

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
JNANA SANGAMA, BELAGAVI – 590018, KARNATAKA



A Mini-Project Report
On
“BMI CALCULATOR”

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE MOBILE APPLICATION DEVELOPMENT (18CSMP68) COURSE OF VI SEMESTER

Submitted by

SHEETHAL K S
[1CG20CS092]

RUBEENA KOUSAR
[1CG20CS081]

Guide:

Mr. Shobha Agasibagil M. Tech.,
Asst. Prof., Dept. of CSE
CIT, Gubbi.

HOD:

Dr. Shantala C P Ph. D
Vice Principal & Head,
Dept. of CSE
CIT, Gubbi.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING



Channabasaveshwara Institute of Technology

(Affiliated to VTU, Belgaum & Approved by AICTE, New Delhi)

(ISO 9001:2015 Certified Institution)

NH 206 (B.H. Road), Gubbi, Tumkur – 572 216. Karnataka.



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2022-23

CERTIFICATE

This is to certify that the project entitled “**BMI CALCULATOR**” has been successfully carried out by SHEETHAL K S [1CG20CS092] and RUBEENA KOUSAR [1CG20CS081] in partial fulfillment for the VI semester during the academic year **2022 - 23**. It is certified that all the corrections / suggestions indicated for internal assessment have been incorporated in the report. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the VI semester.

Guide

Mrs.Shobha Agasibagil M.Tech,
Asst. Prof., Dept. of CSE
CIT, Gubbi.

HOD

Dr. Shantala C P Ph. D,
Vice Principal & Head,
Dept. of CSE,
CIT, Gubbi.

Principal

Dr. Suresh D S Ph. D,
Director & Principal
CIT, Gubbi.

External Viva

Name of Examiners

1. _____

2. _____

Signature with date



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DECLARATION

We, **SHEETHAL K S** and **RUBEENA KOUSAR** students of VI Semester, B.E, in Computer Science and Engineering, **C.I.T, Gubbi**, hereby declare that the project work entitled “**BMI CALCULATOR**”, embodies the report of our project work carried out independently by us under the guidance of **Mrs.Shobha Agasibagil**, Assistant Professor, Department of CSE, CIT, Gubbi, as partial fulfillment of requirements for the VI Semester during the academic year **2022-23**. We further declare that the project has not been submitted for the award of any other degree.

Place: GUBBI

Date:

SHEETHAL K S

[1CG20CS092]

RUBEENA KOUSAR

[1CG20CS081]

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Project Associates:

SHEETHAL K S

[1CG20CS092]

RUBEENA KOUSAR

[1CG20CS081]

ABSTRACT

Modern hand held devices such as smart phones and PDAs have become increasingly powerful in recent years. As mobile devices become more like PCs they will come to replace objects we tend to carry around such as checkbooks, credit cards, cameras, planners, mp3 players etc. In short, we will be using them to accomplish our daily tasks. One application that falls into this category is the BMI Calculator Application developed for the Google Android Phones. The BMI Calculator App is a software application which avoids more manual hours that need to spend in personally calculate and find the BMI for a particular person at a single click.

BMI stands for “Body Mass Index” which is a physical measurement used to assess an individual’s total amount of body fat. The BMI scores give an indirect measure of body fat. Depending on the BMI value calculated individual may be underweight, normal, overweight or obese.

The prime Objective of “BMI Calculator” is to create a full-fledged Android application which could increase the awareness of overweight and underweight as a major public health threat and to increase the proportion of person’s who know the health risk and diseases associated with overweight and underweight

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CHAPTER 1

INTRODUCTION

1.1 About BMI Calculator

Human health is one of the most important factors influencing economic development in any economy. Human health is defined as the state of well-being with regards to the mental, physical, and social aspects of the human condition. A person cannot be called healthy merely because of the absence of disease; he or she needs to be doing well in all ways to qualify as healthy. Nowadays being overweight or being under weight is also not good for health they may cause several serious problems. Obesity is a condition that occurs when a person puts on excess body fat. It can leads to heart-related disease, blood pressure, hypertension, cholesterol.

