



Faculty of Computer Science and Information Technology

**ANDROID MOBILE APPLICATION FOR BORNEO MEDICINAL PLANTS
AND HERBS**

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Bachelor of Computer Science with Honours

(Software Engineering)

**ANDROID MOBILE APPLICATION FOR BORNEO MEDICINAL PLANTS
AND HERBS**

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Projek ini merupakan salah satu keperluan untuk
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ABSTRACT

Borneo Island is one of the islands with a high biodiversity. This is because Borneo Island has a vast tropical rainforest and is rich with many species of flora and fauna. One of the flora that can be found in Borneo Island especially in Sarawak and Sabah is the medicinal plants and herbs. There are estimated around 1000 medicinal plants and herbs species that are known in Sarawak and Sabah. However, each plant has similar characteristics in terms of leaf shape, root shape or the flower pattern and each of this plant part have a different usage for the remedy. Therefore, only certain people such as the older generations who have knowledge in medicinal plants and herbs or the herbalists can identify those types of plants and their usage for remedy. By using the proposed system which is the Android Mobile Application for Borneo Medicinal Plants and Herbs, users can learn about the herbs and medicinal plants and also their remedy.

ABSTRAK

Kepulauan Borneo merupakan salah satu pulau yang mempunyai biodiversiti yang tinggi. Hal ini kerana Kepulauan Borneo mempunyai hutan hujan tropika yang luas dan kaya dengan pelbagai jenis flora dan fauna. Antara jenis flora yang terdapat di Kepulauan Borneo ialah tumbuhan ubatan dan herba. Terdapat kira-kira 1000 spesies tumbuhan dan herba yang telah dikenalpasti di Kepulauan Borneo khususnya di Sarawak dan Sabah. Namun untuk mengenalpasti spesies tumbuhan ubatan dan herba ini amatlah susah kerana di mata kasar kita, setiap tumbuhan itu mempunyai ciri ciri yang hampir sama dari segi bentuk daun, bentuk akar atau corak bunga di mana setiap bahagian tumbuhan ini mempunyai kegunaan yang berbeza. Oleh itu, hanya golongan-golongan tertentu seperti generasi yang lebih tua yang mempunyai pengetahuan dalam bidang tumbuhan ubatan dan herba atau pakar herba saja yang dapat mengenalpasti jenis-jenis tumbuhan itu beserta kegunaannya. Dengan wujudnya aplikasi yang dicadangkan iaitu Aplikasi Android untuk Tumbuhan Ubatan dan Herba Borneo, para pengguna dapat mengenali spesies tumbuhan ubatan dan herba dengan mudah dan juga dapat mengetahui cara penggunaannya.

CHAPTER 1 : INTRODUCTION

1.1 Project Title

Android Mobile Application for Borneo Medicinal Plants and Herb.

1.2 Introduction

Medicinal plant is a plant that is used with the intention of maintaining health, to be administered for a specific condition, or both, whether in modern medicine or in traditional medicine. Herbs are plants that have savoury or aromatic properties that are widely used for flavouring food, medicinal purposes or for fragrances. As the 3rd largest island in the world and the largest island in Asia, Borneo Island consists of 3 country which are East Malaysia and Brunei in the North while Indonesia to the South (Rodgers, 2019). Borneo is conservatively estimated to contain 15,000 plant species and can be considered as the highest plant diversity of any region on Earth (WWF, n.d.). There are approximately 1000 known plant species recorded with medicinal properties in Sarawak and Sabah and the plant species might getting more every year.

Most of the ethnicity in Sarawak and Sabah especially the older generation who acts as village herbalist or traditional healer have the knowledge of medicinal plants and herbs as a simple remedies. They know the parts of the plants that are suitable for the remedies. But there are only a few of younger generation that are interested with medicinal plants and herbs. This make the only people who expert in medicinal plants and herbs are the only one who will be able to identify the medicinal plants and herbs easily.

This mobile application will provide the information of medicinal plants and herbs for nature lover and general public with the hope that it will help them to learn more about the medicinal plants and herbs information.

1.3 Problem Statement

There are a few existing mobile application that allow the user to learn the type and usage of plants especially flowers, trees and leaves. Some of the existing mobile application such as PlantSnap and PlantNet: Plant Identification are not applicable for the plants in Asia especially for the medicinal plants and herbs in Borneo Island. This existing mobile applications are develop for plants that grow in Europe and Canada.

