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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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**REMACS 5.0**

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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  
**REMACS 5.0**

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# IMPLEMENTATIONS OF QR-CODE FOR BUS TRANSPORT PASS USING MOBILE APPS

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## Abstract

An online Bus Booking Mobile Application for people to use is proposed to simplify the existing bus booking process. The proposed system is to provide the users an interface as well as design that can facilitate the users. This system is designed so that to facilitate passengers to purchase e-ticket and boarding using their own mobile phones. In developing the mobile application, a suitable development has been implemented using the Agile Methodology as guideline. This project has been developed using Visual Studio Code with Firebase as a database.

*Keywords:* *Qr-code, bus, mobile application*

## 1. Introduction

E-ticket is a system for creating and selling online tickets. Users can easily book tickets to online, pay online, then their e-tickets will be ready and an efficient electronic ticketing system using qr codes has been proposed. The objectives of this project to review the city transport pass process and analyse problems in the process of recording the ticket, to design and develop mobile applications Bus-Q with qr-code scanner and to evaluate the system through user acceptance test. Project scope often help in determining the focus of a project and making the development more organized and systematic. The scopes for this project are divided into two parts which are the category for user and system functionality.

## 2. Methodology

User Acceptance Testing is a type of testing performed by end users or customers to validate or approve a software system before the software application is put into production. The main purpose is to validate end-to-end business operations. It is performed in a separate test environment with data structures like the production environment. It is kind of black box testing involving two or more end users. This test includes customers and end users. The testing had been done with 31 end users by testing the apps using mobile phone. The testing had been done in Stesen Bas Ekspres Kangar, Perlis.

## 3. Results and Discussion

Based on user acceptance testing, it can be concluded that all 31 respondents were satisfied with the system. The proof of this statement was proved in Chapter 5. The purpose of the system was achieved, it consisted of designing and developing a Bus-Q mobile application with a QR code scanner and evaluating the system with user acceptance tests. Based on the ideas recommend by respondents, this system should be refined and add features for future use.

## 4. Novelty of Research

This project has produced a mobile application named Bus-Q, which is the implementations of qr-code for bus transport pass. This mobile application can be use by anyone. By using this mobile application, user can get a personalized and easy-to-use user experience for online reservations and online ticket purchases. Furthermore, for seat selection user can choose a seat of choice from the sitting arrangement, online bus ticket booking system is about full availability which means that user can reserve and buy

tickets whenever they want. It means that users can avoid contacting sales reps and purchase bus seats through a mobile application in a contact-free manner.

## **5. Conclusion**

In conclusion, the researcher's goals have been achieved, which to review the city transport pass process and analyse problems in the process of recording the ticket, to design and develop mobile applications Bus-Q with qr-code scanner and to evaluate the system through user acceptance test and the mobile application has been successfully constructed.

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