It is very essential to take concern about body weight. Using BMI value, we can keep track our weight with respect to height. So, our main aim is to increase the awareness of overweight and obesity as a major public health threat and to increase the proportion of person's who know the health risk and diseases associated with overweight and obesity.

The project, "BMI CALCULATOR" is also a step towards offering more or less the similar features. This system enables to calculate the BMI value by considering the individuals height and weight. The BMI is a simple, inexpensive screening tool used to identify possible weight problem of an individual.

1.2 About Android

Android is the Linux-based open-source operating system for mobile devices like smartphones & tablets. However, nowadays, many other devices are incorporating android in them to turn them into smart devices such as Smart TVs, Smart car interface for GPS, electrical appliances, etc. This software was unveiled in 2007 & the first Android Device was launched in September 2008. Since then Google, the sponsor of Android has been releasing its software updates, versions almost every year.

Android also offers several features:

1. NFC (Near Field Communications): NFC Allows electric devices to easily

interact

across short distances.

2. Alternate keywords: It supports multiple keyboards & makes them easy to install.
3. Beautiful and Interactive UI
4. Storage: SQLite a lightweight relational DB is used for data storage.
5. Multi lang: Supports single direction & Bi-Directional.

Android offers a unified approach to application development for mobile devices which means developers need only develop for Android, and their applications should be able to run on different devices powered by Android. The source code for Android is available under free and open source software licenses. Google publishes most of the code under the Apache License version 2.0 and the rest, Linux kernel changes, under the GNU General Public License version 2.

1.3 Scope and application of mini project

- To increase the awareness of overweight and obesity as a major public health threat.
- To increase the proportion of person's who known the health risk (hypertension, insulin resistance, etc.) and diseases (i.e., diabetes, cardiovascular disease, cancer, arthritis, asthma, and disability) associated with overweight and obesity.
- To increase early recognition of overweight and/or Excessive weight gain.
- To increase the proportion of adults who know their own weight status and their children's weight status.
- To increase understanding and use of BMI by general population.
- To increase the proportion of pregnant of woman who gains the optimal recommended amount of weight based on a woman's pre-pregnant weight during their pregnancies.
- To increase awareness and knowledge about healthy eating. · To increase the number of healthcare providers who use effective methods to encourage patients to increase physical activity levels.
- To increase awareness and knowledge about healthy eating.
- To increase the proportion of person s counseled about the benefits of eating healthy

and using food appropriately.

- To increase and maintain effective public health responses to the obesity epidemic.

CHAPTER 2

HISTORICAL REVIEW

2.1 Related Work

The BMI is a simple, inexpensive screening tool used to identify possible weight problem of an individual. A BMI measurement is useful to assess who needs further testing to identify health risks such as heart disease. Individuals at risk will need further assessment. Assessments may include skin fold thickness test, diet, physical activity level, family history and other appropriate health screenings.

It is very essential to take concern about body weight. Using BMI value, we can keep track our weight with respect to height. So, our main aim is to increase the awareness of overweight and obesity as a major public health threat and to increase the proportion of person's who know the health risk and diseases associated with overweight and obesity.

The project, "BMI CALCULATOR" is also a step towards offering more or less the similar features. This system enables to calculate the BMI value by considering the individuals height and weight. The BMI is a simple, inexpensive screening tool used to identify possible weight problem of an individual.

2.2 Problem Statement

Nowadays being overweight or being under weight is also not good for health they may cause several serious problems. Obesity is a condition that occurs when a person puts on excess body fat. It can leads to heart-related disease, blood pressure, hypertension, cholesterol. Being underweight is often not taken seriously as being over-weight. Being underweight i.e., is having BMI value under 18.5 can cause serious health issues or even death. So it is very essential to take concern about body weight. Using BMI value, we can keep track our weight with respect to height.