There are also people who don't know that name or usage of the medicinal plants and herbs especially the younger generation. They need to search the medicinal plants and herbs randomly hence will take some time for them to find it except they have the help from village herbalist or traditional healer.

1.4 Objectives

The main objective of Android Mobile Application for Borneo Medicinal Plants and Herb is to design and develop a mobile application system that contain a list of herbs and medicinal plants available in Borneo.

1.5 Methodology

The methodology model being used as the guideline for this project is Agile mobile application development methodology. Agile mobile application development methodology is an iterative and incremental approach to a mobile application development. In Agile methodology, it separates the entire application development process cycle into smaller segment parts known as sprint. This sprint iteration measures pieces of work assurance to ensure that there is no unnecessary number of redundancies and reduce the risk of performance failure

of the other task part. There are six phases in each sprint iteration of Agile methodology which are planning, design, build, test, review and launch as shown in Figure 1.1.

This methodology is chosen because it is more flexible and focuses to user satisfaction. Since Agile methodology is flexible, it allows the changes to be made in the project development requirement. Thus, it can reduce risk since the changes can help to improve the proposed project without disturbing the previous sprints. Besides, any new functionality can also be added to the proposed system according to the user need. Agile methodology also focuses to user satisfaction since the proposed project is deliver in the form of multiple sprints. The user can evaluate the system at the early phase of the proposed system prototype and give back the feedback regarding the prototype. By doing so, it can improve the proposed system quality since it promote the testing of every single sprint at the end of the sprint.

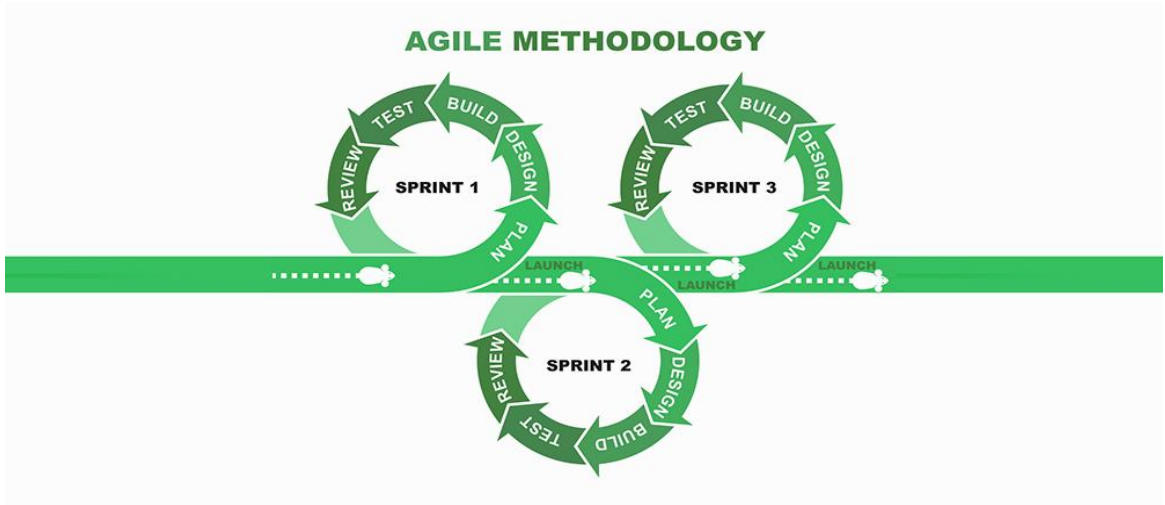


Figure 1.1: Agile Methodology phases.

a) Plan phase

The purpose of this phase are to investigate the problems and do the planning by sorting out the schedule. The schedule is sorted out between schedule of data collection part and development part.

b) Design phase

For the design phase, the process of designing the features and operation of the system can be created. At this phase, a storyboard, flow chart diagram, prototype will be designed based on the project requirements. The database will also be created here.

c) Build phase

The build phase is the most important phase in the mobile application development as in this phase, the development of the mobile application will be created. The development of the proposed system will focus on the coding section by using Java programming language in Android Studio. By using the proposed storyboard, the proposed system will be built according to it. Since there are 3 sprint iterations, the product of the build phase will be produced in sprint for each iteration. Each build in each iteration will consist at least one of the proposed system feature that has been explained in the previous section. This allow the user to test the prototype at the early stage of every iteration.

d) Test phase

The testing phase is to allow the developer to check and test whether the system meet the user's requirements, to check whether the system is working properly and to check the bugs. Every sprint will undergo the testing phase. There are two stages in the test phase which are software application testing and acceptance testing as shown in Figure 1.2.

