

BLOOD CARE APPLICATION



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BLOOD CARE APPLICATION

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This report is submitted in partial fulfillment of the requirements for the Bachelor of [Computer Science (Software Development)] with Honours.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

2023

DECLARATION

I hereby declare that this project report entitled

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is written by me and is my own effort and that no part has been plagiarized
without citations.



STUDENT : _____ Date : 20 September 2023
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I hereby declare that I have read this project report and found
this project report is sufficient in term of the scope and quality for the award of
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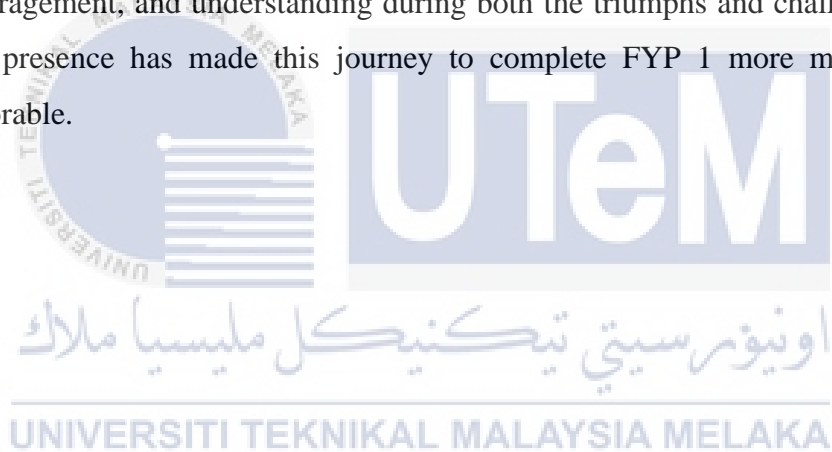
SUPERVISOR : _____ Date : 20 September 2023
TS. DR. LIZAWATI SALAHUDDIN

DEDICATION

Firstly, I would like to thank Almighty Allah and be grateful for giving me strength, and determination to plan, develop and finish this project by the end of the semester. I have also learned and gained knowledge when I was in the process of developing the system which can help improve my final system product. I dedicated this project to my beloved parents who supported me from the beginning of the project development until the end. Their support means a lot to me as they with me through ups and downs of the process. To my respected supervisor who was with me during the progress, giving me some advice to improve more and giving me support to finish the project. I really appreciate all these people for always supporting and being around me during the process of development and giving me strength to achieve my objective which is to successfully finish the project without having any problems.

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ABSTRACT

The field of the project studies is about the blood donation community in Malaysia. Blood donation is the voluntary act of giving blood to be used for medical purposes, typically to help patients who require blood transfusions. The donated blood is used to replace blood lost due to surgery, injury, or medical conditions such as anemia or blood disorders. The problem found in this report studies is when people who are working or studying wanted to donate their blood, but they do not have a pleasant time to do so as they were busy with their personal life. Therefore, this application allows users to make an appointment beforehand to make blood donations. Thus, users can go and do blood donation on the set time and date on the appointment list. The research processes for this project mainly use Agile Methodology with analyzing and planning requirement at the initial phase, following with design and developing the project and ending with testing and maintenance the system. As for testing, there are two types of testing conducted in this project which are Black Box Testing in Dynamic Testing and User Acceptance Testing. Questionnaires were used for User Acceptance Testing with 35 respondents managed to give between a scale of 1 to 5 based on the type of questions provided. Meanwhile, there are 40 success testing managed conducted by our end user and system tester for the Black Box Testing. The results obtained, which is the system product will be presented at the end of the project timeline.