2.3 Proposed System

The BMI Calculator App is software applications which avoids more manual hours that need to spend in personally calculate and find the BMI for a particular person at a single click. This application keeps both the standard in it ie American standard and Indian standard too. This app gives us all the information in both the standards which is not given in existing app.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 SYSTEM REQUIREMENTS

3.1.1 Hardware Requirements

- Processor: Intel core Duo 2.0GHz or more
- RAM: 6GB or more.
- Hard disk: 80GB or more
- Monitor: 15” CRT or LCD monitor
- Keyboard: Normal or Multimedia
- Mouse: Compatible mouse

3.1.2 Software Requirements

- Operating system: Windows® Vista 64-Bit / Windows® 7 64-Bit / Windows® 8 64-Bit / Windows® 8.1 64-Bit.
- Java JDK 11.0.12(recommended)
- Android SDK: Android Studio and SDK tools

3.2 Functional Requirements

These requirements are implicit to the system and may be so fundamental that actor/gamer/relevant people does not explicitly state them .Their absence will be a cause for dissatisfaction.

1. Develop system within limited cost.
2. Maximum high definition.
3. Minimum hardware requirements which is relevant for this game.
4. Design whole system with efficient manner.

3.3 Development Tasks

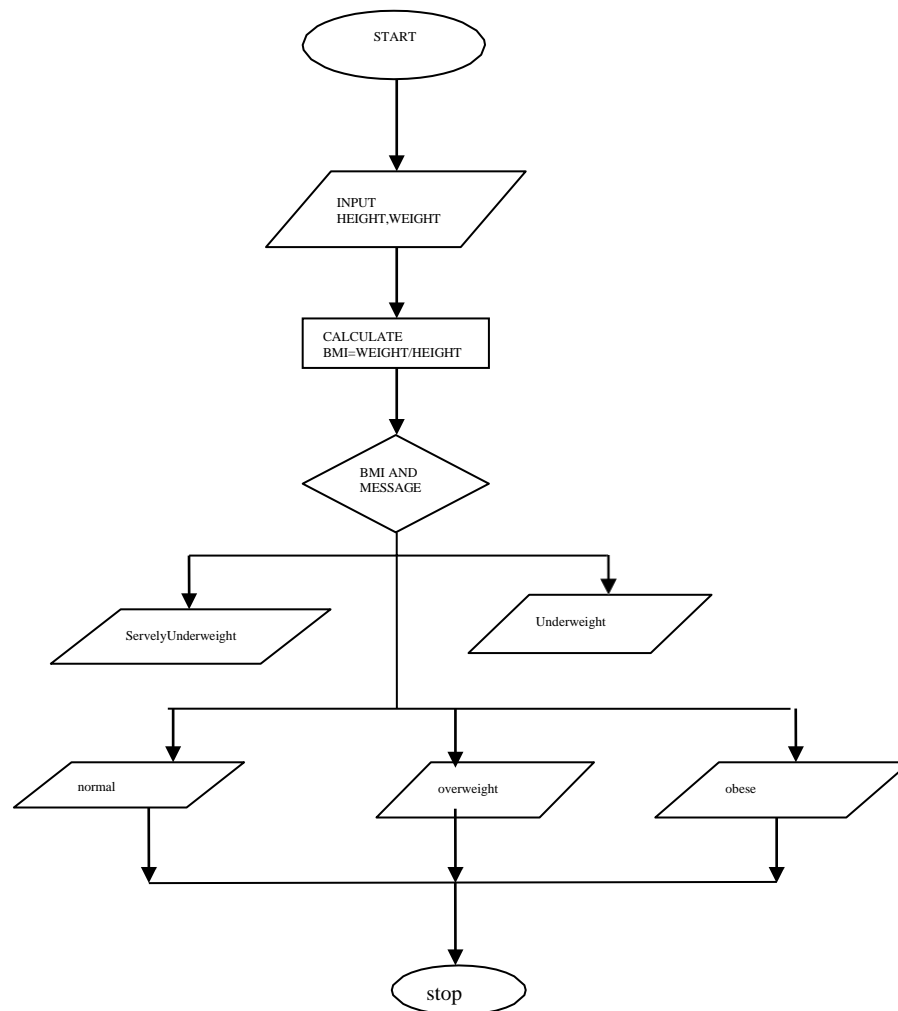
1.Android Studio will bring all of the following codes together to create the game. It will also

handle AI and physics routines.

2.Graphics engine will be responsible for rendering text, 2D images, and 3D models on screen.

