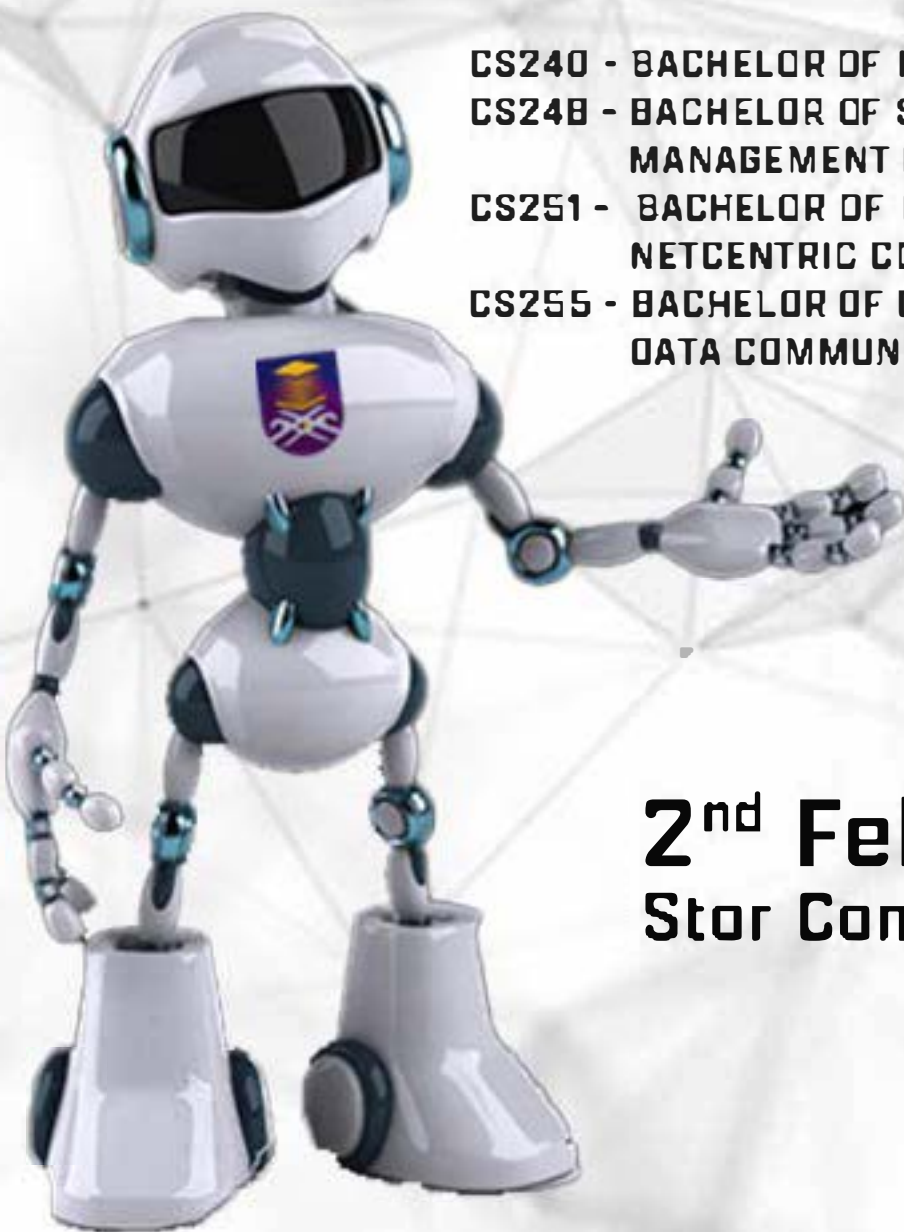


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RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

# 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]  
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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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# FUTSAL BOOKING WEB BASED SYSTEM INTEGRATE WITH TELEGRAM NOTIFICATIONS

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## Abstract

In Malaysia, most of the court futsal facilities are still dependent on paper-based record system. Futsal booking web based system integrate with telegram notification is a web application to assist customer and futsal court staff in managing futsal court booking. Following a visit or attend at futsal court, this system will document customers' information such as name, no phone, and telegram chat id. Customers also has ubiquitous access to their booking record within the web app. Besides, telegram notifications is use by the admin to sent booking details by telegram chat bot. User Acceptance Testing (UAT) with 31 respondents was conducted to validate the prototype. The respondents include customers, court futsal staff, student who always plays futsal. Results from the UAT shows that the prototype obtained constructive feedback from users. Therefore, it can be concluded that the objective for this study is successfully attained.

