their contributions showcased a strong passion for innovation and a keen interest in problem-solving, highlighting the effectiveness of the program in nurturing critical thinking and inventive approaches.

The competition recorded an impressive total of 72 students forming into 24 groups, comprising 17 groups from primary school, 6 groups from secondary school and 1 group from the Special Education Integration Programme. These participants represented from various schools across Seremban and nearby districts. Throughout the event teachers, parents, and guardians played a crucial role, providing strong encouragement and moral support throughout the event. A panel of 24 professional jurors from UiTMCNS was responsible for evaluating the student projects. Their efforts were effectively supported by both the mosque and UiTMCNS committees, who played an important role of the program in ensuring the smooth and efficient execution of the program. Masjid Sheikh Hj Ahmad made generous contribution by sponsoring meals worth more than RM2,400, reflecting a strong spirit of collaboration and unity between the mosque and the academic community.

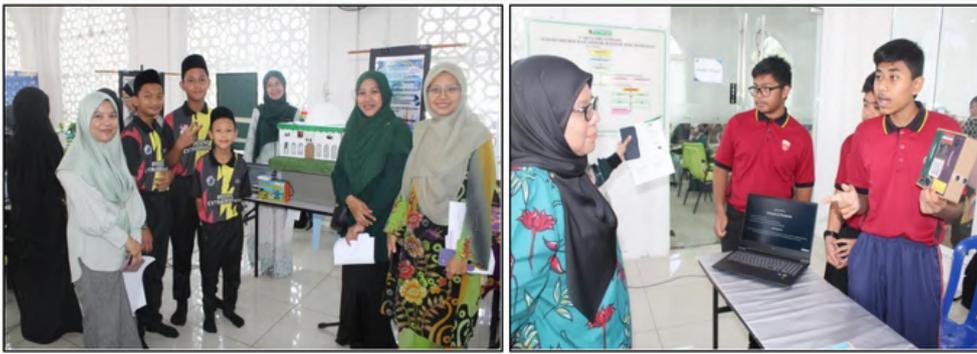


Figure 1: Presentation of participants with the Jury

As shown in Figure 1, the jury session was a pivotal part of the competition, where the students' hard work and creativity were put to the test. As the jurors moved from one project booth to another, the air was filled with anticipation and excitement. Each group had the opportunity to present their innovative solutions, explaining how they had utilised micro:bit tools and integrated technology into their designs. The jury attentively evaluated each project based on criteria such as creativity, practicality, and relevance to the theme of smart mosques. Throughout the session, students passionately discussed their ideas, while the jurors asked insightful questions, offering constructive feedback. The atmosphere was both encouraging and educational, as the jurors worked diligently to assess the students' efforts and contributions to the development of a smarter, more connected place of worship.

## RESULTS AND ACHIEVEMENTS

Winners were announced in three categories (shown in Figure 2):

- Category A (Primary School) - Championed by students from Sekolah Kebangsaan LB Johnson.
- Category B (Secondary School) - Led by students from Sekolah Menengah Kebangsaan Bandar Baru Sri Sendayan.
- Category C (Special Education) - Special awards were presented to students from Sekolah Menengah Kebangsaan Taman Tuanku Jaafar, Sekolah Menengah Kebangsaan Bukit Kepayang and Sekolah Menengah Kebangsaan Seremban 2.

Beyond the awards, the true victory lay in the participants' creativity, teamwork, and ability to design projects with real value for the community.



Figure 2: Special award category and all participants who joined the competition

## CONCLUSION AND RECOMMENDATION

The Smart Mosque Innovation Competition has created a meaningful impact by enhancing students' knowledge, skills, and attitudes while fostering collaboration among schools, parents, UiTMCNS, and the mosque community. Students not only gained valuable understanding and practical abilities such as communication, teamwork, and problem-solving, but also developed confidence, responsibility, and a positive mindset that prepares them to adapt their skills to future challenges. Despite challenges such as limited preparation time, the event proved that with strong collaboration, meaningful initiatives can be realised.

Looking ahead, it is hoped that this competition will continue as an annual tradition, inspiring more young generations to think critically, act ethically, and innovate for the greater good of the community. By embedding innovation within faith-based community spaces, the program has shown how education, creativity, and social values can converge for lasting impact, not only for participants but also for the wider community.

# MATH-ON-THE-GO

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## EXECUTIVE SUMMARY

Mathematics is a fundamental subject that plays an important role in the intellectual development and logical thinking of students. However, many students continue to face challenges in mastering basic concepts, particularly in algebra and calculations. Therefore, a more interactive, enjoyable, and easy-to-understand teaching approach needs to be applied so that students become more interested and confident in learning this subject. In line with this, the "Math On-The-Go" program was organized as an initiative to help 166 students of SMK Bahau, particularly Form 4 students, to approach Mathematics more easily through practical and interactive activities. This program includes activities such as Interactive Algebra and the use of Scientific Calculator, which was specifically developed to simplify calculations. In addition, the participation of seven experienced facilitators from FSKM Kuala Pilah ensured direct guidance for students throughout the program. Through this program, students will be able to enhance their understanding of mathematical concepts, build self-confidence, and apply the knowledge learned in real-life situations more effectively.

## INTRODUCTION

The Math On-The-Go program was designed to create a more engaging and meaningful learning experience for students. The main objectives are to introduce an interactive and enjoyable approach to Mathematics that sparks student interest in the subject, and to foster a conducive and collaborative learning environment. Through the guidance of experienced facilitators and hands-on activities, this program provides students with opportunities to explore mathematical concepts in a practical way, helping them build confidence, strengthen understanding, and develop a positive attitude towards Mathematics.

