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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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# 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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# RESPONSIVE WEB-BASED CAFE FOOD ORDERING SYSTEM USING BOOTSTRAP AND QR CODE

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## **Abstract**

The number of students enrolled in colleges is steadily growing these days, resulting in a massive increase in the educational sector and almost every university now provides consignment meals for student cafeterias nowadays. However, menu ordering used in the cafeteria to be an entirely manual process, with a waiter taking orders using pen and paper, taking the orders to the kitchen, bringing the food, and calculating the cost which leads to a lack of data accuracy and data input errors while collecting orders. The aim of this project includes designing and developing a food ordering system using responsive web-based techniques and evaluating the system's usability using User Acceptance Testing. Therefore, A Responsive Web-based Cafe Food Ordering System for UiTM Perlis College Using Bootstrap and QR Code called E-Dahlia Cafe System was proposed to replace the manual process. In this study, the system could manage the ordering process by customers that able to place the menu and view the ordering status of the orders. In addition, employees of the cafeteria can manage the ordering process and all menu items that are available. Besides, the iterative model has been used to implement the development of this system. The User Acceptance Test (UAT) has been used to get feedback from 30 respondents from Dahlia Cafeteria employees and college students. The result shows most respondents are confident in using this E-Dahlia Cafe for future ease.

**Keywords:** student's college, cafeteria employee, self-ordering system, ordering process

## **1. Introduction**

Menu ordering used to be an entirely manual process, with a waiter taking orders from customers using pen and paper, taking the orders to the kitchen, bringing the food, and calculating the cost at all institutions that have cafeterias for their students and employees that lead to human error issues owing to the large quantity of manual work involved in daily operations. To overcome these limitations, the objectives of this project are to design and develop a food ordering system called E-Dahlia Cafe System by using responsive web-based technique and to evaluate the usability of system using User Acceptance Testing. This system involved two users that consist of college student and cafeteria employee. College students can place orders at cafeteria online using their smartphone devices. Meanwhile, the system allows the employee to manage ordering process such as updating order status and manage menu category or product using laptop or tablet.

## **2. Methodology**

E-Dahlia Cafe system used Iterative model as a methodology. User Acceptance Testing is an evaluation phase that were conducted with Dahlia Cafeteria employees and college students to gather data from participants and determine if the system could handle real-world tasks and apply development specifications to satisfy customer needs. The participants were given time to explore the system after an explanation has been given and to answer the evaluation questionnaire. An explanation has been given to gain understanding for using the system. However, each task has been explained to assist the participant if they are having trouble using the system. The questionnaire has been distributed using a link in the system that will redirect participants to google form.

### 3. Results and Discussion

Unit testing and functional testing were conducted after development of E-Dahlia Cafe system completed. These two testing has ensured each form's appearance and validation function as intended and has been verified each module's functioning that make sure the user's needs are being satisfied. Besides, the evaluation using user acceptance testing (UAT) that having purpose to verify the end user requirements are fulfilled for acceptability. Data and feedback from 30 respondents from Dahlia Cafeteria employees and college students resulting the majority of respondents are confident in using this E-Dahlia Cafe for future ease. This system can also benefit both users by saving time during the ordering process. However, several improvement and feedback that has been suggested by some respondents can be used in future work for this system.

### 4. Novelty of Research / Product

According to research, college students who want to place orders with cafeteria staff members must start a WhatsApp group. There is a chance that the canteen staff will overlook the order and delay the service (Swami & Das, 2021). According to Yee & Fudzee (2021), In many Malaysian cafes, traditional ordering techniques including writing orders on paper, standing in line at the counter, or waiting for service are still in use. Therefore, this system's purpose is to overcome limitations discovered in previous research. The E-Dahlia Cafe System is a responsive web application that allows cafeteria employees to manage order process digitally. It saves time for employees because don't have to go to the kitchen, and it allows the chef to receive and view orders using a laptop or tablet. Furthermore, customers may instantly access the web application with their smartphone or any device by scanning QR codes at the table to browse the menu and can spend more time looking at the meal offered. Customers may also monitor the order status and total payment through the system. This will eliminate the error of calculating the entire billing because the bill will be displayed immediately when the order is placed.

### 5. Conclusion

E-Dahlia Cafe System has successfully developed using responsive web-based technique to helps in manage the ordering process at Dahlia Cafeteria to help both users which allow college students to place orders online and employee cafeteria taking orders without using the manual process. The evaluation using UAT has been conducted to gather data and feedback from respondents and most of them felt confident and easy to use this system.

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