



The Use Of Integrated Development Environment (IDE) In Making An Android-Based Weight Calculator

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Received : November 2022

Accepted : December 2022

Published : January 2023

Abstract

Body weight is the result of a decrease or increase in all body tissues, including bone, muscle, fat, and other body fluids. In Indonesia, 13.5% of adults aged 18 years and over are overweight, while 28.7% are obese. The purpose of this paper is to produce an Android-based Ideal Weight Information and Calculation Application that makes it easy for users to find out weight categories and provide information about tips for maintaining, losing, and increasing weight using Android. The Android-based Ideal Weight Information and Calculation Application has several features, namely calculating body mass index, tips, eating schedule, and exercise. There is an explanation for each of these features. The Android-based Ideal Weight Information and Calculation Application was created using the Java programming language, JDK, Android-based XML and Android Studio with SDK.

Keywords : Java programming, Weight Information and Calculation Application

Introduction

A healthy lifestyle is currently being widely favored in the community, if talking about a healthy lifestyle means that it will talk about the ideal weight is very related to the health of the human body, but there are still many who assume that the ideal weight is a slim and thin body weight and even many still think that it's okay that the weight is not ideal as long as it stays healthy, with the word ideal, of course there is its own standard, as is the case with weight, each person has a different ideal weight depending on his height. Regulating diet, and keeping the body healthy in order to produce ideal body weight is important to prevent the emergence of various disorders in the health of the body, no less important is the concern and also knowledge about body weight, there are many ways to calculate it, one of which is the Brocca method, which is one of the simple methods in calculating ideal body weight, only enough to know height, then we can calculate the ideal body weight according to our height. Many problems occur if you do not maintain your weight, especially if you do not know the ideal weight for yourself. The ideal body weight for each person varies depending on height. Body weight affects the performance of organs and others. Excess or overweight can increase the risk of death and cause disease.

Lack of knowledge about the importance of ideal weight is still widely found in the community, that actually ideal weight has a lot of influence on the body, when we already know whether our weight is ideal or not we can immediately change our diet to be better and more regular, unideal weight can cause disease or unhealthy eating patterns. Another problem is when people start to care about ideal weight, but to calculate this ideal weight has a formula that is quite time consuming when done conventionally. The more advanced developments in the digital world, especially in the use of applications that make it easier to solve every problem. The development of a software application often encounters the making of the application failing. The failure of software development is usually called a software crisis, which in essence means that the software application created is not in accordance with the objectives to be achieved. How to avoid software crisis there are several methods in making a software application, one of which is Software Development Life Cycles (SDLC). SDLC



is the process of changing and creating systems, models, and methodologies used to develop software. SDLC is expected to produce high-quality system output that meets the expectations of users and stakeholders. Based on the increasing desire of the community to change their lifestyle to be healthier and the process of calculating weight as an early warning about the need for a healthy lifestyle that is difficult because not all people know about how to calculate it, then in this paper an Android-based weight calculator application is made using the System Development Life Cycle approach which will be written hereinafter mjd SDLC. The weight calculator application is expected to make it easier for users to find out the weight category and provide information about tips for maintaining, losing, and increasing weight using Android.

Methodology



Figure 1. SDLC stages

The methodology in this research uses the System Development Life Cycle (SDLC) approach, as for the stages carried out are:

First. Planning

Making an application begins with planning what will be made, but before planning what will be made, it is better to first explore the problems that occur. We can explore the existing problems by collecting data first, namely by using observation, and literature study:

Observation

Observation is a research method that uses how to see directly (observe) phenomena that occur in the environment regarding a healthy lifestyle, looking at several fitness centers or Fitness Centers around. Seeing some improvements in the community environment that began to hold sports facilities such as gymnastics and other sports.

Literature Study

Literature study is looking for reference sources contained in books, journals, articles and internet sites, which are related to research including journals about health and about making android applications.

Second. Analysis

At the analysis stage, based on the data collected into information that has been collected by collecting using the observation and literature study methods described in the planning stage, it will be analyzed. This stage is carried out in order to know the needs / requirements of the system, and the definition of these needs can be used as a reference for the application to be designed in this study.