## RESULTS/ACHIEVEMENTS

The Math On-The-Go program is a high-impact initiative aimed at enhancing students' understanding and interest in Mathematics through interactive approaches and the use of calculators. It also provides facilitators with opportunities to develop soft skills and gain valuable experience. Figure 1 illustrates the activities carried out during the program including hands-on learning sessions, interactive algebra exercises, and the application of the calculator to support students' learning.



Figure 1: Student and facilitator engagement

Moreover, this summarizes the students' satisfaction level with the workshop, measured using a Likert scale of 1-5 (1 = strongly disagree, 5 = strongly agree). Four dimensions were assessed:

- B1: Clear and easy-to-understand delivery
- B2: Activities help in understanding the topic
- B3: Appropriate time allocation
- B4: Comfortable and sufficient facilities

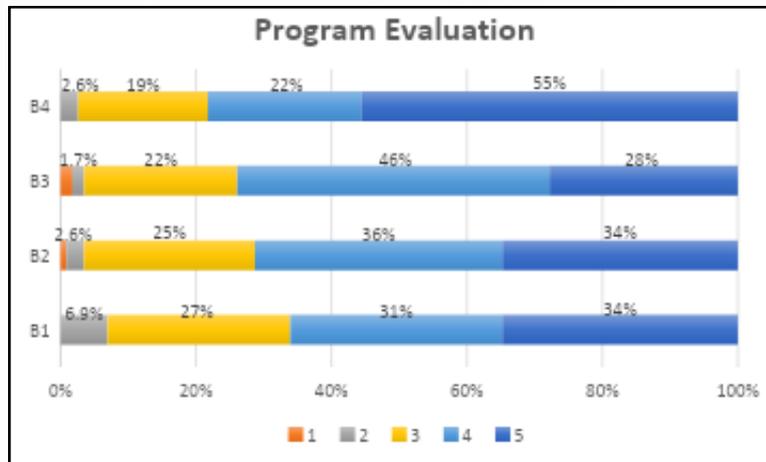


Figure 2: Program evaluation for Math-On-The-Go

As stated in Figure 2, participants' satisfaction was high across all aspects, with around 71-72% agreeing at the 4-5 scale. A total of 77% "strongly agreed" and "agreed" with the program facilities (B4), followed by 74% agreement on the 4-5 scale for time allocation (B3), while B2 showed 70% agreement on the effectiveness of program activities. The delivery of the speaker (B1) was satisfactory (65%) though there was minor room for improvement, as 7% rated it at the 1-2 scale. In conclusion, students agreed that the delivery was clear and easy to understand, the activities helped them grasp the topic, the time allocated was appropriate, and the facilities were comfortable and sufficient.

## CONCLUSION

The evaluation shows that students were highly satisfied with the Math-On-The-Go program. Most participants agreed that the program provided clear delivery, useful activities, appropriate time allocation, and comfortable facilities. Although minor improvements are needed in presentation delivery, the results indicate that the program successfully achieved its objectives in creating an engaging and effective learning experience.

# Fun Meets Learning: Karnival Digital STEMria JJ MADANI Peringkat Negeri Sembilan

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## EXECUTIVE SUMMARY

The Karnival Digital STEMria JJ MADANI Peringkat Negeri Sembilan was held on 20 August 2025 at Kompleks Rakan Muda, Bandar Seri Jempol, organised by the Pejabat Pendidikan Daerah Jempol Jelebu. UiTM Cawangan Negeri Sembilan, Kampus Kuala Pilah, was invited to participate by setting up a booth featuring the Faculty of Computer and Mathematical Sciences (FSKM), the Department of Physics, and the Department of Biology from the Faculty of Applied Sciences. The event successfully engaged primary and secondary school students from the Jempol and Jelebu districts through interactive STEM activities and academic promotions.

## INTRODUCTION

The program was aimed at nurturing students' interest in Science, Technology, Engineering, and Mathematics (STEM) through hands-on activities, engaging exhibitions, and collaborative efforts between educational institutions. UiTM's participation showcased the university's commitment to promoting STEM education and encouraging students to explore their problem-solving and critical-thinking skills.

## INTERACTIVE STEM ACTIVITIES AT THE FSKM BOOTH

The FSKM booth drew significant attention from students of all ages. Participants eagerly joined activities that challenged their logical reasoning, creativity, and spatial awareness (Figure 1). Among the highlights were:

- **Metal Wire Puzzle** - testing patience and strategy.
- **Rubik's Cube Challenge** - fostering problem-solving and perseverance.
- **Tangram** - developing creativity through geometric patterns.
- **IQ Puzzle** - stimulating logical and critical thinking.
- **Exploring Volume and Surface Area of 3D Shapes** - linking fun activities with real mathematical concepts.

Students expressed great excitement in participating and were motivated by the chance to win prizes. These interactive tasks not only entertained but also instilled curiosity in STEM learning.



Figure 1: Students engaging in activities at the FSKM booth during the Karnival Digital STEMria JJ MADANI.

In addition to the STEM activities, the booth also promoted the academic programs offered by the faculty, raising students' awareness of future study opportunities in computer science and mathematics.

The booth also served as a platform to promote the upcoming Kejohanan Catur Minangkabau UiTM Cawangan Negeri Sembilan, scheduled for October 11, 2025. The championship is expected to attract participants aged 7 to 17 years old from various backgrounds, fostering intellectual engagement and promoting strategic thinking through the game of chess.

## **CONCLUSION**

The program proved to be a highly impactful initiative that successfully combined fun, interactive learning, and early academic exploration. It not only created an engaging environment for students to explore the wonders of STEM but also provided valuable exposure to real-world applications of science and mathematics. UiTM's active participation reinforced its role as a catalyst for promoting STEM literacy, nurturing curiosity, and developing critical-thinking skills among the younger generation. Ultimately, UiTM continues to inspire, empower, and guide students towards academic excellence, intellectual growth, and future opportunities in the world of science and technology.