ABSTRAK

Bidang kajian projek ini adalah mengenai komuniti penderma darah di Malaysia. Pendermaan darah adalah tindakan sukarela memberikan darah untuk kegunaan perubatan, biasanya untuk membantu pesakit yang memerlukan transfusi darah. Darah yang didermakan digunakan untuk menggantikan darah yang hilang akibat pembedahan, kecederaan, atau keadaan perubatan seperti anemia atau gangguan darah. Masalah yang ditemui dalam kajian ini adalah apabila orang yang bekerja atau belajar ingin menderma darah, tetapi mereka tidak mempunyai masa yang selesa untuk melakukannya kerana sibuk dengan kehidupan peribadi mereka. Oleh itu, aplikasi ini membolehkan pengguna membuat janji terlebih dahulu untuk menderma darah. Dengan itu, pengguna boleh pergi dan menderma darah pada masa dan tarikh yang ditetapkan dalam senarai janji. Proses penyelidikan untuk projek ini utamanya menggunakan Metodologi Agile dengan menganalisis dan merancang keperluan pada fasa awal, diikuti dengan reka bentuk dan pembangunan projek, dan diakhiri dengan ujian dan penyelenggaraan sistem. Mengenai ujian, terdapat dua jenis ujian yang dijalankan dalam projek ini iaitu Ujian Kotak Hitam dalam Ujian Dinamik dan Ujian Penerimaan Pengguna. Soal selidik digunakan untuk Ujian Penerimaan Pengguna dengan 35 responden berjaya memberikan penilaian antara skala 1 hingga 5 berdasarkan jenis soalan yang diberikan. Sementara itu, terdapat 40 ujian kejayaan yang dijalankan oleh pengguna akhir dan penguji sistem untuk Ujian Kotak Hitam. Hasil yang diperoleh, iaitu produk sistem akan dibentangkan pada akhir jangka waktu projek.

TABLE OF CONTENTS

	PAGE
DECLARATION.....	II
DECLARATION.....	II
DEDICATION.....	III
ACKNOWLEDGEMENTS.....	IV
ABSTRACT.....	V
ABSTRAK.....	VI
TABLE OF CONTENTS.....	VII
LIST OF TABLES.....	XIII
LIST OF FIGURES.....	XV
LIST OF ABBREVIATIONS.....	XVII
LIST OF ATTACHMENTS.....	XVIII
CHAPTER 1: INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Problem Statements.....	2
1.3 Objectives.....	2
1.4 Scopes.....	3
1.4.1 Modules to be developed.....	3
1.4.2 Target Users.....	4
1.5 Project Significance.....	5

1.6	Expected Output.....	5
1.7	Conclusion	6
CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY .		7
2.1	Introduction.....	7
2.2	Facts and Findings	7
2.2.1	Domain	8
2.2.2	Existing System	8
2.2.2.1	Physical Card Blood Donation	9
2.2.2.2	Physical Paper for Blood Appointment	9
2.2.2.3	Physical Poster for Blood Donation Campaign.....	10
2.2.2.4	Physical Certificate for Blood Donation.....	11
2.2.2.5	Comparison Table between Existing and Propose System.....	11
2.2.3	Technique	12
2.3	Project Methodology.....	13
2.4	Project Requirement.....	14
2.4.1	Software Requirements.....	14
2.4.2	Hardware Requirements	16
2.5	Project Schedules and Milestones.....	17
2.6	Conclusion	18
CHAPTER 3: ANALYSIS.....		19
3.1	Introduction.....	19
3.2	Problem Analysis	19
3.2.1	Overview of Current System	19

3.2.2	Overview of Proposed System.....	20
3.3	Requirement Analysis.....	21
3.3.1	Data Requirements.....	21
3.3.1.1	Data Dictionary.....	22
3.3.2	Functional Requirements.....	29
3.3.3	Non-Functional Requirements.....	31
3.3.4	Use Case Diagram.....	32
3.3.5	Sequence Diagram.....	33
3.4	Conclusion.....	33
CHAPTER 4: DESIGN.....		34
4.1	Introduction.....	34
4.2	High Level Design.....	34
4.2.1	System Architecture.....	34
4.2.2	User Interface Design.....	35
4.2.3	Conceptual and Logical Database Design.....	49
4.3	Detailed Design.....	51
4.3.1	Software Design.....	51
4.3.2	Physical Design.....	52
4.4	Conclusion.....	53
CHAPTER 5: IMPLEMENTATION.....		54
5.1	Introduction.....	54
5.2	Software Development Environment Setup.....	54
5.2.1	Android Studio.....	54
5.2.2	Visual Studio Code.....	55
5.2.3	XAMPP.....	56

