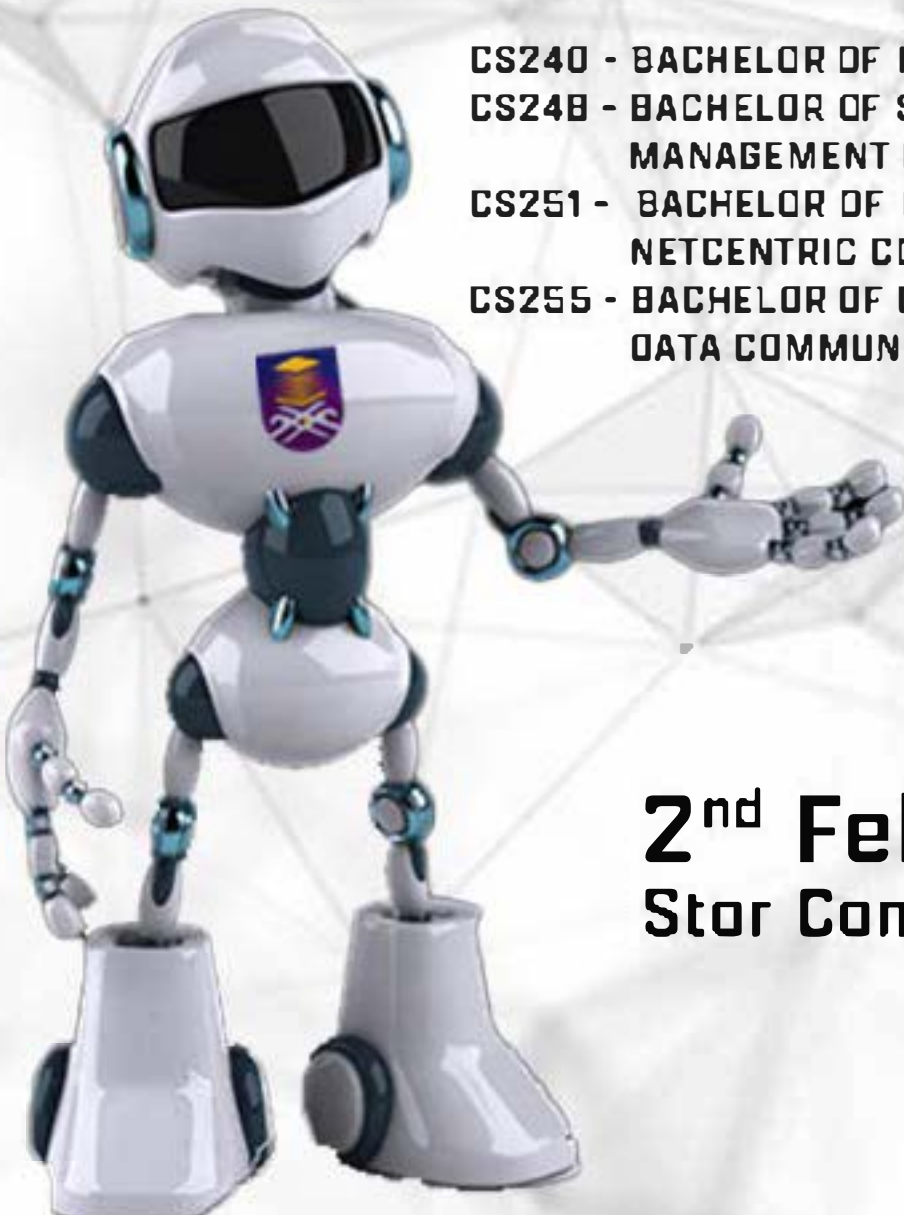

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0

- 
- CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]
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2nd February 2023
Stor Complex, UiTM Perlis

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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 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.



