Faculty of Computer Science and Information Technology

Fitness and Health Android Mobile Application for UNIMAS student

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Fitness and Health Android Mobile Application for UNIMAS student

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Faculty of Computer Science and information Technology

UNIVERSITI MALAYSIA SARAWAK

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Aplikasi Mudah Alih Kecergasan dan Kesihatan Android untuk Pelajar UNIMAS

SIMON JAU

Projek ini merupakan salah satu keperluan untuk

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ABSTRACT

The purpose of the FitUNIMAS mobile Android application project is to tackle the rising of health problem among student. This project is aimed specifically at UNIMAS student. Health is one of the most important aspect in our life. Ignoring our health can only bring many health problems later in life. The rising of health problems among adolescence aged from 18 above is concerning. To develop the application, the methodology used is Waterfall Model due to time restriction and direct flow of works. To gather requirements, literature review of existing systems been done alongside questionnaire. The information gathered are analyze and UML diagrams with wireframe of the application are constructed to assist the development of the project. In the end of the development, an Android mobile application named FitUNIMAS will be designed, programmed and ready to be deployed to use by UNIMAS student.

ABSTRAK

Tujuan membangun aplikasi Android mudah alih FitUNIMAS adalah untuk menangani peningkatan masalah kesihatan di kalangan pelajar. Projek ini ditujukan khusus kepada pelajar UNIMAS. Kesihatan adalah salah satu aspek yang paling penting dalam kehidupan kita. Mengabaikan kesihatan kita hanya boleh membawa banyak masalah kesihatan di kemudian hari. Peningkatan masalah kesihatan di kalangan remaja berumur 18 tahun ke atas adalah membimbangkan. Untuk membangunkan aplikasi, metodologi yang digunakan adalah Model Air Terjun kerana sekatan masa dan aliran kerja langsung. Untuk mengumpul keperluan, tinjauan literatur sistem sedia ada telah dilakukan bersama soal selidik. Maklumat yang dikumpul dianalisis dan gambarajah UML dengan wireframe aplikasi dibina untuk membantu pembangunan projek. Di penghujung pembangunan, aplikasi mudah alih Android bernama FitUNIMAS akan direka bentuk, diprogramkan dan bersedia digunakan untuk digunakan oleh pelajar UNIMAS.

CHAPTER 1: INTRODUCTION

1.1 Introduction

Health is a state of complete physical, mental, and social well-being and not merely the absence of disease. Health problems are rising rapidly each passing day. The neglecting of health will bring many health problems. Teenagers especially students are also at risks of the problems. Among many reasons are they are too focus on academic and their sedentary lifestyle. Sedentary lifestyle are lifestyle where the person living the little to no physical lifestyle. The person will often just sitting or lying down for most of the time. Students often do this because they want to rest after class or any other activity.

They simply ignore the advice to take care of their health. Existing fitness application such as Google Fit, Home Workout – No Equipment or Fitness & Bodybuilding are not use widely by UNIMAS students because it is not targeted for them such as the location or the food advice. FitUNIMAS, the proposed project, is targeted at UNIMAS students and based on UNIMAS environment. This project can help UNIMAS students to be much healthier by providing BMI calculator so that they can monitor their weight, diet suggestion that specialized for UNIMAS student so that they know what and how much they can eat, exercises that they can do anytime and anywhere with ease and step counting so they motivate to be much better with time.

1.2 Problem Statement

Major health problems are on the rise. These happen because lack care of health. These problems are suffered by all age including teenagers. Some example are diabetes, high blood

pressure, obesity, migraine and others. There are many reasons on how this occur and one of them is simply the lack of physical activities. Other reason that contribute is the fact that fitness industry are racking on money. Many fitness or gym center have expensive monthly fee. Plus some of them are located far from students' location. Current fitness application are also not specified to students such the food advice and workout planning.

While in UNIMAS, the gym condition is poor and not well maintained. Besides that, students tend to make terrible food choices. They prefer eating fast food and often drink sweet beverages. They would avoid fruits and vegetables because of lack awareness on the importance of these type of food. Other issue are students tend to stick to their gadgets such as smartphone and laptop for hours while only sitting and lying down. UNIMAS have a lot of good environment around that can be used to do various types of workout. However, currently there is no specific guide for students to do workouts around UNIMAS. Therefore, a solution must be done to at least reduce these by suggesting better food option or exercise guide.