# Canva Magic Workshop for AKRAB FSKM 2025

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## PROGRAMME OVERVIEW

On 27 August 2025, the Faculty of Computer and Mathematical Sciences (FSKM) at UiTM Cawangan Negeri Sembilan, Kuala Pilah Campus, successfully organised the Canva Magic Workshop in preparation for the *Anugerah Kualiti Rektor Antara Bahagian* (AKRAB). The session was conducted at the Smart Classroom with the participation of 10 staff members. The programme was directed by Siti Noor Dina Ahmad and focused on strengthening staff competencies in preparing high-quality, creative and efficient documentation for AKRAB.

In recent years, digital platforms such as Canva have become increasingly relevant in education and administration, offering versatile tools for design, collaboration and communication [1]. The workshop was therefore timely, as it provided participants with both knowledge and hands-on practice in using Canva Magic aligning with UiTM's aspiration to embed innovation into everyday teaching and learning practices.

## WORKSHOP OBJECTIVES

The workshop was developed with four primary objectives, directly addressing the practical needs of staff in preparing AKRAB-related materials:

1. To expose participants to the functions of Canva Magic.
2. To train participants in designing visual materials, presentation slides and AKRAB reports more creatively and efficiently.
3. To encourage the adoption of AI technologies in improving the quality of AKRAB documentation.
4. To support UiTM's aspiration of strengthening a culture of digitalisation, innovation, and creativity.

These objectives guided the workshop's content and ensured that participants left with both technical knowledge and practical skills.



Figure 1: Hands-on session with participants using laptops and tablets in the Canva AI workshop

## WORKSHOP CONTENT AND EXPERIENCE

The workshop introduced participants to a range of Canva Magic tools, including Magic Design, Magic Studio, Magic Eraser and Magic Edit. These tools simplify the creative process by allowing users to generate polished visual materials quickly and efficiently. Research has shown that Canva is particularly effective in enhancing creativity and motivation when applied in teaching and learning contexts [2].

In addition, the workshop highlighted several innovative Canva AI features. One of the key tools explored was Magic Write, which enables users to generate new content, refine existing text and summarise information with ease. This feature enhances writing efficiency while supporting the production of clear, concise, and engaging materials.

Another feature introduced was the AI Voice Generator, which converts written text into natural-sounding narration. Offering multilingual options and realistic tones, this tool improves accessibility and enables staff to deliver professional presentations with greater impact.

Together, these functions support efficient content creation, language versatility and stronger professional communication. Participants engaged in hands-on exercises where they applied these tools to develop infographics and AKRAB presentation slides reports. The interactive format not only deepened their understanding of Canva's capabilities but also fostered collaboration, creativity and knowledge sharing among participants.

## **OUTCOMES AND IMPACT**

The outcomes of the workshop were positive and encouraging. Participants expressed greater confidence in using Canva Magic to support both teaching and administrative tasks. Three key benefits were noted:

- **Improved Productivity:** AI tools significantly reduced the time spent drafting and formatting materials.
- **Enhanced Creativity:** Canva's suggestions inspired and improved the overall design of teaching and reporting materials.
- **Collaboration and Sharing:** The group activities fostered teamwork and led to more consistent approaches in preparing AKRAB documents.

Research has similarly found that Canva can improve digital literacy while encouraging creative expression and collaboration among educators and students [1][2]. By the end of the session, participants had successfully produced outputs that reflected both innovation and professionalism.

## **BROADER TEACHING AND LEARNING RELEVANCE**

Beyond AKRAB, the skills gained from this workshop are directly applicable to teaching and learning activities. With Canva's AI-driven features, staff are now better equipped to create engaging lecture slides, professional reports, and eye-catching visuals that resonate with students. This aligns with the growing expectation for educators to integrate digital tools into their practice to enhance both teaching quality and student engagement [3].

## **CONCLUSION AND RECOMMENDATIONS**

In conclusion, the Canva Magic Workshop successfully achieved its objectives and made a meaningful contribution to the professional development of FSKM staff. The session not only supported AKRAB preparation but also encouraged participants to embrace digital tools in teaching, learning, and administration.

Moving forward, it is recommended that such workshops be conducted regularly and expanded to other faculties. This will help sustain digital competency, promote innovation, and strengthen UiTM's culture of excellence. As technology continues to evolve, UiTM's proactive approach in providing staff with relevant skills ensures that the institution remains at the forefront of educational innovation.

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# Writing Workshop: AI-Powered Academic Assistant for Research and Publication (ChatGPT + Scite)

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## FSKM HOSTS SUCCESSFUL AI POWERED WRITING WORKSHOP

The Faculty of Computer and Mathematical Sciences (FSKM), Universiti Teknologi MARA (UiTM) Negeri Sembilan Branch, Kuala Pilah Campus, successfully organised a writing workshop titled AI Powered Academic Assistant for Research and Publication (ChatGPT + Scite) on 28 August 2025.

Held at the Smart Classroom, the programme gathered 18 lecturers from multiple disciplines. Participants included academic staff from FSKM as well as from the Faculty of Applied Sciences (FSG), representing fields such as biology, chemistry and food technology. The diverse participation enriched the learning experience and demonstrated the broad applicability of AI in supporting scholarly writing across different research areas [1].

As shown in Figure 1, the workshop brought together participants from diverse academic backgrounds at UiTM Negeri Sembilan, Kuala Pilah Campus.



Figure 1: Group photo of participants during the AI Powered Academic Writing Workshop at UiTM Negeri Sembilan, Kuala Pilah Campus.