5.2.4	phpMyAdmin.....	56
5.2.5	Programming Languages	57
5.2.6	Environment Architecture	58
5.3	Software Configuration Management.....	58
5.3.1	Installation and Setup of Android Studio	58
5.3.2	Installation and Setup of Visual Studio Code.....	63
5.3.3	Installation and Setup of XAMPP	66
5.4	Version Control Procedure	68
5.5	Implementation Status	68
5.6	Conclusion	71
CHAPTER 6: TESTING		72
6.1	Introduction.....	72
6.2	Test Plan.....	72
6.2.1	Test Organization.....	72
6.2.2	Test Environment.....	73
6.2.2.1	Environment Setup	74
6.2.2.2	Application Software	74
6.2.2.3	System Software	74
6.2.2.4	System Hardware	75
6.2.3	Test Schedule.....	75
6.3	Test Strategy	76
6.3.1	Dynamic Testing.....	76
6.3.2	User Acceptance Testing	77
6.4	Test Design	78

6.4.1	Test Description.....	78
6.4.1.1	Test Description for User Authentication.....	78
6.4.2	Test Data for Dynamic Testing.....	89
6.4.2.1	Test Data for User Authentication.....	89
6.4.2.2	Test Data for User Information and Health Details.....	93
6.4.2.3	Test Data for Booking Module.....	96
6.4.2.4	Test Data for Booking History.....	98
6.4.2.5	Test Data for QR Code Generator.....	99
6.4.2.6	Test Data for Google Maps API.....	101
6.4.2.7	Test Data for E-Certificate Generator.....	102
6.4.2.8	Test Data for Home Module.....	104
6.5	User Acceptance Testing.....	105
6.5.1	Questionnaires for User Acceptance Testing.....	105
6.6	Test Result and Analysis.....	107
6.6.1	Test Result for Dynamic Testing.....	107
6.6.1.1	Test Result and Analysis for User Authentication.....	107
6.6.1.2	Test Result for User Information and Health Details.....	108
6.6.1.3	Test Result and Analysis for Booking Module.....	109
6.6.1.4	Test Result and Analysis for Booking History.....	110
6.6.1.5	Test Result and Analysis for QR Code Generator.....	110
6.6.1.6	Test Result and Analysis for Google Maps API.....	111
6.6.1.7	Test Result and Analysis for E-Certificate Generator.....	112

6.6.1.8	Test Result and Analysis for Home Module.....	112
6.6.1.9	Summary of Recorded Test Case.....	113
6.6.2	User Acceptance Testing Analysis and Result	113
6.7	Conclusion	117
CHAPTER 7: PROJECT CONCLUSION		119
7.1	Observation on Weakness and Strength	119
7.1.1	Strength of Blood Care Application	119
7.1.2	Weakness of Blood Care Application.....	120
7.2	Proposition for Improvement.....	120
7.3	Project Contribution.....	120
7.4	Conclusion	121
REFERENCES.....		122
APPENDICES		123

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF TABLES

	PAGE
Table 2.1 Comparison Table between Existing and Propose System.....	11
Table 2.2 List of Hardware Requirements	17
Table 3.1 User Data Dictionary.....	22
Table 3.2 Health Record Data Dictionary	23
Table 3.3 Personal Information Data Dictionary.....	24
Table 3.4 Booking Data Dictionary	25
Table 3.5 Scanning Data Dictionary.....	26
Table 3.6 Blood Care Station Data Dictionary	27
Table 3.7E-Certificate Data Dictionary	28
Table 3.8 Functional Requirements.....	29
Table 3.9 Non-Functional Requirements	31
Table 6.1 Test Organization	73
Table 6.2 Application Software.....	74
Table 6.3 System Software	75
Table 6.4 System Hardware	75
Table 6.5 Test Schedule	76
Table 6.6 Test Case for User Authentication.....	78
Table 6.7 Test Case for User Information and Health Details.....	80
Table 6.8 Test Case for Booking Module	82
Table 6.9 Test Case for Booking History	84
Table 6.10 Test Case for QR Code Generator.....	85
Table 6.11 Test Case for Google Maps API.....	86
Table 6.12 Test Case for E-Certificate Generator	87
Table 6.13 Test Case for Home Module	88

