
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

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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 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
REMACS 5.0

DATA VISUALIZATION OF FAMILY INCOME AND EXPENSES

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Abstract

Data Visualization of Family Income and Expenses is proposed to help people to manage their income and expenses. Users will be able to plan and budget their finances using the data provided by the dashboard, as it will show average expenses compared to their income, the number of members, marital status, and many more. In this application, there is also data visualization applied to visualize what type of item they have spent on.

Keywords: income, expenses, financial

1. Introduction

I have planned to develop a dashboard known as “Data Visualization of Family Income and Expenses” which displays the yearly average of income and expenses. This dashboard helps its user to manage income and expenses. It is quite vital for people to control costs, and see what people always spend their money on. Moreover, consistently tracking our expenses will help to maintain control of our finances and promote better financial habits like saving. With bits of help from this dashboard, users can do planning and budgeting on their expenses.

2. Methodology

To develop this project, I used the Research Model. There are four phases in order to develop this project which are a preliminary study, analysis, development, and testing. In this Preliminary Study, I recognize the project’s idea, identify the problem statements, identify the problem statements, and define project objectives, project scope, and project significance. For the analysis phase, I analyzed datasets that were obtained from Kaggle and analyze the hardware and software requirements. Meanwhile, for the development phase, I use Apache Hive to provide a central store of information and create data visualization. Lastly, for the testing phase, I used the User Acceptance Test to 30 participants.

3. Results and Discussion

Having more children seems to lower the standard of living, especially for young families with young children, even when the family's total income grows slightly with each additional member (Espenshade et al., 1983). Spendable income is the portion of one's income that can be spent on goods and services. The quantity of money spent on products and services increases with the family size, but at a decreasing rate. In other words, while having more children increases a family's spending on goods and services, the percentage of additional costs for each child decreases. Other than that, marital status has historically been related to social and economic vulnerability, especially unmarried individuals who were considered more vulnerable than the married (Lurie, 2021).

4. Novelty of Research / Product

Young adults experience a period of change between the ages of 21 and 29, according to data from the CE Interview Survey component for 2007-08. People in their late twenties, between the ages of 27 and 29, have a higher average income, higher average spending, higher likelihood of having a bachelor's

degree, and higher likelihood of property ownership than their early twenties counterparts (Hawk, 2011). Other than that, there is research stating that an individual's consumption spending is primarily determined by his or her income level (Kulub Abd. Rashid et al., 2011). When income rises, so does spare income, and people buy more items. As a result, consumption of significant purchases and non-essential items rises. Aside from that, marriage is also related to lifestyle changes such as the purchase of a home and its furnishings, which necessitates an increase in household spending (Gorman, 2000). Marriage modifies one's perspective on the importance of material necessities and the resources needed to get them. Marriage, or at least the first one, is often seen as a major event in a person's life. They might feel they have reached a new point in their lives when they can settle down with a larger quantity of necessities.

5. Conclusion

This project successfully analyzed the family income and expenditure dataset, designed a dashboard and visualized the data with any data visualization, and used the User Acceptance Test to assess user usability and satisfaction.

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