## INSPIRING LEADERSHIP AND CLEAR OBJECTIVES

The workshop was led by Dr. Zahari Md Rodzi, Senior Lecturer at the FSKM Seremban Campus, who is known for his expertise in AI applications in education with a focus on digital dependence, ethical AI practices and academic integrity [2]. The programme was guided by Programme Advisor, Dr. Nurul Aityqah Yaacob, Coordinator of FSKM at UiTM Kuala Pilah Campus and directed by Pn. Siti Noor Dina Ahmad.

The main objectives of the workshop were to:

- Introduce participants to the potential of AI powered platforms in academic writing [3].
- Train lecturers in the effective use of ChatGPT and Scite
- Strengthen digital literacy among academic staff
- Encourage systematic and efficient approaches to research and publication

## PRACTICAL AND ENGAGING LEARNING EXPERIENCE

The workshop emphasised practical application and active participation. Among the highlights were:

- **Live demonstrations** on how ChatGPT can be used to generate research ideas, refine academic writing style and summarize literature [3].
- **Hands on practice with Scite** where participants explored how to import references, analyze citation contexts and insert accurate citations into manuscripts [4].
- **Group exercises** that involved drafting sections of academic papers together followed by peer review sessions to evaluate clarity, coherence and citation quality.
- **Discussions** on ethical considerations, particularly responsible authorship and data privacy when using AI tools [5].

The participants were actively engaged in practical learning activities, as illustrated in Figure 2.



Figure 2: Participants engaging in hands on activities during the AI Powered Academic Assistant Workshop.

## POSITIVE RESPONSE FROM PARTICIPANTS

Feedback was highly positive, with participants praising the practical and interactive approach of the workshop. The variety of academic backgrounds, including computer science, mathematics, biology, chemistry and food technology, highlighted how AI can be adapted to meet the needs of different research domains.

Many participants noted that the workshop increased their confidence in applying AI to their own academic work. They shared that ChatGPT and Scite helped them to streamline literature reviews, improve citation accuracy, and enhance the overall quality of their manuscripts [6]. The workshop was regarded as both timely and impactful, reflecting FSKM's commitment to advancing digital innovation in academia.

## CONCLUSION

In conclusion, the writing workshop not only achieved its objectives but also created meaningful cross-disciplinary engagement. It equipped lecturers with practical skills, encouraged responsible AI use and fostered a culture of innovation within the faculty. The enthusiastic participation and positive feedback reflect a growing readiness among UiTM academics to embrace AI-driven solutions in their research journey. This marks a strong foundation for future initiatives in digital academic empowerment.

Looking ahead, FSKM plans to continue organising similar workshops in the future to further strengthen academic capacity and promote sustainable integration of AI in research and publication practices.

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# AI IN THE CLASSROOM: EMPOWERING PRIMARY SCHOOL TEACHERS

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## EXECUTIVE SUMMARY

In today's education landscape, technology has reshaped how teaching and learning are conducted as well as the role of teachers. One of the most promising and significant applications in the education field is the use of Artificial Intelligence (AI) tools. Recently, lecturers from the Computing Science Studies, Faculty of Computer and Mathematical Sciences, have been invited by the management of Sekolah Kebangsaan Mambau to conduct a special workshop introducing the school's teachers to AI tools in the teaching and learning processes. The workshop is called "Bengkel Penggunaan AI dalam Dunia Pendidikan: Dari Alat ke Amalan", which aims to enhance teachers' awareness, confidence, and practical skills in integrating AI tools into classroom practices.

## INTRODUCTION

The advancement of AI has opened new opportunities in education, such as transforming how teachers plan, prepare, deliver, and assess their pupils. Recognising the need to prepare all teachers to shift from a manual way of conducting lessons to using AI tools, the workshop was intended to be a starting platform for all teachers on how AI can simplify lesson preparation, create more engaging learning activities, and significantly reduce administrative workload. Held in the school's computer lab and conducted by three computer science lecturers, 33 teachers have successfully participated in the 2-hour workshop on the 3rd September 2025, from 1:30 pm until 3:30 pm.



Figure 1: Cover for presentation slides and the participants of the workshop

Figure 1. illustrates the first page of the presentation slides showing the workshop title and a snapshot of participants having fun while learning together. The workshop began with an overview of AI technology in education and highlighted that AI is not meant to replace teachers, but to empower them. Figure 2. displays the responses gathered using Mentimeter web apps during the ice-breaking session. Teachers were then introduced to platforms like ChatGPT for creating lesson ideas, MagicSchool AI for generating assessment rubrics, and Curipod for conducting interactive learning activities.



Figure 2: The result of the real-time quiz and polls conducted using the Mentimeter web-based application

## RESULTS AND ACHIEVEMENTS

What stood out most was the hands-on experience. Teachers were encouraged to try out the tools themselves, such as designing a sample of their lesson, creating a comprehensive rubric for assessments, and finally experimenting and experiencing the live and interactive features offered by the tools. Laughter and excitement filled the lab as teachers discovered how quickly AI could simplify tasks that once took hours. Towards the end of the workshop, positive feedback was gathered as all teachers expressed their enthusiasm for adopting AI tools to prepare lesson plans and worksheets, boost creativity, and create an engaging learning environment with pupils. The analysis of the participants' feedback is shown in Figure 3.

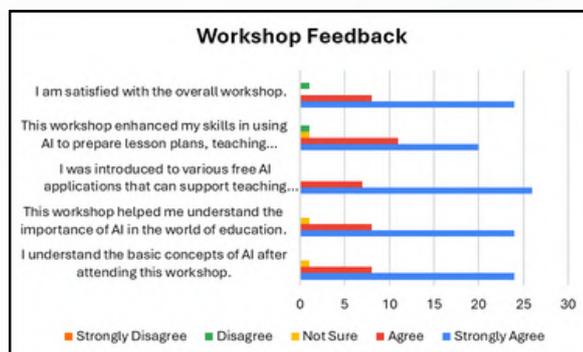


Figure 3: The analysis of feedback gathered from the workshop participants.