1.3 Objectives

There are three objectives that will be achieved in this project. The objectives are as follows:

- To design an Android application call FitUNIMAS that have workouts, BMI calculator, step counter, diet advice and stopwatch.
- To develop FitUNIMAS that will be a fitness/health application based on UNIMAS environment.
- To evaluate the application through acceptance testing and developer testing.

1.4 Procedures/ Methodology

For software development, there are a lot of method for development. One of the methods is the Waterfall Model. For this project, Waterfall Model is chosen because of time restriction to conduct the whole project. Waterfall Model is easy to use since each phase only be done if the previous phase is completed. In this approach, the process is divided into several phases. (SDLC–Waterfall Model, n.d.) Below are the diagram to show phases of Waterfall Model.

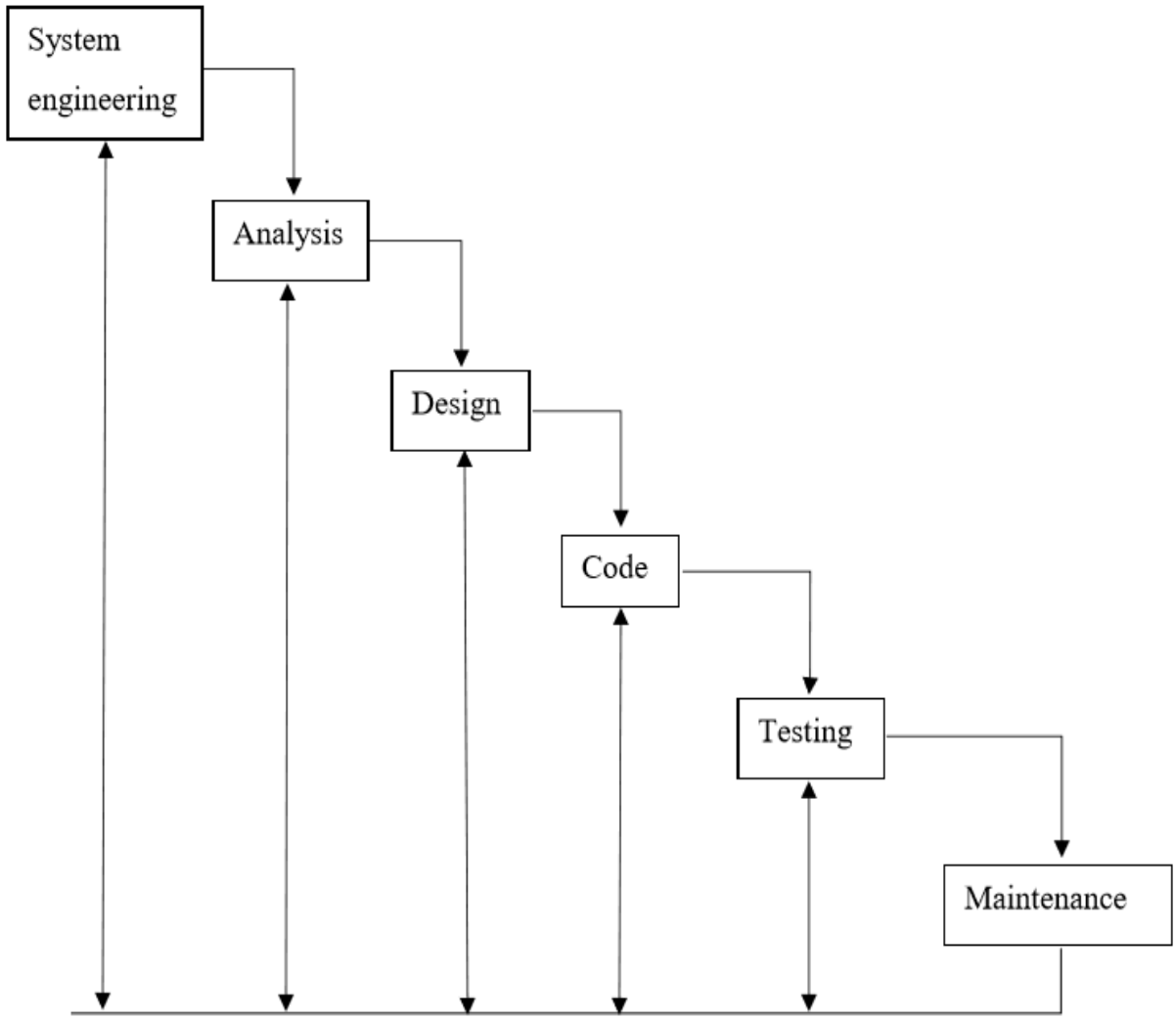

Figure 1.1: *Waterfall Model*

The six stages of Waterfall Model are as follows:

Requirement – For this project, the requirements will be collected from UNIMAS students. Such requirements are personal preference and opinion on the design of the application and the features it should include. The information will be use during the implementation stage so it align with user requirements.