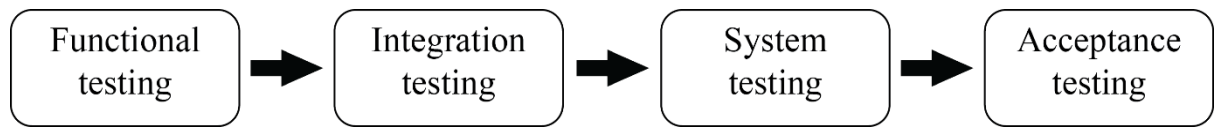


Figure 1.2: The flow for testing phase stage.

Software application testing is a process use to assess the functionality of a software application to find out whether the developed system fulfil the requirements and to identify any defects in the system ((Rajkumar, 2019). The purpose of this testing is to ensure there is no syntax, grammar or any routine errors in the proposed system. There are three types of testing in software application testing which are functional testing, integration testing and system testing. Functional testing is a type of software application testing where the system is examined against the functional requirements. Integration testing is another type of software application testing where several units are combined together and tested as a group. System testing is used to test a completed and integrated software to verify that it satisfy the requirements.

Acceptance testing is conducted once the system is completed with the software application testing. The purpose of acceptance testing is to appraise whether the proposed system's compliance with the requirements is acceptable for launching. In acceptance testing, there are two types of testing: alpha testing and beta testing. Alpha testing also known as mock client testing where the system is tested using expected data from local database. Beta testing is testing the system using real data from the real database.

e) Review phase

In review phase, the tested prototype will be shown to the potential target users to get the feedbacks and suggestions. The feedbacks and suggestions later can be used to improve the system in the next sprint.

f) Launch phase

Once the system is complete and approved, the system is ready to launch in the launch phase. In every each sprint, once the system is launch, the update version is included in this phase. This is to ensure that the system is working properly before start with the next sprint.

1.6 Scope

The Android Mobile Application for Borneo Medicinal Plants and is limited to Android user only. The targeted user for this mobile application are students who study about herb, nature lovers and public. The scope for the data collection for this system is using information and data of medicinal plants and herbs collected in Borneo only.

1.7 Significance of Project

The significance of this mobile application is to be able to helps users learn about the type of medicinal plants and herbs in Borneo. Another significant of this project is to promote the usage of medicinal plants and herb to public especially the younger generation. It is also important to get a collection of data of medicinal plants and herbs that exist in Borneo Island within one database system.

1.8 Project Schedule

The project schedule is an important part that act as the guidance for the developer to complete the project within the timeline and help to keep track of the project's progress. The timeline for the project to be completed is within first and second semester of Session 2019/2020. Gantt chart is use to create a timeline for the project schedule and to signify the project milestones. The timeline is divided into five major components which are planning

phase, system requirement analysis phase, design phase, implementation phase and testing phase. Figure 1.3 – Figure 1.7 depicts the time schedule for the project.

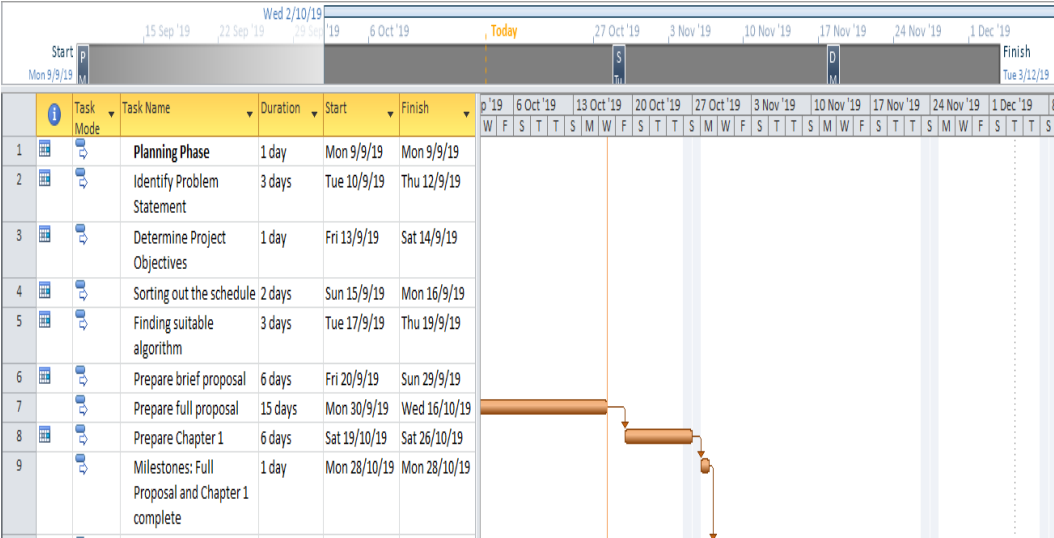


Figure 1.3: Gantt chart for planning phase (Semester 1).