**Keywords:** participants, user acceptance testing, web-based application, user interface satisfaction, Telegram

## 1. Introduction (Objectives and Scope)

The primary goal of the system is to make it easier for businesses to effectively manage court futsal activities that involve both customers and administrators. Additionally, the system will make it simpler for users to reserve and rent futsal courts online. In addition, the system will make use of telegraph notification technology in order to keep users informed about the status of their court futsal bookings. This information will be communicated to users via the system. According to the findings of the previous study, a database management system might be used to handle the booking of futsal courts. It is anticipated that this will speed up, improve, and secure user administrations, thereby making it significantly easier whenever it is required (Nahnisha et al., 2022). The end result of this is that users no longer have to go to the futsal location in order to carry out the booking procedures for the courts, which saves them both time and effort.

## 2. Methodology (Methods, Procedures, Process)

Based on the System Development Life Cycle, the researcher developed this system for the project's development (SDLC). The Waterfall Model was the methodology employed by the researcher to create this system. Because this methodology was included into the development process, the researcher was successful throughout all phases of the software development process. These phases cover system analysis, planning, designing, implementation, testing, maintenance, and documentation of the created system. The system planning phase, the first step in the process, calls for preliminary research, the identification of the project's problem, objectives, scope, and relevance, as well as the execution of a literature review based on journals and other works that are related. Following this phase is the system analysis phase, the purpose of which is to determine the hardware and software requirements for the development as well as provide an estimate of the overall time timeline for the project. Next, the system design phase is carried out, which is defined by the design of the use case diagram and the Entity Relationship Diagram (ERD) that is used in database design to generate an overview of data structures. This phase is followed by the implementation of the system design phase. After that, the phase of system implementation is carried out, which entails writing the programme code and developing system interfaces with the help of Notepad++ and storing data in MySQL with the assistance of phpMyAdmin. A process known as User Acceptance Testing (UAT) was used during the testing phase to determine the degree of satisfaction that 31 participants had with the system's level of usefulness. The third step,

maintenance and documentation, is when any last-minute defects and errors in the system are discovered, fixed, and any required upgrades are made.

### **3. Results and Discussion**

User Acceptance Testing (UAT) was utilised to analyse 31 participants' replies on a scale of 1-5 for 18 questions about their history and Futsal Booking system use. The questionnaires asked participants how they liked the Futsal Booking system. Testing an application or system's user interface, the top layer, evaluates its quality (Watanabe et al., 2017). The results and analyses were based on User Interface Satisfaction, Perceived Usefulness and Ease of Use, Attitude, System Usability, and Telegram Notification Function. These categories determined outcomes and analysis. The system's shortcomings include the lack of a payment feature, its reliance on an active Internet connection, and the fact that clients can only book a court for one hour at a time. One idea for improving the Futsal Booking system is to advertise futsal courts with upcoming competitions. Additional ideas: The system should also provide a form for clients to register their team name and players. Second, attach a picture of the futsal court to make sure the buyer is satisfied with their reservation. After examining all comments, the researchers concluded that the Futsal Booking Web Based system was manageable, usable, and achieved its goal. This system helps users and administrators manage futsal court transactions, bookings, and management. This system's final goal, to test the Futsal Booking Web Based System Integrate with Telegram Notification's usability using User Acceptance Testing (UAT), was achieved.

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

Futsal Web Based system has advanced to allow users to browse and book from a wide range of court available online without needing to physically visit any of the futsal places. For users' convenience, the system also incorporates Telegram notification technology to keep them notified and updated on the status of their court futsal bookings so they will no longer be required to visit the futsal court place or must contact the company personally and endure a lengthy wait for feedback regarding the status of their booking. This will eliminate the need for them to constantly waste time and energy going to the futsal court place from start to the end of the booking process. Once court booking has been made, user can view their booking details in the system as well, which includes details such as the booking number, contact, court name, court place, hours booked, time booked and last time book for user's reference. Futsal's web-based system also makes it possible for administrators to manage all booking requests efficiently and on time while keeping track of all booking data. The admin has access to both client and booking-related data, which she can add, edit, examine, update, and remove. The booking request must be accepted by the admin before the user is alerted via Telegram of his or her status.

### **5. Conclusion**

This web-based system makes it easier for clients to make bookings, and it also makes it easier for personnel at the court futsal to manage bookings. It helps to reduce the usage of logbooks as booking records and makes it easier for users to check the availability of both the day and the court when it comes to futsal. Customers can make reservations for futsal courts using this web-based booking platform, which allows them to do so online.

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