The feedback form distributed to the participants also assessed their readiness and willingness to use AI tools in their teaching and learning processes. Figure 4. below displays the analysis of feedback collected, and it not only reflects their level of interest in integrating AI into their teaching and learning practices but also provides insights into their confidence, perceived benefits, and potential challenges in applying these tools. This information is valuable in understanding how well the workshop objectives were met and in identifying areas where additional training, resources, or support may be needed to encourage consistent and effective use of AI in education.

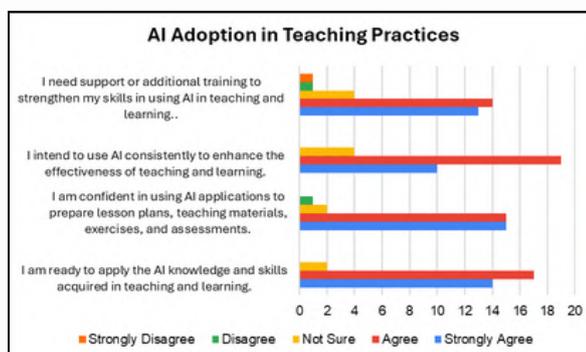


Figure 4: The analysis of feedback on participant readiness and willingness to use the AI tools introduced in the workshop

## CONCLUSION

The workshop concluded with a clear message stating that AI is not just a theoretical concept, but it is already being commonly used, shaping the way education unfolds. Building on this momentum, future workshops with the same teachers could explore deeper classroom strategies for using AI effectively. For primary school teachers, embracing these tools means being better prepared to foster students who will one day live and work in an AI-driven world.

# TEACHING & LEARNING

## TEACHING & LEARNING



# CHATGPT IN PROGRAMMING EDUCATION: A SUPPORT TOOL OR A SHORTCUT?

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## INTRODUCTION

Artificial intelligence (AI) tools such as ChatGPT are changing the way students learn and interact with knowledge. ChatGPT has become popular in education because of its ability to generate explanations, suggest solutions, and provide feedback in real time (Kasneji et al., 2023). For programming students, this is particularly beneficial as coding often involves trial and error, debugging, and understanding abstract logic. While ChatGPT helps students learn faster and gain confidence, it also raises important concerns. Some students may copy answers without fully understanding them, while others risk becoming overly reliant on the tool. Instructors also worry about academic honesty, and whether students are truly learning to solve problems independently (Lund et al., 2023). Programming courses provide a unique context to study these issues because coding requires both conceptual understanding and hands-on problem-solving.

This study was conducted with CSC415, Programming 1 students for semester March–August 2025, aimed to understand how often students use ChatGPT, what they use it for, and how they believe it affects their learning, assignments, and exam preparation. The findings offer insights for both educators and institutions on how to manage and guide the use of AI tools in programming education (Selvanathan & Narayanan, 2024).

## METHODOLOGY

The study involved 25 students, most of them female (78%), with an average age of 20, all enrolled in the CSC415 course during the March–August 2025 semester. Data collection was done using an online survey that included both Likert-scale questions and open-ended responses. The Likert-scale items measured students' frequency of ChatGPT use, perceived benefits, and concerns, while open-ended questions allowed students to share their personal views. This mixed approach provided both quantitative data for statistical patterns and qualitative insights into student experiences. Descriptive statistics were used to summarize the quantitative results, and thematic analysis helped interpret the qualitative feedback. This combination was chosen to ensure a balanced understanding of how students use ChatGPT and how it influences their skills.

## RESULTS AND DISCUSSION

The findings reveal that ChatGPT is becoming a regular part of students' study routines. About half of the participants (12 out of 25) reported using ChatGPT a few times each week (see Figure 1).

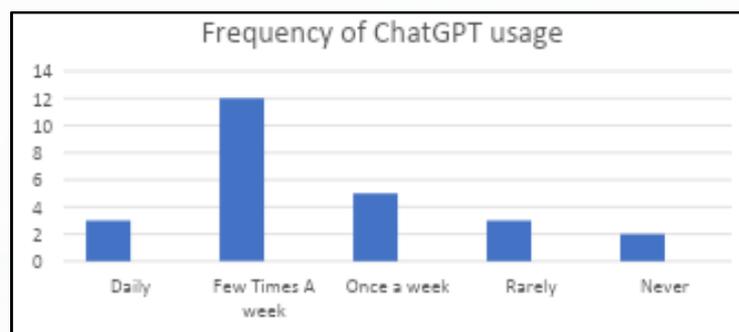


Figure 1: Frequency of ChatGPT Use

Students mainly relied on it to debug code, clarify programming concepts, and generate ideas for assignments. This shows that students view ChatGPT as a support tool rather than a replacement for learning. In terms of programming skills, most students (60%) felt that ChatGPT had a neutral impact, while 36% reported a positive effect. A small group of respondents (4%) report a negative impact. (see Figure 2).

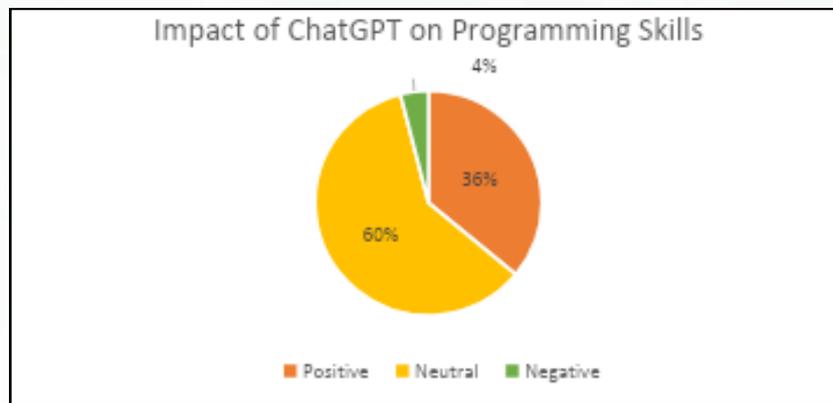


Figure 2: Impact of ChatGPT on Programming Skills

Students who benefited said that ChatGPT helped them complete assignments faster, understand lessons more easily, and feel confident about trying new approaches. However, a few students raised concerns that incorrect or incomplete answers sometimes confused them, especially for beginners. Others worried that a heavy reliance on ChatGPT could limit their ability to solve problems independently.