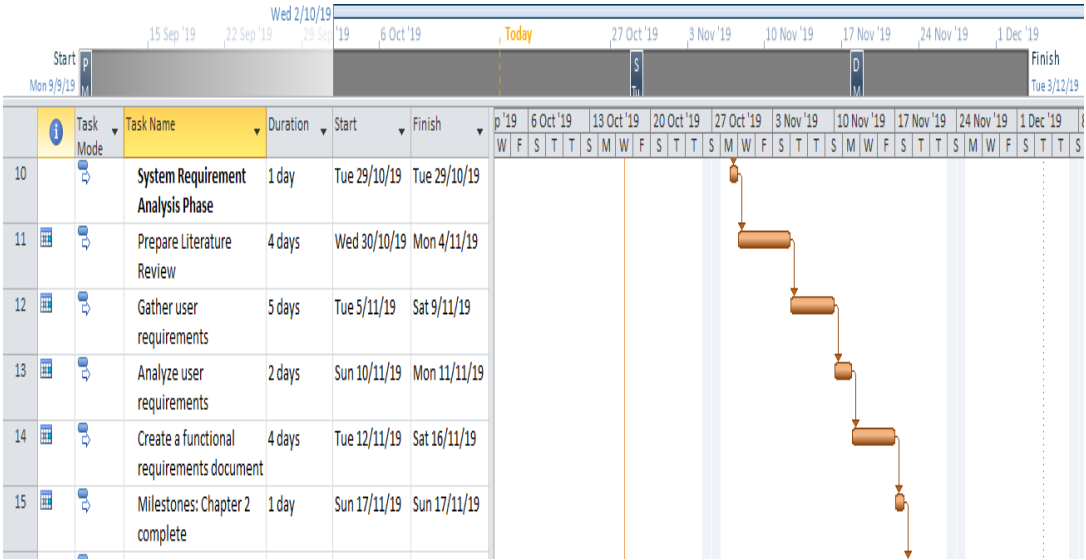


Figure 1.4: Gantt chart for system requirement phase (Semester 1).

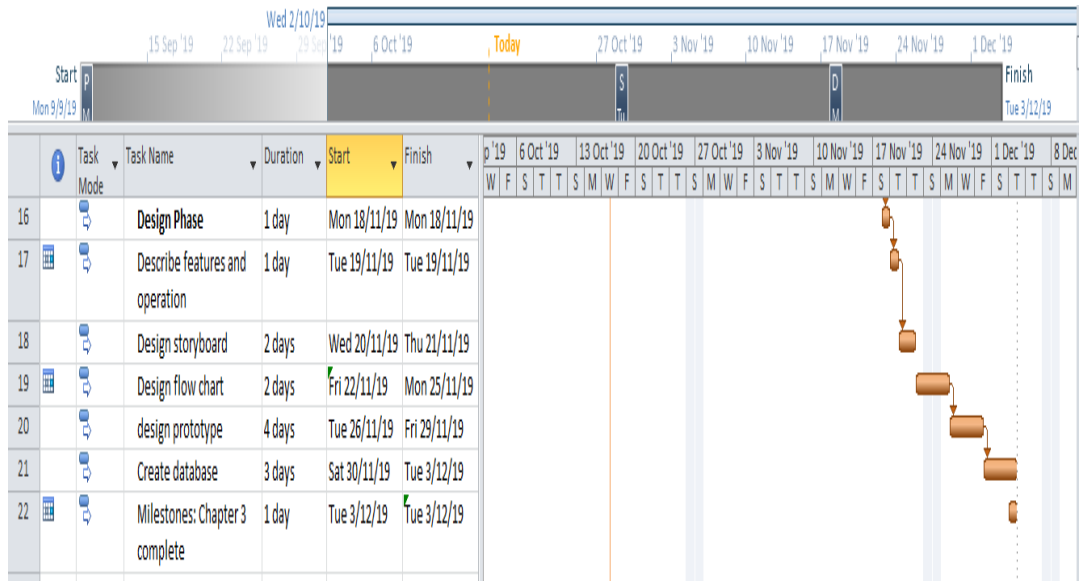


Figure 1.5: Gantt chart for design phase (Semester 1).

