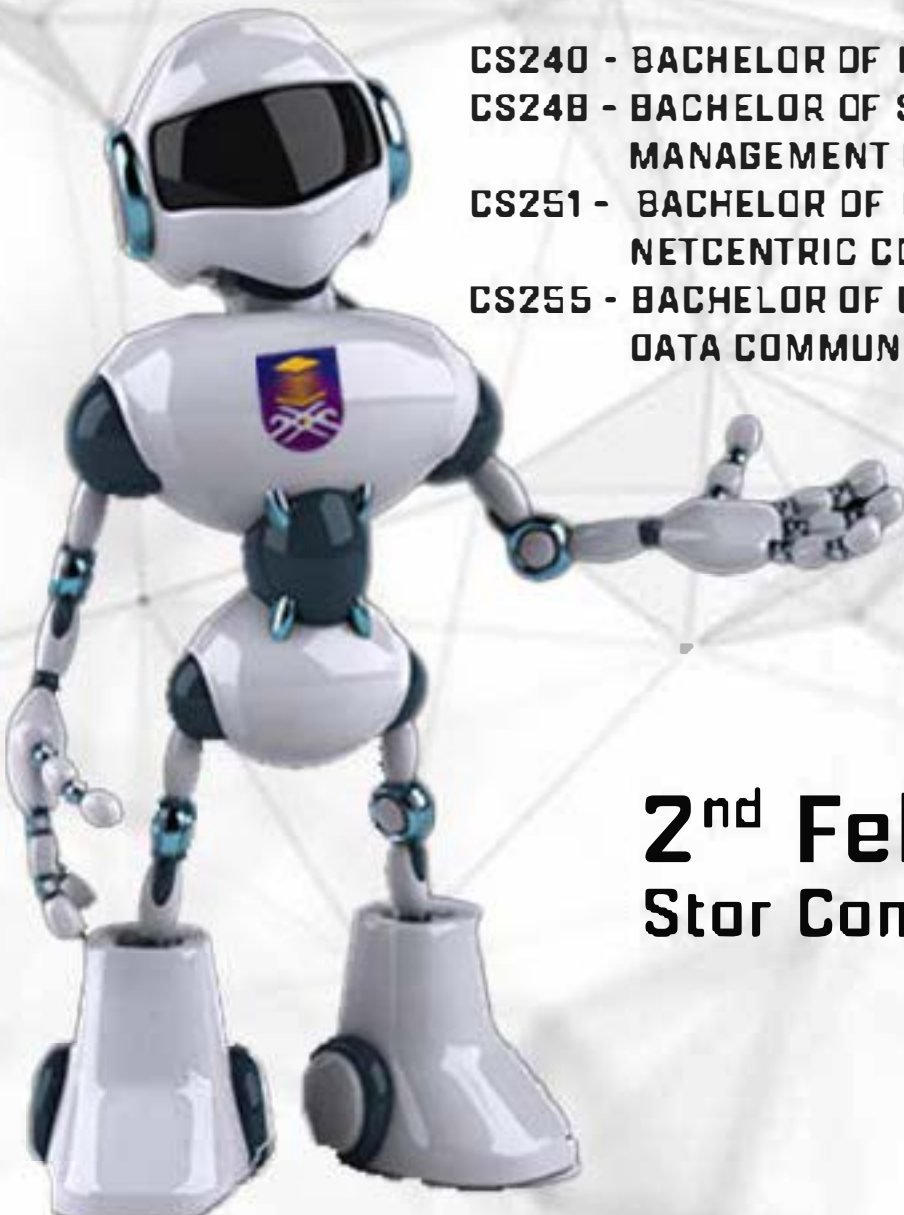


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RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