- Drawing models
- Drawing sprites

- Drawing text
 - Texturing models
 - Animation
3. Sound engine will be responsible for playing music and sound effects.
- Multithreading
 - Playing sounds
4. Input engine will be responsible for transferring mouse and keyboard input upon request to the game engine.
- Retrieving Input
5. Menu Engine will handle all menus in game.

CHAPTER 4**SYSTEM DESIGN****4.1 Flow chart****FIG 4.1 Flow chart**

Before getting to implement the game directly we'll understand the files that we have created for this application.

1. Tic Tac Toe board. Through this, we manage the interface of the Android Application.
2. The next important file is the MainActivity.java file. This file makes the application

The first file that we have created is activity_main.xml, this file has the layout of the actually work. It has all the methods that make functioning in the app possible.

4.2 SYSTEM DESIGN

System Design is the most creative and challenging phase in the system life cycle. Design is the first step into the development phase for any engineered product or system. Design is a creative process. A good design is the key to effective system. System design is a solution how to approach the creation of a new system. System design transforms a logic representation of what is required to do into the physical specification. The specification is converted into physical reality during development.

4.3 Logical design

The logical flow of a system and define the boundaries of a system. It includes the following steps:

- Reviews the current physical system – its data flows, file content, volumes, frequencies etc
- Prepares output specifications – that is, determines the format, content and Frequency of reports.
- Prepares input specifications – format, content and most of the input functions.
- Prepares edit, security and control specifications.
- Specifies the implementation plan.
- Prepares a logical design walk through of the information flow, output, input, controls and implementation plan.
- Reviews benefits, costs, target dates and system constraints.

4.4 Physical design

Physical system produces the working systems by define the design specifications that tell the programmers exactly what the candidate system must do. It includes the following steps.

- Design the physical system.
- Specify input and output media.
- Design the database and specify backup procedures.
- Design physical information flow through the system and a physical design Walk through.
- Plan system implementation.
- Prepare a conversion schedule and target date.
- Determine training procedures, courses and timetable.
- Devise a test and implementation plan and specify any new hardware/software

CHAPTER 5

SYSTEM IMPLEMENTATION

5.1 XML CODE

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/activity_main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:orientation="vertical"
    tools:context="com.ssaurel.bmicalculator.MainActivity">

<TextView
    android:text="@string/weight"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal"
    android:gravity="center_horizontal"
    android:layout_marginTop="50dp"
    android:textSize="20sp"/>

<EditText
    android:id="@+id/weight"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal"
    android:layout_marginTop="10dp"
    android:ems="6"
    android:inputType="number|numberDecimal"
```



```
android:textSize="20sp"/>
```

```
<TextView
```

```
    android:text="@string/height"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal"
    android:gravity="center_horizontal"
    android:layout_marginTop="50dp"
    android:textSize="20sp"/>
```

```
<EditText
```

```
    android:id="@+id/height"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal"
    android:layout_marginTop="10dp"
    android:ems="6"
    android:inputType="number|numberDecimal"
    android:textSize="20sp"/>
```

```
<Button
```

```
    android:id="@+id/calc"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal"
    android:layout_marginTop="25dp"
    android:onClick="calculateBMI"
    android:text="@string/calculateBMI"
/>
```

```
<TextView
```

```
    android:id="@+id/result"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```

```
        android:layout_gravity="center_horizontal"
        android:gravity="center_horizontal"
        android:layout_marginTop="25dp"
        android:textSize="20sp"/>
</LinearLayout>
```

