
RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0



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

2nd February 2023
Stor Complex, UiTM Perlis

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 5th 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.



RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
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

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
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WEB-BASED UiTM BOOK STORE MANAGEMENT SYSTEM INTEGRATED WITH WHATSAPP API AND GOOGLE SERVICES

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Abstract

Web-Based UiTM Book Store Management System Integrated with WhatsApp API and Google Services is a web development project to purchase and sell vast quantities of books, mainly used books. This approach helps UiTM students obtain books quicker and more cheaply. Web-Based UiTM Book Store Management System also designs and develops a system for UiTM students, integrates it with WhatsApp API and Google services, and tests its usability and network performance. Web-Based UiTM Book Store Management System uses hostinger.com to store and manage its content. The customer's transaction data will also appear in a Transaction notification email confirming payment or book purchase. When students register, email verification adds security. Google Form in Web-Based UiTM Book Store Management System lets users request book refunds from the admin. The admin may see all Web-based UiTM Book Store Management System refund requests in a Google Spreadsheet. WhatsApp API allows the admin to notify a user about the refund status. ToyyibPay Payment lets students purchase books online without cash. The waterfall concept is used for System Development Life Cycle. 30 UiTM Perlis students completed four-category surveys to evaluate the Web-Based UiTM Book Store Management System. The system evaluation showed that most participants liked all categories. Network performance on the website speed test for mobile and desktop devices was satisfactory. It is a practical, cost-effective, trustworthy option that can help students in book sales transactions and can generate additional income for students.

Keywords: *Web-Based UiTM Book Store Management System, WhatsApp API, Google Services, System Development Life Cycle, UiTM Perlis students, Usability testing*

1. Introduction

Web-Based UiTM Book Store Management System Integrated with WhatsApp API and Google Services is a web development project as a major center for buying and selling various types of books in large stocks. The system aims to make it easier for UiTM students to find and purchase books faster and cheaper, especially used books. The project's objectives are to design and develop the system, integrate it with WhatsApp API and Google services, and evaluate its usability and network performance. The project's scope includes creating a system where users can be assigned different roles and permissions, manage account information, keep track of contact information, manage all aspects of books, view and edit user transactions, capture and maintain user history and information about book sales, and provide support for related transactions. Additionally, the system allows the viewing of detailed user interactions.

2. Methodology

The Waterfall methodology will be used for this system, which includes stages such as planning, analysing, designing, implementing, testing, and maintaining the system. Planning involves gathering UiTM students' needs and preferences. The analysis stage involves evaluating the gathered information about hardware and software to create a design plan. The design stage involves creating a detailed system design, including the integration of WhatsApp and Google services. Implementation involves web development, database management, and API integration. Testing ensures the system works and

meets requirements. Finally, the maintenance stage involves providing support and updating the system after it has been deployed.

3. Results and Discussion

The usability testing results for the Web-based UiTM Book Store Management System were conducted on 30 participants from the Faculty of Computer and Mathematical Sciences. Moreover, a set of 15 questionnaires was given to the participants after testing the system to gain feedback from them. This system was measured into four categories: user interface satisfaction, usefulness, ease of use of the system, usability, and the Integration with WhatsApp API and Google Services function in the system, which showed that the system is effective in providing a convenient and efficient platform for buying and selling books. The integration of WhatsApp API and Google services allows for easy communication and transaction management between users. Participants were generally satisfied with the user interface, system functions, and the effectiveness of the Integration with WhatsApp API and Google Services. Network performance testing also showed that the system could handle a high volume of concurrent users and transactions without major issues. Overall, the Web-based UiTM Book store management system integrated with WhatsApp API and Google services is a successful solution for providing a convenient and efficient platform for buying and selling books for UiTM students.

4. Novelty of Research / Product

The proposed research aims to integrate WhatsApp API and Google services with the current bookstore management system of Universiti Teknologi Mara (UiTM) to improve efficiency and convenience for students purchasing books. This research addresses the issues of limited access to books and lack of convenience in the current system and is expected to improve the overall user experience. (Hassan, 2018; Jalil, 2020) This research also builds on previous studies that have shown the potential of WhatsApp API in improving customer service in e-commerce (Nawaz, 2019) and the benefits of integrating Google services in management systems (Zakaria, 2019) by integrating both in a unique way for the specific context of a university bookstore. It is also expected to provide valuable insights into the potential of integrating WhatsApp API and Google services in similar contexts, such as other university bookstores or e-commerce platforms (Mohd, 2018).

5. Conclusion

In conclusion, the proposed project is to design and develop a web-based bookstore management system for UiTM students, including WhatsApp API and Google Services integration. The system aims to improve convenience and accessibility for users and will be evaluated through usability and network performance testing to ensure it meets its goals.

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