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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

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
REMACS 5.0

DATA VISUALIZATION OF BLOOD DONATION DURING CORONAVIRUS DISEASE (COVID-19) IN PERLIS

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Abstract

Blood donation is considered as collecting blood for a limited time before use, there is an ongoing need for a steady supply. Healthy individuals must donate blood on a regular basis to ensure that blood is always accessible whenever and wherever it is necessary, especially based on their respective blood types. However, during the COVID-19 pandemic that was expected to have a negative impact on blood system activities and reduce blood supply as an unintended consequence of social distancing measures against blood donation activities. The pandemic Covid-19 causes the percentage rate of blood donors to decrease dramatically. This study helps society to receive the trustworthy source of blood donation activities. Moreover, this study uses data visualization approaches to present blood donation information. This is because of society having a lack of awareness and knowledge to having a blood donation. Therefore, graphical elements will be used in interactive dashboard to improve the user understanding on analyzing the blood donation consequences during Covid-19 pandemic. The dashboard application will assist organisational leaders in accessing information resources in the form of visualisation. The dashboard system's purpose is to deliver basic information of the blood donate, as well as abstract performance measurement and intuitive visualisation. The finding of this research will provide evaluation on presentation of blood donate information among society. The methodology used in the creation of the system is divided into four phases which is preliminary study, analysis, development, and testing. It focuses on explaining problem statements, project objectives, project scope, and project significance at the preliminary study phase.

Keywords: blood donation, COVID-19, blood

1. Introduction

The dataset will be obtained from questionnaire and GitHub website. It contains multiple parameters in one dataset. However, to ensure the accuracy of the dataset and data visualization of blood donation it involves the data cleaning technique. To analyse the blood shortage, actual blood supply and demand were compared with the expected value (Guo & Chen, 2021). This dashboard can be used by the Northern Regional Blood Centre, National Blood Centre of Malaysia, and The Ministry of Health of Malaysia to ensure the blood supply is not interrupted during a Covid-19 disease and devise appropriate methods without exposing blood donors to Covid-19 infection. Every year, more than 20 million units of blood products are utilized in blood transfusions (Özener et al., 2019). The objectives of on this project are to analyse the techniques for blood donation information presentation in data visualization approach. Next, to design the dashboard and construct the data visualization in interactive charts. Finally, to evaluate the data visualization approach to promote blood donation using User Acceptance Test.

2. Methodology

This study design will be conducted using a survey from a google forms questionnaire to assess performance of the dashboard. Participants will be recruited among Hospital Tuanku Fauziah staff and University Technology Mara students who are from Bachelor of Information Technology (HONS.), all

participants will be required to sign a consent form. The distribution of the questionnaire and the data collection will be involving all staff from the blood bank unit at Hospital Tuanku Fauziah. All participants will be brief about the objective of the study and the instruction to answer the questions. Participant will be asked to answer the on Google form. During answering the question, participants will not be allowed to copy or asking for answer. They will be required to answer all questions sincerely. The duration to answer the questionnaire is around 15 mins. The questionnaire consists of 2 sections, with Section A is participants demographic data and Section B is the main questionnaire. Data will be collected and analyzed to determine the dashboard performance. The user acceptance test (UAT) is the final stage in the production of the application. This is intended to see the degree to which the dashboard can function and satisfy the needs of its users.

3. Results and Discussion

Blood donation is a public health issue essential to guarantee quality medical-surgical care and save millions of lives every year. Blood is continuously needed for the treatment of accident casualties, cancer treatments, organ transplants, anemia treatments, and major surgeries such as open-heart surgery (Özener et al., 2019). The primary intention of acceptance testing is to guarantee that the end user can meet the objectives outlined in the requirements. Acceptance testing involves reviewing the feature-complete application flow and end-to-end experience rather than focusing on the functioning of single features. End users are involved in user acceptance testing (UAT) and beta testing, both of which are subcategories of acceptance testing. The company may then examine the input and adjust as a result.

4. Novelty of Research / Product

There are several benefits that users can get from this Data Visualization of Blood Donation During Coronavirus Disease 2019 (COVID-19) in Perlis. The data visualization helps the parties involved aware of the blood supply in every centre in Malaysia. It is very important to keep the donor safe without being infected with Coronavirus. This project is useful to determine the statistic of the increment and decrement of an average person donating blood. The importance of this project is to facilitate understanding for the users to visualize the data. The data visualization useful for users exploring the data structure, detecting outliers and unusual groups, evaluating modelling output, and presenting results to make it more efficient.

5. Conclusion

This study achieved all the objectives, including visualizing blood donation dataset. The data was successfully presented in a dashboard and published using Microsoft Powe BI. It allows users to learn about blood donation and related statistics. Finally, this project will increase awareness regarding blood donation in Perlis that should be concerned.

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