# 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  
**REMACS 5.0**

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# WEB-BASED JEWELRY MANAGEMENT SYSTEM USING WEB SCRAPPING

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## Abstract

Inventory record inaccuracy is one of the unsolved problems faced by the manufacturing organization (Shiau Wei Chan, 2017). Yet, many jewellery stores still rely on manual and paper-based systems. To address this, a web-based jewellery management system has been developed to improve efficiency and accuracy in managing sales and inventory. The system allows jewellers to easily track and manage their inventory, as well as process sales transactions. In addition, it also provides useful analytics and sales reports to aid in decision making. The development methodology used for this project is the Waterfall Model which is a linear sequential approach to software development. This methodology involves a strict progression through the requirements analysis, design, development, testing and documentation phases. This methodology is suitable for this project as it allows for a clear and systematic approach to software development. A User Acceptance Testing (UAT) was conducted with 30 jewellers to evaluate the system's performance. The results of the testing showed that the majority of the jewellers were satisfied with the system and found it easy to use with a total mean score of 4.55. The system will be an important tool for managing sales and inventory for jewellers and help them to improve their business.

*Keywords: Jewellery management, Sales and inventory, Web-based system, User Acceptance Testing (UAT), jewellers*

## 1. Introduction

The objective of this project is to investigate and improve the management of jewel sales by jewellers, by developing a web-based application to assist in price management. The application will retrieve gold prices from an API using web scraping techniques, and will be able to calculate prices based on the purity of gold (999, 916, 875, 835, 750). User Acceptance Testing (UAT) will be used to determine jewellers' acceptance and satisfaction with the system. This project's scope is limited to the use of an internet connection and a focus on gold purity levels of 999, 916, 875, 835, and 750. It attempts to increase the efficiency and accuracy of jewellers' sales management.

## 2. Methodology

The Waterfall Model was used to develop a web-based jewellery management system. The process began with a requirements analysis to identify the needs of jewellers in managing sales and inventory. The next phase is the design, where a sitemap is created to provide a clear view of the project structure. The development phase involves the programming of the web application using a specific programming language and data is stored using specific database technology. User Acceptance Testing was done to get feedback from 30 jewellers. Lastly, the final phase is documentation of all information gathered during the development process.

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

The responses of 30 jewellers were evaluated through a User Acceptance Test (UAT) where they were prompted to rate the system on a scale of 1-5. The UAT results determined the satisfaction, efficiency, reliability, and usefulness of the system for managing jewellery sales and inventory. However, it has limitations such as not fully automate the sales process, such as online payments. Furthermore, additional reporting and analysis features for sales data, such as forecasting, may be unavailable. These limitations may cause dissatisfaction among users and make it difficult for jewellers to make informed business decisions. Some suggestions were made by the participants, such as adding an online payment feature for making purchases directly through the application, a product image feature for uploading photos of products to the system, and multi-currency support for adding product prices in different currencies when the product comes from international vendors. The result can be concluded that the system can effectively manages sales and inventory, making it an important tool for jewellers to improve efficiency and accuracy in their business operations.

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

Through the web-based jewellery management system, jewellers can easily track the current gold price using web scraping techniques with Simple HTML DOM. This feature allows jewellers to stay updated with the latest gold prices and make informed decisions about purchasing and pricing their jewellery products. The system also allows jewellers to view the sales trend of their products over a period of time, helping them to identify which products are performing well and which ones may need to be re-evaluated. This information can be visualized using Google Chart API. Google Charts API is simple to use and provides a variety of options for customization of graphical chart reports for better analytics (Asma Khalid, 2020). This allows jewellers to quickly and easily identify patterns and trends in their sales data, helping them to make better-informed business decisions. Overall, the web-based jewellery management system provides a comprehensive set of tools for managing sales and inventory while also providing insights into gold prices and sales trends, allowing jewellers to grow their business and make more informed decisions.

### **5. Conclusion**

In conclusion, the web-based jewellery management system can clearly help jewellers to manage their sales and inventory efficiently. Furthermore, the majority of participants had a positive experience with the system after assessing it thorough User Acceptance Testing (UAT). Thus, all of the project's objectives have been met.

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