Third. Design

Design is done to design an android-based weight calculator application, using a Navigation Structure. The reason for using a navigation structure is to know the flow of an application. The navigation structure used in making this application is a mixed navigation structure. The mixed navigation structure used is a combination of a linear navigation structure and a hierarchical navigation structure.

Fourth. Coding

Making program code is used to implement or realize program code which is the stage of translating the system design that has been made into the form of commands that the computer understands.

Fifty. Testing

System testing in two ways, namely Black box and white box testing. Black box testing is testing software to be error-free, which is a stage to see the state of a system. White box testing is testing the module to examine existing program codes or algorithms and analyze whether there are still errors or not. The weight calculator application tests the application using Black Box by testing it on several devices and types of Android Operating systems.

Sixty. Maintenance

The maintenance stage is the final stage, namely the stage of using and adjusting the program that has been completed. The activities can be in the form of repairs, changes or development after the application is implemented

Result

The Android-based Weight Calculator application is an application used for calculating ideal weight that makes it easy for users to determine weight categories and provide information on tips for getting the ideal weight by utilizing the Android platform mobile phone / smartphone as a medium. The Android-based Weight Calculator application displays things related to the size of the body mass index and information about tips that must be done in order to get the ideal weight. This application uses the official integrated development environment (IDE) software from Google to create an Android-based application, namely Android Studio. Apart from being a code editor and a reliable IntelliJ developer feature, Android Studio offers many features that increase your productivity in creating Android applications, such as: Flexible Gradle-based build system, Fast and feature-rich emulator, A unified environment where you can develop apps for all Android devices, Apply Changes to push code and resource changes to the running app without restarting the app, Code templates and GitHub integration to help you create common app features and import sample code, Comprehensive testing framework and tools, Lint tools to record performance, usability, version compatibility, and other issues, C++ and NDK support, Built-in support for Google Cloud Platform, which makes it easy to integrate Google Cloud Messaging and App Engine.

The design of the weight calculator application uses a navigation structure. The navigation structure that is created uses a mixed navigation structure, namely the Non-Linear and Hierarchical navigation structure.

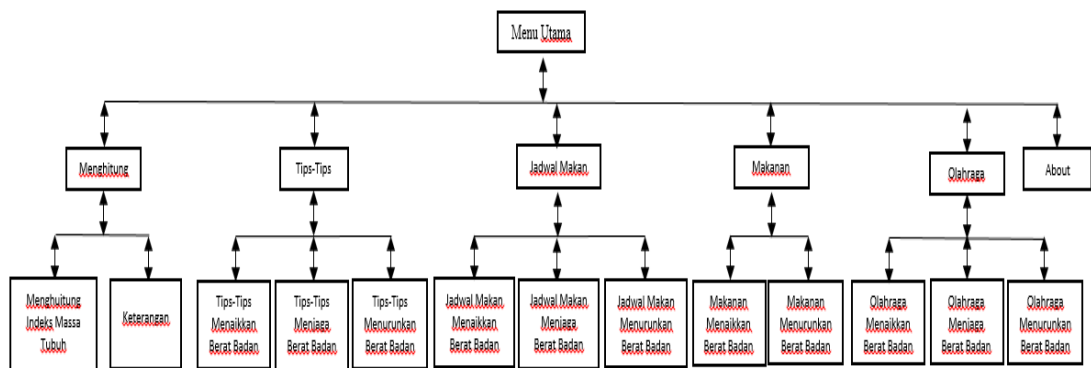


Figure 2. Navigation Structure View

Hardware is needed in the process of making weight calculator applications including :

Ideal Weight Based Android hardware (hardware) used is:

- Processor : Intel(R) Core(TM) i3-7020U CPU @ 2.30GHz 2.30 GHz
- RAM : 4,00 GB
- Monitor : ASUS DESKTOP-U1205I1



Memori : 4000 MB

Software to support creating an Android-based Ideal Weight Calculation and Information Application is:

- Installation of Java Development Kits (JDK)
- Android Software Development Kit (SDK) installation
- ANDROID STUDIO Installation

