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RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

# REMACS 5.0

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CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]  
CS248 - BACHELOR OF SCIENCES [HONS.]  
MANAGEMENT IN MATHEMATICS  
CS251 - BACHELOR OF COMPUTER SCIENCE [HONS]  
NETCENTRIC COMPUTING  
CS255 - BACHELOR OF COMPUTER SCIENCE [HONS]  
DATA COMMUNICATION & NETWORKING

**2<sup>nd</sup> February 2023**  
**Stor Complex, UiTM Perlis**

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Organized by:  
College of Computing, Informatics and Media  
Universiti Teknologi MARA Perlis Branch

**Research Exhibition in Mathematics and Computer Sciences  
(REMACS 5.0)**

Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)

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e ISBN: 978-629-97934-0-3



Perpustakaan Negara Malaysia

#### *Published by*

MOHAMMAD HAFIZ BIN ISMAIL

Universiti Teknologi MARA

02600 Arau, Perlis

Tel: +604 988 2028

<https://fskmpерlis.uitm.edu.my/remacs50/>

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# Preface

It is with great pleasure that we present this extended abstract book, titled "The 5<sup>th</sup> Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)". This book is a collection of research work in the fields of Computer Science and Mathematics, contributed by the final year students from Universiti Teknologi MARA, Perlis Branch. The aim of this book is to showcase the diversity and depth of research in these two interrelated fields.

Mathematics and Computer Science are two fields that have seen tremendous growth and advancement in recent years. With the rise of new technologies and the increasing demand for data-driven solutions, researchers in these fields have been working hard to develop new theories, algorithms, and models that can help solve some of the most pressing problems of our time. This book is a testament to their hard work and dedication.

The abstracts in this book cover a wide range of topics, including algebra, analysis, logic, computer architecture, algorithms, artificial intelligence, machine learning, computer network, netcentric computing and many more. The work presented here is both theoretical and practical, and has the potential to impact many areas of society, from finance and healthcare to education and security.

We hope that this book will serve as a valuable resource for future students in the fields of Mathematics and Computer Science. We also hope that it will inspire more students to pursue innovative and groundbreaking research in these two fields. Finally, we would like to express our gratitude to all the contributors for their hard work and dedication, without which this book would not have been possible.



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# EVENT SCHEDULE

8:00 – 8:30 am

- Registration

8:00 am – 12:00 pm

- FYP Project Presentation

12:00 - 2:00pm

- Lunch Break

2:15 – 2:35 pm

- National & Wawasan Setia Anthems
- Doa Recitation

2:35 – 2:45 pm

- Welcoming Address by Director of REMACS 5.0

2:45 – 2:55 pm

- Officiating & Closing Remarks from Rector of UiTM Perlis

2:55 – 3:00 pm

- REMACS 5.0 Montage

3:00 – 4:00 pm

- Awarding of Winners:
  - Best Poster
  - Best Project Award

- Photo Session

- End of Ceremony

*Dress Code: Formal / Corporate*

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# EXTENDED ABSTRACTS

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RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES  
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# **C++ RUSH: INTERACTIVE GAME IN LEARNING COMPUTER LANGUAGE FOR NOVICE**

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## **Abstract**

C++ is one of the fundamental programming languages that are simple to learn and aid in understanding the fundamentals of all types of coding. With a full understanding of C++, migrating to other programming languages would be easy since the basic fundamentals have been grasped. The goal of this project is to learn C++ syntax, identify appropriate gamification elements, and incorporate multimedia principles into the design and development of the interactive C++ Rush game for computer language beginners. Another goal of this project is to evaluate the usability of the developed programming game through a questionnaire. For this project, the methodology used is agile because iterative development is one of its components. Agile methodology has six phases involved: requirements, design, development, testing, deployment, and review. For this research, usability testing has been conducted with 30 participants. Most of the users agree that gamification can transform a complex and difficult subject into something really enjoyable. In conclusion, this project has enabled the user to learn effectively about C++. Future works may include more programming language variety.

*Keywords: C++, Gamification, Learning*

## **1. Introduction**

C++ is a fundamental programming language that is easy to learn and aids in knowing the fundamentals of all forms of coding. Because the principles of C++ have been mastered, switching to other programming languages should be simple. Unfortunately, in today's world, a lack of patience in learning the fundamentals and relying solely on YouTube tutorials may result in people learning to code without fully comprehending the mechanism. Nowadays, games are widely employed for learning objectives in a variety of sectors. They are gaining popularity as a result of their effectiveness in non-game contexts such as education and business. Game-based learning enables educators to teach tough programming fundamentals to inexperienced students while maintaining their interest and enthusiasm. As a result, scholars appear to be quite interested in the topic of game-based learning, or "gamification," these days. The scope of this project is for novice programmers who have just started learning programming languages.

## **2. Methodology**

Data were collected from textual analysis by referring to and evaluating existing concepts, such as existing gamification games and C++ learning tutorials. Research findings evaluate the requirements, system design, development, testing, deployment, and review of this project. For example, the result of a requirement analysis provides a clear problem statement, objectives, scope, and significance of a project.

## **3. Results and Discussion**

Based on the usability testing that is being done for the project, 86.7% of the 30 respondents think that this game will help beginner programmers. Most of them agree that gamification can transform a complex and difficult subject into something really enjoyable. This project's purpose is to assist novice programmers in learning C++ in an enjoyable way. As a result, this project has achieved its objectives

to handle all of the problem statements.

#### **4. Novelty of Research / Product**

The novelty of this research is in the application of using 2D platformer games to learn programming languages. This is one way gamification can make learning more enjoyable and understandable. Gamification is a potential way to foster motivation and involvement in various contexts, and its current popularity has promoted its implementation in a variety of fields such as health, education, business, society, and tourism (Trinidad et al., 2021). Another research study created a gamification teaching activity utilising a board game and QR code scanning. This activity uses the Gamification Teaching Model with Card-Games, Slides, and Learning Sheets (CSLS Gamification Model) for organic chemistry learning (Wu et al., 2018).

#### **5. Conclusion**

As it provides the overall conclusion, methodology, result, and discussion for the project. Gamification is an effective approach to making positive changes in novice programmers' behaviour and attitude towards learning to improve their motivation and engagement. The outcome demonstrates that all of the project's functionality and progress proceeded smoothly, and the project's goal was met.

#### **REFERENCE LIST**

Trinidad, M., Calderon, A., & Ruiz, M. (2021). GoRace: A Multi-Context and Narrative-Based Gamification Suite to Overcome Gamification Technological Challenges. *IEEE Access*, 9, 65882–65905. <https://doi.org/10.1109/access.2021.3076291>

Wu, C.-H., Chen, C.-C., Wang, S.-M., & Hou, H.-T. (2018). The Design and Evaluation of a Gamification Teaching Activity Using Board Game and QR Code for Organic Chemical Structure and Functional Groups Learning. 2018 7th International Congress on Advanced Applied Informatics (IIAI-AAI). <https://doi.org/10.1109/iiiai-aa.2018.00190>

**Research Exhibition in Mathematics and Computer Sciences: REMACS 5.0**  
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e ISBN 978-629-97934-0-3