Exam performance was another area of mixed opinion. Most students (72%) said ChatGPT affected their exam preparation (see Figure 3).

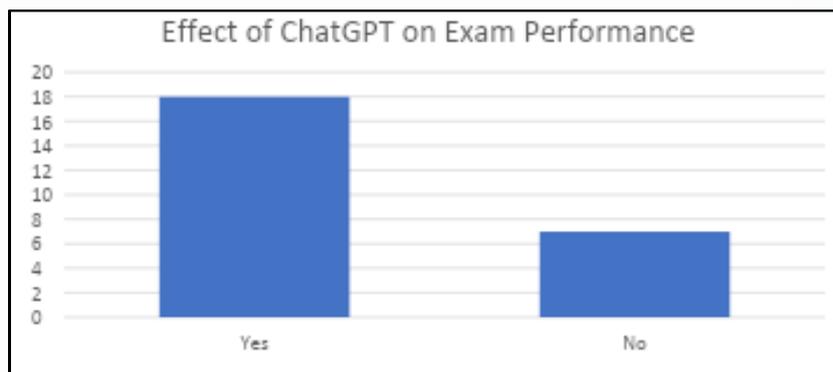


Figure 3: Effect of ChatGPT on Exam Performance

Some students felt that practising with ChatGPT gave them confidence, but others admitted that it left them less prepared for exams where AI was not allowed. This shows that while ChatGPT can help learning by making ideas clearer and faster to understand, it may also create gaps when students must depend on their own skills. Other studies have also warned about the risks of relying too much on AI, even though it can make learning more efficient (Qadir, 2023; Lund et al., 2023). From the perspective of the cognitive domain, using ChatGPT too often may limit students' practice in recalling knowledge, understanding concepts, applying ideas, analysing problems, and making judgements. Since final exams are conducted face-to-face without applications or computers, this lack of practice can weaken students' ability to think critically and solve problems independently. Therefore, AI should be used in a balanced way to support learning while still developing essential thinking skills.

### PRACTICAL IMPLICATIONS FOR THE PROGRAMMING COURSE

To make the best use of ChatGPT in programming education, students and lecturers need both clear rules and smart teaching strategies. Rules keep things fair, like setting guidelines, asking for drafts or code history, and running in-class coding tests. Teaching strategies help students use ChatGPT wisely by checking answers, reflecting on how they use it, and working in groups to avoid over-reliance. Most of all, students should see ChatGPT as a support tool, not a shortcut. With the right balance, AI can boost learning while still building real problem-solving skills.

### CONCLUSION

This study shows that ChatGPT is playing an increasing role in programming education. ChatGPT is changing how students learn programming by helping them understand concepts, build confidence, and manage complex tasks. It also comes with risks like logic errors and runtime issues. That's why lecturers must set clear rules, promote critical thinking, and keep problem-solving as a core skill. Used this way, ChatGPT becomes real learning support rather than just a shortcut for assignments.

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# TEACHING & LEARNING IN LINE WITH MQF2024: PREPARING FUTURE-READY GRADUATES

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## Introduction

The **Malaysian Qualifications Framework (MQF) 2024** marks a significant milestone in higher education reform, aligning academic standards with global benchmarks while ensuring local relevance. For both lecturers and students, this updated framework emphasises a holistic approach to teaching and learning. It nurtures not only **intellectual capability** but also **ethical values, employability skills, and adaptability to rapid technological changes**. To illustrate this transformation at a glance, Figure 1 highlights the key emphases introduced in MQF 2024, which serve as the foundation for future teaching and learning practices.



Figure 1: New emphasis in MQF 2024

## Key Shifts in Teaching and Learning

### 1. Holistic Graduate Attributes

MQF 2024 places equal emphasis on **cognitive** (knowledge), **psychomotor** (skills), and **affective** (values) domains. This paradigm shift necessitates teaching methods that extend beyond traditional lectures, fostering critical thinking, collaboration, and creativity.

### 3. Flexible Delivery Modes

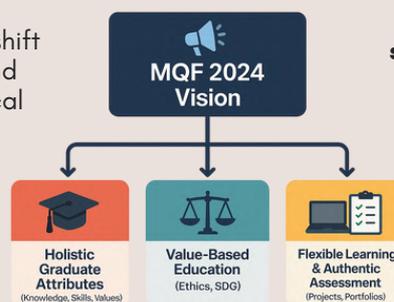
The post-pandemic era has **reshaped the landscape of teaching and learning**. Recognising this shift, MQF 2024 embraces blended learning, online learning, and hybrid approaches as mainstream educational strategies. This **increased flexibility** empowers students to learn at their own pace while leveraging digital tools and platforms.

### 2. Value-Based Education

MQF 2024 highlights the role of lecturers in embedding values such as **ethics, social sustainability, and social responsibility** into course content and classroom activities. For instance, case studies and projects can be designed to integrate real-world ethical dilemmas and sustainable practices.