5.2 JAVA CODE

```
package com.example.bmicalculator;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        final EditText edWeg,edHei;
        final TextView txtRes,txtInter;
        Button btnRes,btnReset;

        edWeg=(EditText) findViewById(R.id.edweg);
        edHei= (EditText) findViewById(R.id.edhei);
```

```
txtInter=(TextView) findViewById(R.id.txtinter);
txtRes=(TextView) findViewById(R.id.txtres);

btnRes= (Button) findViewById(R.id.btnres);
btnReset= (Button) findViewById(R.id.btnreset);

btnRes.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        String strweg= edWeg.getText().toString();
        String strhei= edHei.getText().toString();

        if(strweg.equals("")){
            edWeg.setError("Please Enter Your Weight ");
            edWeg.requestFocus();
            return;
        }
        if(strhei.equals("")){
            edHei.setError("Please Enter Your Height");
            edHei.requestFocus();
            return;
        }

        float weight = Float.parseFloat(strweg);
        float height = Float.parseFloat(strhei)/100;

        float bmiVlaue = BMICalculate(weight,height);
```

```
        txtInter.setText(interpreteBMI(bmiVlaue));
        txtRes.setText("BMI= "+bmiVlaue);

    }
});

btnReset.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edHei.setText("");
        edWeg.setText("");
        txtInter.setText("");
        txtRes.setText("");
    }
});

}

public float BMICalculate(float weight,float height){
    return weight / (height * height);
}

public String interpreteBMI(float bmiValue){
    if( bmiValue <16){
        return "Servely Underweight";
    }
    else if(bmiValue <18.5){
        return "Underweight";
    }
    else if(bmiValue < 25){
        return "Normal";
    }
}
```

```
    }  
    else if(bmiValue <30){  
        return "OverWeight";  
    }  
    else  
        return "Obese";  
    }  
}
```

Chapter 6:

TESTING

Testing is a process of executing a program with the intent of finding an error. Testing is a crucial element of software quality assurance and presents ultimate review of specification, design and coding. System Testing is an important phase. Testing represents an interesting anomaly for the software. A good test case is one that has a high probability of finding an as undiscovered error.

6.1 Test levels

The test approach is divided into three main phases: Module testing, integration testing and system testing. In addition, the system testing includes two sub-phases: functional and usability testing. These planned tests are explained briefly below.

- 1. Unit testing** is a type of software testing that focuses on individual units or components of a software system. The purpose of unit testing is to validate that each unit of the software works as intended and meets the requirements.
- 2. Integration testing** will perform after finish module testing in order to validate if each module can work fine with each other. Integration Test proves that system works as integrated unit when all the fixes are complete.
- 3. System testing** includes two phases: functional testing and usability testing. These will perform after the product reaches its final version. During functional test phase, the tester will test if the product meets the requirements.
- 4. Acceptance Testing** is the last phase of software testing performed after System Testing and before making the system available for actual use.