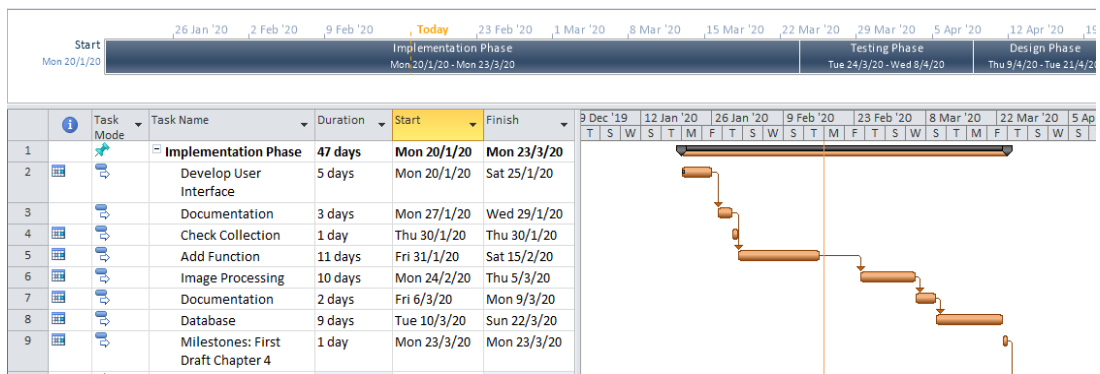


Figure 1.6: Gantt chart for implementation phase (Semester 2).

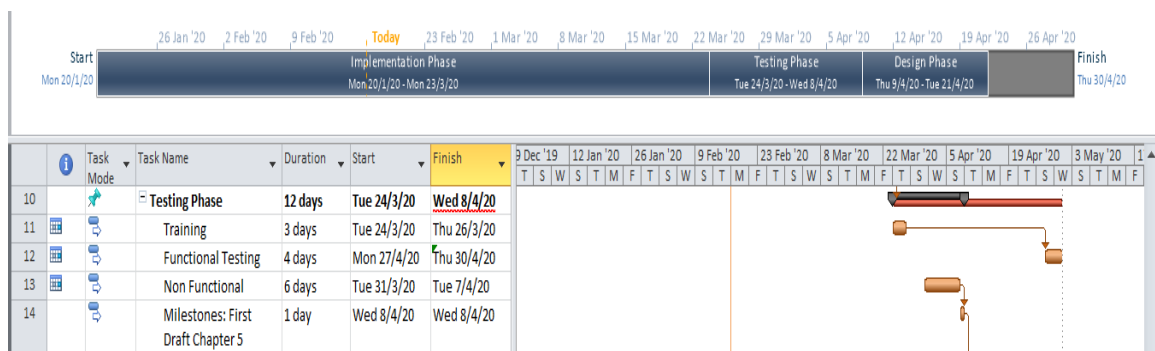


Figure 1.7: Gantt chart for testing phase (Semester 2).

1.9 Expected Outcome

The expected outcome for this project is to be able to develop a working prototype of the proposed system. This mobile application will be available and compatible in Android 7 and above operating system mobile application. The expected working prototype is an android mobile application that allow the user to learn about the medicinal plants and herbs in Borneo. It also contain a list of medicinal plants and herbs that are exist in Borneo Island. This list is listed based on its common name, scientific name, usage, locality and side effect.

1.10 Project Report Outline

Chapter 1: Introduction describes the overview and to introduce the proposed system. The sections details of the proposed system described in Chapter 1 are introduction, problem statement, objectives, methodology, scope, significance of project, project schedule, expected outcome and summary.

Chapter 2: Literature Review discusses about the literature review done on the existing applications. This chapter also discuss about the drawbacks of the existing application and the comparison between existing application with proposed system.

Chapter 3: System Analysis and Design emphasizes about the system analysis and design of the proposed system especially in the planning phase and design phase. This chapter also illustrates about the diagram used to explain the proposed system such as context diagram and data flow diagram.

Chapter 4: Implementation focus on the details of the system implementation such as design interface, prototype of the proposed system and the details of the proposed system features.