Table 6.14 User Acceptance Questionnaires.....	105
Table 6.15 Test Result and Analysis for User Authentication	107
Table 6.16 Test Result for User Information and Health Details	108
Table 6.17 Test Result and Analysis for Booking Module	109
Table 6.18 Test Result and Analysis for Booking History.....	110
Table 6.19 Test Result and Analysis for QR Code Generator	110
Table 6.20 Test Result and Analysis for Google Maps API	111
Table 6.21 Test Result and Analysis for E-Certificate Generator.....	112
Table 6.22 Test Result and Analysis for Home Module	112
Table 6.23 Summary of Recorded Test Case.....	113
Table 6.24 Questionnaire Result - respondent	113
Table 6.25 Questionnaires Result - responses.....	114
Table 6.26 End User Average Satisfaction.....	116



LIST OF FIGURES

	PAGE
Figure 2.1 Physical Card Blood Donation.....	9
Figure 2.2 Physical Paper for Blood Appointment	9
Figure 2.3 Physical Poster for Blood Donation Campaign.....	10
Figure 2.4 Physical Certificate for Blood Donation	11
Figure 2.5 Agile Development Methodology.....	13
Figure 2.6 Android Studio IDE.....	15
Figure 2.7 Visual Studio Code	15
Figure 2.8 XAMPP Apache	16
Figure 3.1 Flowchart of the system.....	20
Figure 3.2 Use Case Diagram.....	32
Figure 3.3 Sequence Diagram	33
Figure 4.1 System Architecture of Blood Care Application.....	35
Figure 4.2 Login Page	36
Figure 4.3 Registration Page	37
Figure 4.4 Home Page	38
Figure 4.5 Map Page	39
Figure 4.6 Location Page	40
Figure 4.7 Calendar Page	41
Figure 4.8 Time Page	42
Figure 4.9 Booking Details Page	43
Figure 4.10 QR Code Confirmation Page.....	44
Figure 4.11 Health Information Page.....	45
Figure 4.12 Health Display Page.....	46
Figure 4.13 Profile Update Page	47

Figure 4.14 Profile Page.....	48
Figure 4.15 Conceptual Database Design.....	49
Figure 4.16 Logical Database Design	50
Figure 4.17 Software Design	51
Figure 4.18 Entity Relationship Diagram	52
Figure 5.1 Android Studio.....	54
Figure 5.2 Visual Studio Code	55
Figure 5.3 XAMPP	56
Figure 5.4 phpMyAdmin	56
Figure 5.5 Programming Languages	57
Figure 5.6 Environment Architecture	58
Figure 5.7 JDK Installation Interface	58
Figure 5.8 Android Studio Installation Interface.....	59
Figure 5.9 Android Studio Setup Interface I.....	59
Figure 5.10 Android Studio Setup Interface II	60
Figure 5.11 Android Studio Setup Interface III.....	60
Figure 5.12 Android Studio Setup Interface IV	61
Figure 5.13 Android Studio Setup Interface V.....	61
Figure 5.14 Android Studio Setup Interface VI.....	62
Figure 5.15 Android Studio Setup Interface VII.....	62
Figure 5.16 Download Visual Studio Code Interface.....	63
Figure 5.17 Setup Visual Studio Code Interface I.....	63
Figure 5.18 Setup Visual Studio Code Interface II.....	64
Figure 5.19 Setup Visual Studio Code Interface III	64
Figure 5.20 Setup Visual Studio Code IV	65
Figure 5.21 Setup Visual Studio Code V	65
Figure 5.22 Setup XAMPP Interface.....	66
Figure 5.23 List of Folders	66
Figure 5.24 XAMPP Interface	67
Figure 5.25 phpMyAdmin Interface.....	67
Figure 6.1 End User Average Satisfaction	117