### 4. Authentic Assessment

Instead of relying solely on examinations, MQF 2024 **promotes assessment strategies that reflect real-world scenarios**. Approaches such as portfolios, simulations, and project-based assessments provides students opportunities to demonstrate both their knowledge and its application.



## Implications for Educators

For lecturers, aligning teaching and assessment practices with MQF 2024 requires innovation, adaptability, and a student-centered mindset. Courses should be designed with a strong emphasis on learning outcomes, while teaching strategies should incorporate technology, promote inclusivity, and encourage active learning. This transformation ensures that graduates are not only academically competent but also industry-ready and ethically grounded.

## Conclusion

Teaching and learning guided by MQF 2024 provides a clear pathway for producing future-ready graduates. At the same time, universities can also fulfil their mission of shaping graduates who are competent, responsible, and adaptable in an ever-changing world.

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Suhaimi AbdulTalib (2025). Implementing Malaysian Qualification Framework 2<sup>nd</sup> Edition (Updated 2024)(MQF 2024)

# MAKING CODING FUN: WHY I DESIGNED Code-Ninja++ FOR MY STUDENTS

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## THE STRUGGLE IS REAL: WHEN NON-IT STUDENTS FACE C++

As a lecturer, I've seen firsthand how many non-IT students struggle when it comes to learning C++ programming. For them, coding feels like stepping into a completely foreign world – full of strange symbols, strict rules, and logic that doesn't always make sense at first glance. Some students lose confidence quickly, and revision outside of class often becomes passive or even avoided altogether.

I wanted to change that. I wanted to build something that could make C++ more approachable, engaging, and even fun. That's how Code-Ninja++ was born.

## BUILDING Code-Ninja++

Code-Ninja++ is a Progressive Web Application (PWA), which means students don't need to download or install anything. They simply open it in their browser and start learning. On the technical side, I used Python (Flask) for the backend, HTML and CSS for the frontend, and MySQL for database management. But for my students, what matters most is that it's easy to access on any device.

I designed the app as a one-stop hub for post-class learning. It includes short video tutorials, quizzes that appear immediately after videos, carry mark tracking, past year papers, and gamified elements like leaderboards and badges. I also integrated it with tools my students already use—Padlet, UiTM UFuture, and Quizizz—so they don't need to jump between multiple platforms. Figure 1 depicts the snapshot of Python, HTML, and MySQL that was used to develop Code-Ninja++.

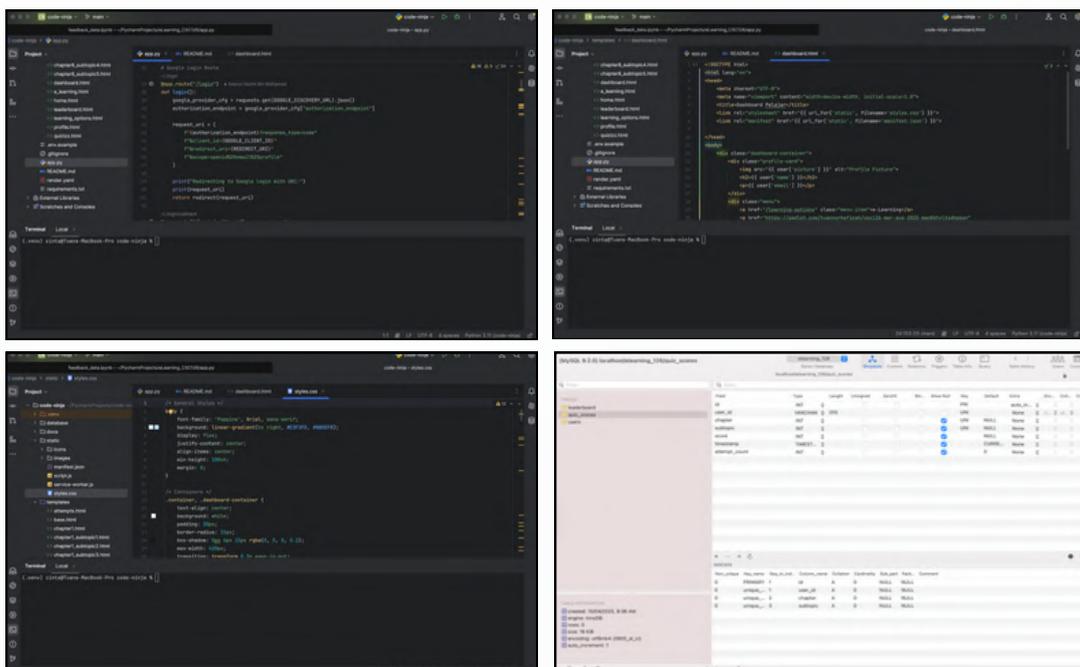


Figure 1: Python, HTML, CSS, and MySQL for Code-Ninja++ Development

## LEARNING THROUGH PLAY

One thing I've learned as an educator is that students respond better when learning feels like play. That's why Code-Ninja++ uses gamification. Quizzes allow up to three attempts with instant feedback, leaderboards create healthy competition, and badges give students a sense of achievement.

Learning C++ is no longer just about memorising syntax—it’s about building confidence step by step and tracking progress in real time. Figure 2 shows the main interfaces of Code-Ninja++.