Analysis – During this stage, software and hardware for development will be analyzed. For software, 3 existing similar applications will be analyzed to compare their features to develop the propose application. For hardware, appropriate devices such as laptop and Android mobile devices will be identified to assist the development of the project. Diagrams such as Data Flow Diagram will be produced.

Design – This stage covers the technical design requirements, such as programming language, data layer use and others. A design specification will be created that shows how the logic of the system works. Design of the Graphic User Interface (GUI) will be drafted to assist the development.

Coding – The actual source code will be written in this stage, which also see all the models implemented on this stage. Programming language that will be use is Android Java. The software that will be used is Android Studio for prototype development and Firebase for database.

Testing – This stage will involve the testing of the prototype of the project to check on the performance or any fault. Any issue will be reported and be resolved. A repeated cycle is expected here in order for any bugs to be demolish. The evaluation method will be use is functional testing and non-functional testing.

Operations – On this stage the application is ready to be deployed. FitUNIMAS will be available to be used and subsequent support and maintenance may be required to keep it functional and up-to-date.

1.5 Scope

The scope of the project is to build a fitness and health Android mobile application for UNIMAS student's age ranging from 18-35 years old. This is taking consideration of student from Pre University to Post Graduate. In addition, the application will be build based on UNIMAS environment. Furthermore, the project will be an application that cannot be use offline because it requires internet connection to login or sign up. It will not support the usage of wearable devices such as smart watch and also it does not measure user's health entirely.

1.6 Significance of the project

In a method to increase health awareness among UNIMAS students, the FitUNIMAS is a project worth doing because this project is aimed to help UNIMAS students to be more concerned of their weight, fitness level and healthier eating habit. It will help them to reduce the risk of major

health problems among students through physical activities and healthier eating habit plans. If students follow the advice, tips and routine, they could be much better in terms of fitness and health.

1.7 Project Schedule

Following figures (Figure 1.2 and Figure 1.3) are the Gantt chart for the project. It will give more insight on the planning of the project according to the duration. The tasks divided according to chapter. Each task take roughly 14-25 days. By the end of the semester calendar, all task will be completed.

Task Mode	Task Name	Duration	Start	Finish
	Brief Proposal	14 days	Tue 11/9/18	Fri 28/9/18
	Full Project Proposal	18 days	Tue 25/9/18	Thu 18/10/18
	Chapter 1: Introductio	17 days	Mon 17/9/18	Tue 9/10/18
	Chapter 2: Literature Review	27 days	Thu 11/10/18	Fri 16/11/18
	Chapter 3: Requirement Analysis & Design	30 days	Mon 29/10/18	Fri 7/12/18
	Final Year Project 1: Report submission	1 day	Fri 14/12/18	Fri 14/12/18
	FYP 1 Symposium	2 days	Thu 20/12/18	Fri 21/12/18
	Chapter 4: Implementation	28 days	Sun 27/1/19	Tue 5/3/19
	Chapter 5: Testing and Result	25 days	Mon 25/2/19	Fri 29/3/19
	Chapter 6: Conclusion and Future Work	21 days	Tue 19/3/19	Tue 16/4/19
	Final Year Project 2: Report submission	1 day	Wed 17/4/19	Wed 17/4/19
	FYP 2 Symposium	2 days	Fri 19/4/19	Mon 22/4/19