After preparing the hardware and software needed to make this application, at this stage an initial project will be created in Android Studio with a java class file and xml layout file. Menu stages will be made with class `mainactivity.java` and design with `main activity_main.xml`. The first stage will enter the images that will be entered into the menu. Menu view is the initial page of an Android-based Ideal Weight Calculator Application. If you want to enter this part of the application, you must enter the menu first. In the menu there is a Button destination the first choice is Button Counting, Button Tips, Button Meal Schedule, Button Food, Button Sports, and Button About. Counting Page will be made with class `calculate.java` and design with `activity_menghitung.xml`. The first step that will be made is to insert the images that will be input into Counting into the Drawable. Keeping Tips page is created with class `tipsmenjaga.java` and designed with `activity_tipsmenjaga.xml`. The first stage is made to enter the images that will be included in the Tips Keeping. The Meal Schedule page is created with class `jadwalmakan.java` and designed with `activity_jadwalmakan.xml`. The first stage will be made to insert the images that will be input into the Meal Schedule into the Drawable. The creation of the food display is the same as the creation of the meal page, which has a step of selecting the image that you want to make in the food. Then input into Drawable. After inputting into the Background of the Food to be displayed. The next step is to create two buttons that will be made in the Activity Schedule Meal, namely Button Food Increase Weight, and Button Food Lose Weight. Background Button made is brown. Text Button is made with black and there are also icons related to the body. The About page will be created with class `about.java` and designed with `activity_about.xml`. The first step is to enter the Background Color that will be inse:



Figure 3. Weight Calculator App View

After the application has been created, the next step is to move the project that has been made into the smartphone. By building the application located on the Android Studio menu bar. The application will be compiled and it will be seen whether the application is an error or not, if not then click Locate. Next, you will see an application that has been created called app-debug, click copy and paste it into a smartphone device. Then, choose which folder the application will be placed in, here the author will put the application in the Download folder. And the application has finished installing and is ready to be used on a smartphone device.

Testing is carried out on several devices that make a difference, namely on the Android version used. The following is a detailed table of tests that have been carried out.

Table 1. Test Results on multiple smartphones

No.	SmartPhone	Android Version	Expected results	Trial Results
1.	Asus Zefone X008DA	Versi Android TM6.0 Marshmallow CPU : Quad-core 1.25 GHz Cortex	Applications can be installed and display neatly	The application can be installed but the appearance is not neat and the processing speed is slow
2.	Redmi Note 9	Versi android 11 (Red Velvet Cake) RAM 4GB dan Memori Internal 128GB Layar 6,53 inci	Applications can be installed and display neatly	Application can be installed, neat display, full screen, and good processing speed
3.	Vivo Y71	Versi 8.1 (Oreo) RAM 3GB Memori Internal 32GB Layar 6.0 inci, 1440 x 720	Applications can be installed and display neatly	The application can be installed, the display is not neat, the screen is full, and the processing speed is good
4.	Samsung A50	Versi android 11 (Red Velvet Cake) RAM 4GB dan Memori Internal 64GB Layar 6,4 inci, 2340 x 1080 piksel Jenis layar Super AMOLED	Applications can be installed and display neatly	Application can be installed, neat appearance, full screen, and good processing spee
5	Samsung A51	Versi android 12 (Snow cone) Layar 6,5 inci, 1080 x 2400 pixel	Applications can be installed and display neatly	The application is installed, the appearance is not neat, the screen is full, and the processing speed is good

From the results of the application implementation trial on 5 smartphones with different android versions. This weight calculator application has a limitation for smartphones starting from version 5.0 (Lollipop), it can be concluded that the five smartphones tested can be installed properly without any obstacles. The layout that changes due to the difference in screen inches so that the menu layout display changes.

Conclusion

Aplikas kalkulator berat badan berbasis Android telah berhasil dibuat dan aplikasi ini dibuat menggunakan bahasa pemrograman Java. Aplikasi kalkulator Berat Badan Berbasis Android dibuat untuk pengguna android mengetahui kategori berat badan yang dihasilkan dari perhitungan membandingkan berat dan tinggi badan. Selain itu memberikan informasi mengenai tips-tips mendapat berat badan yang ideal.. Selain itu Aplikasi Kalkulator Berat Badan Ideal Berbasis Android memberikan informasi mengenai tips-tips untuk menjaga, menurunkan, dan menaikkan berat badan menggunakan Android. Aplikasi Kalkulator Berat Badan Ideal Berbasis Android memiliki batasan minimal yang digunakan pada smartphone dengan spesifikasi Android Versi 5.0 (Android Lollipop).

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