LIST OF ABBREVIATIONS

FYP - **Final Year Project**



LIST OF ATTACHMENTS



CHAPTER 1: INTRODUCTION

1.1 Introduction

Blood Care Application is a mobile application developed for users who want to make blood donation booking through online. This application eases the users to make a blood donation without having to queue in the line for almost 2 to 3 hours which can reduce waste of energy and time. The system will generate QR Code when user already booked for a certain time and date for blood donation. This QR Code is used for users to scan to confirm their attendance based on the booking they have fulfilled before they went for blood donation. Basically, this QR Code scanning is to ensure user can successfully fulfill their slot time and date and the data will be stored in the database.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

This system will also ask user input about their health conditions such as the height, weight, blood pressure to help users identify if they qualified for the blood donation or not. After the blood donation process is done, an E-Certificate will be given to the donors through the system in PDF format. Other than that, Blood Care Application also has an administrator module which enables the system to generate reports and other functions such as CRUD process. The CRUD process includes the update of the date, time, and place of the data, the addition and deletion of the data in the database. Only authorized users who have the ID and password can login into the system as security of the confidentiality and integrity of users' data and information.

1.2 Problem Statements

Firstly, the problem found is waste of time and energy to queue and fill in the information manually through walk in process. The current process to register for blood donation is manually filling in the form on the paper, and queueing for the next session which is checking the blood pressure and getting approval from health officer to do blood donation. All this process is done manually in the concept of first come first serve. Therefore, it is a problem for people who are working or have no time to queue and wait for their turn to donor the blood.

Secondly, there is no assurance of the information to be stored securely if the process is done manually by using paper and pen. This is because the paper might get lost throughout the process as there are many people and many sessions need to be attended before handing the paper to the health officer. The data integrity also might get exposed to the third party if the paper gets lost in the middle of the process.

Lastly, paper waste due to registration form and printing the certificate to give to the blood donors after the blood donation process have been done also one of the problems analyzed during the study of the domain. Form registration needs to be printed as much as the health officer can as they do not have a specific number of blood donors who will come on that particular day as mostly blood donations are being held through campaign. The health officer also needs to print out the certificate to give to the blood donors after the process is done. This may cause paper waste which can affect the earth's environment.

1.3 Objectives

- I. To design a solution to facilitate blood donation appointment, user health records, and E-Certificate generation.
- II. To develop Blood Care Application by using Mobile Application Development.
- III. To test the developed Blood Care Application to function properly.

1.4 Scopes

1.4.1 Modules to be developed.

I. Login Module

In this module, users need to register an account before proceeding to login into the system. The system will ask for Email, Password, and Username for authentication purposes and the details will be stored into the database.

II. Booking Module

In this module, users need to set Date, Blood type, Start time and End time before confirming the booking. The system will display the details of the booking before confirmation of booking. After users press the confirmation button, the details of the booking will be stored into the database.

III. Searching Module

For this module, the system will provide Google Map API, where users can search for blood donation center near their place. In this system, there will be provide station in Melaka only, and there is only 3 blood donation Center will be provided in this system which are in Bukit Beruang, MITC Melaka and Dataran Pahlawan Melaka.

IV. QR Code Module

In this module, the system will generate QR Code and display the QR Code in the Current Activity. When the QR Code is generated, the system will send the QR Code into the database and will set the status to “Booking”. Users need to scan the QR Code on the scanning device provided at the blood donation center after they have done the process of blood donation.

V. Booking History Module

For this module, after users have finished scanning the QR Code after the blood donation process, the system will update the Booking History Page where the details of the booking will be displayed.

VI. Personal and Health Information Module

In this module, users need to insert their personal and health information into the system to store it into the database for analysis purposes. Users also can update the current personal and health information in the system.

VII. IOT Scanning Module

This IOT Scanning module is for the blood donation center to scan user's QR Code after the blood donation process is done. The scanning device will provide different sound to differentiate if the QR Code has been scanned beforehand. If the right sound is provided, the status in the database will change to "Done" which means the booking has been done.

VIII. E-Certificate Module

E-Certificate Module will be displayed after the blood donation process has been done. The system will provide an E-Certificate to users and the certificate can be exported to PDF file.

1.4.2 Target Users

I. Blood Donors or User

This Blood Care Application will be used by blood donors or users. Users need to register an account to login into the system. Users can choose any time and