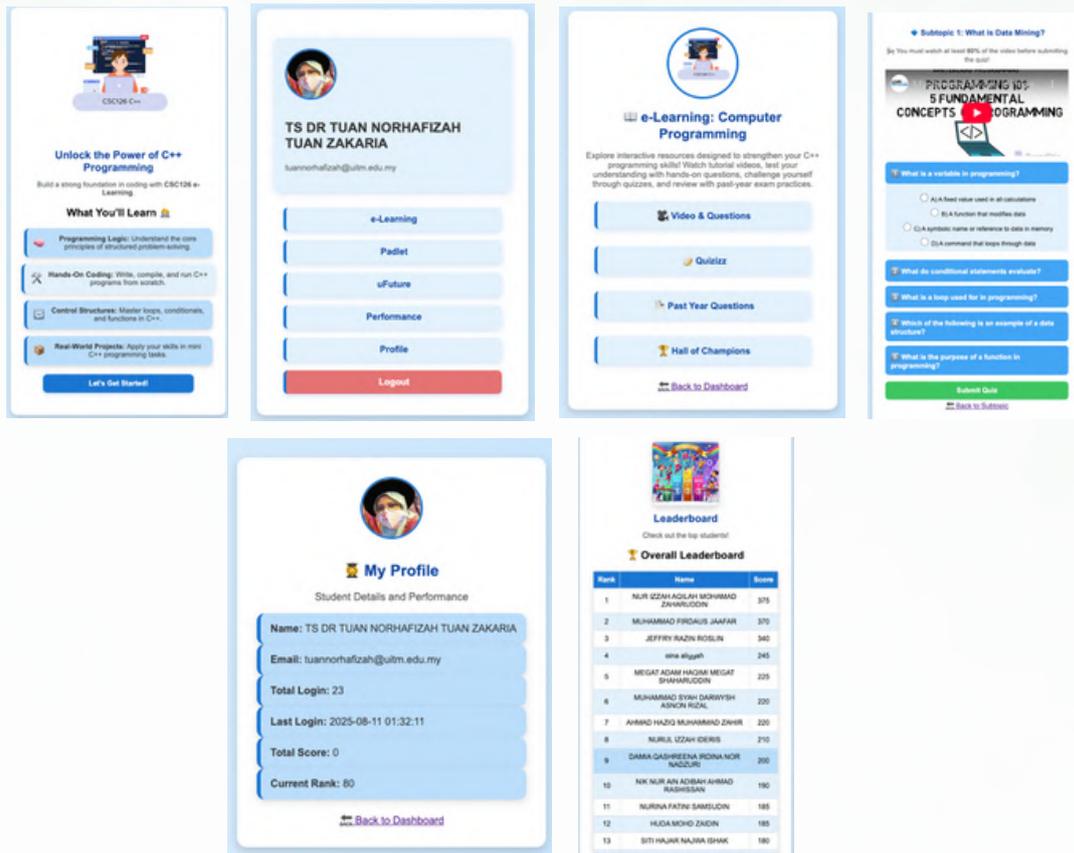


Figure 2: Main Interfaces of Code-Ninja++

### WHAT MY STUDENTS THINK

The best part of this journey has been hearing directly from my students. In our feedback survey, most features received nearly 100% positive ratings. They loved the bite-sized videos, the instant quizzes, and the way the app brought all resources together in one place. The leaderboard and carry mark tracker, in particular, motivated them to keep practising.

Of course, a few pointed out areas for technical improvement, but overall, the message was clear: Code-Ninja++ works, and it makes learning C++ more enjoyable.

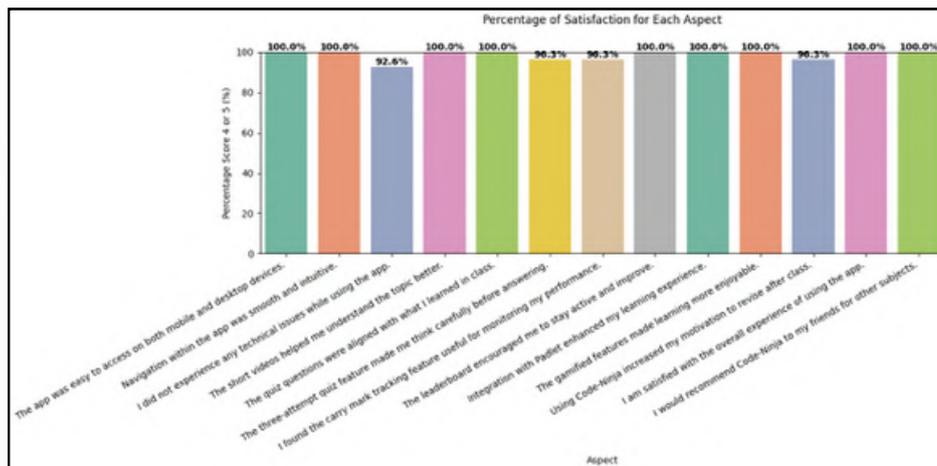


Figure 3: Student Satisfaction Ratings for CodeNinja++ Features

Based on our student survey in Figure 3, the results were very encouraging. As shown in the chart, most features received 100% satisfaction ratings, especially for accessibility, smooth navigation, and the alignment of short videos with classroom lessons. Students particularly valued the instant quizzes, leaderboard challenges, and the carry mark tracker, which made learning more interactive and fun.

The only slightly lower scores were for technical reliability (92.6%) and motivation from leaderboard/carry mark features (96.3%). These areas give us valuable feedback for future improvement. Overall, the analysis confirms that Code-Ninja++ is not just accessible—it truly enhances student engagement, confidence, and independent learning.

### **WHY THIS MATTERS**

For non-IT students, learning C++ isn't just about coding. It's about developing logical thinking, problem-solving skills, and the confidence to engage with technology. With Code-Ninja++, I've seen students move from passive learners to curious, motivated individuals who are ready to tackle challenges.

### **LOOKING AHEAD**

I see Code-Ninja++ as just the beginning. My next goal is to expand it to other programming languages like Python and Java, and to share it more widely with other faculties and universities. Education is evolving, and tools like this can help us keep pace with the way students learn best today—anytime, anywhere, and in ways that both engaging and rewarding.

For me, CodeNinja++ isn't just a project. It's a reflection of what I believe teaching should be: accessible, engaging, and empowering for every student.

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