CHAPTER 6

OUTPUT

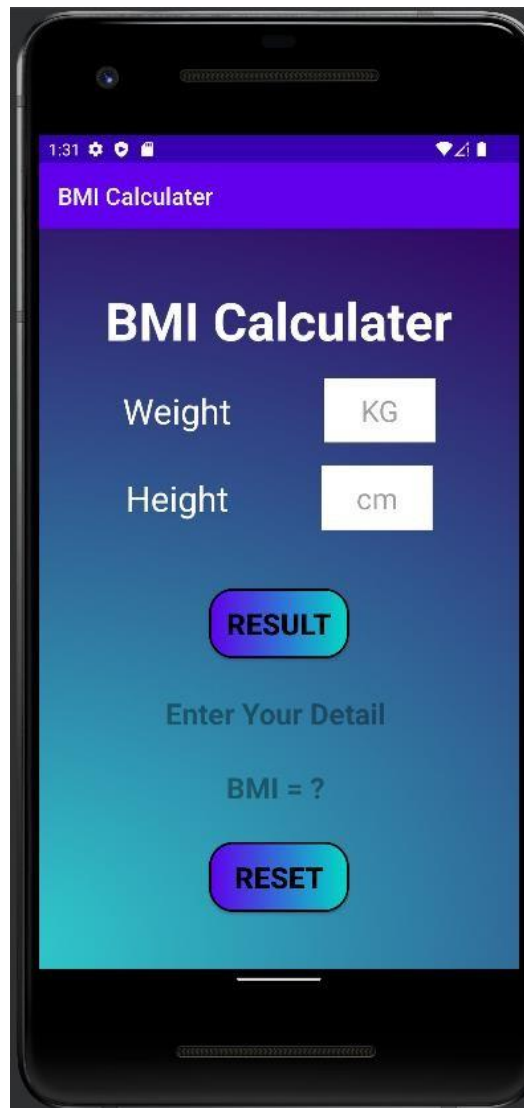


Fig 6.1 Initial view of bmi calculator

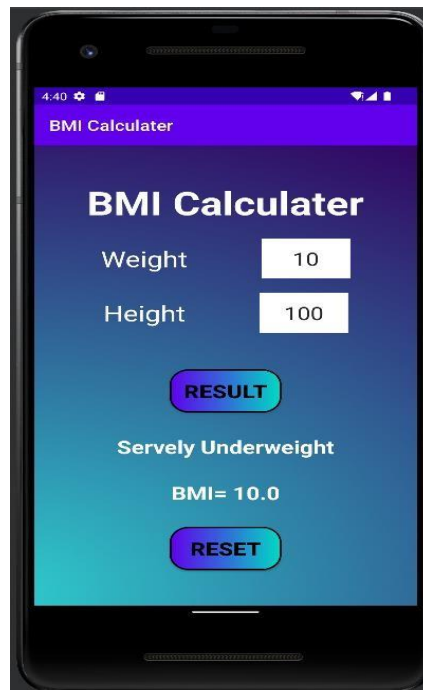


Fig 6.2 BMI value with servely underweight



Fig 6.3 BMI value with underweight

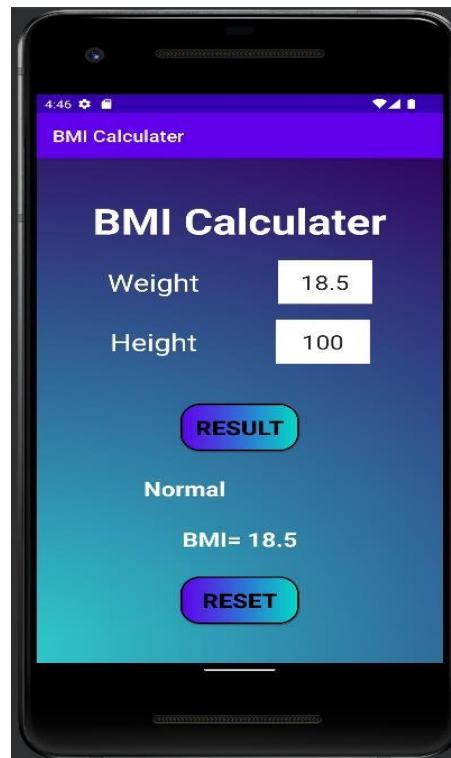


Fig 6.4 BMI value with normal



Fig 6.5 BMI value with overweight

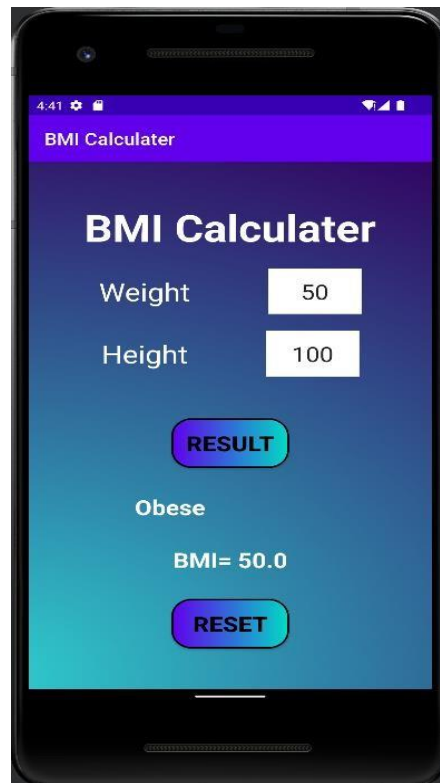


Fig 6.6 BMI value with obese

CHAPTER 7

CONCLUSION

The BMI calculator Application is developed and designed to calculate the amount of fat present the body of an individual. This application will give a lot of benefits which consists quick relation between weight and height of an individual. This system is simple, and it would make the work to become easier. The system also saves cost and time. The main purpose of it to make sure that the people can maintain their health and live-in healthy life.

7.1 Future Enhancement

- More advanced software can be given to BMI calculator application for including more features
- The platform can be hosted on the online servers to make it accessible worldwide.
- Further, in future talkback feature can be added to convey the suggestions. we can also provide the proper diet chart to overcome the problem.

CHAPTER 8

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- Java Tutorial <https://www.w3schools.com/java/>