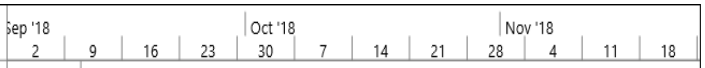

Figure 1.2: *Gantt chart part 1*

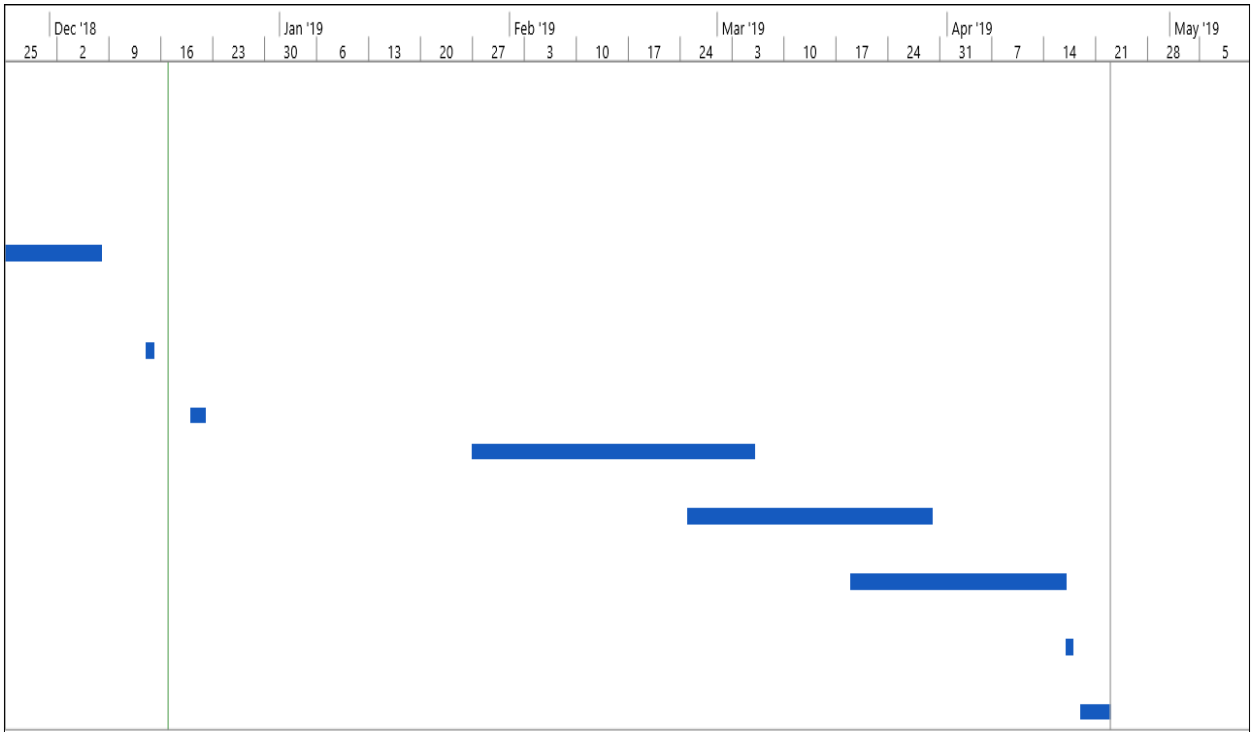

Figure 3: *Gantt chart part 2*

1.8 Expected Outcome

An Android application named FitUNIMAS made aiming specifically for UNIMAS students to help them get fitter and healthier. Moreover, it will also help to raise awareness about on the importance of staying healthy among students. Also a documented report will be produced.

1.9 Project Report Outline

1.9.1 Chapter 1 – Introduction

Chapter 1 focuses on of the proposed project. The chapter will include problem statement, objectives, procedure/methodology, project scope, the significant of the project, project schedule and expected outcome. The introduction focuses on some background and why existing system

cannot tackle the problem. Problem statement explains the reason why the problem happens. The objectives clarify the project's goal that will be expected to be achieved by the end of development. The procedure/methodology will be discussed briefly in this chapter. The scope meanwhile shows the limitations of the project. Project schedule is presented in Gantt chart to show the development steps and the planned dates of completion. The expected outcome describes the result of proposed project.

1.9.2 Chapter 2 – Literature Review

Chapter 2 focuses on the functionality of existing similar applications to be compare with proposed project, FitUNIMAS. Also compared are the UNIMAS environment and existing website that review diet advice for student on local food. The limitation or constraint of the existing application will be determined and examined to assist development. Three existing application are Home Workout –No Equipment, Freeletics BodyWeight and 30 Day Fitness Challenge – Workout at Home.

1.9.3 Chapter 3 – Requirement Analysis and Design

Chapter 3 focuses on the methodology to be used in the project. The methodology use is Waterfall Model. This chapter also incorporates the method use to acquire requirement from UNIMAS students. Such requirements will be collected through questionnaire. Some of the requirements include how the application should have, the training plans, extra features and other. The requirements will be analyzed for designing the application. The flow of the database will be presented in this chapter.