

SINHGAD INSTITUTE OF TECHNOLOGY LONAVALA

KUSGAON (BK), LONAVALA, PUNE- 410401

DEPARTMENT OF COMPUTER ENGINEERING

A PROJECT REPORT ON

Smartphone Applications for Health and Fitness

SUBMITTED IN FULFILLMENT FOR SUBMISSION OF Project Based Learning-II

SUBMITTED BY

Khot Noorin Nasir [72028954J] Kathe Parikshit Jayant [72028944M] Kohakade Aakanksha Dnyanadev [72028956E] Khandare Anand Sangitrao [72028951D]



Savitribai Phule Pune University



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CERTIFICATE

This is certified that the PBL II Project Entitled

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Khot Noorin Nasir [72028954J] Kathe Parikshit Jayant [72028944M] Kohakade Aakanksha Dnyanadev [72028956E] Khandare Anand Sangitrao [72028951D]

Prof. S. S. ShindeSubject Teacher

Dr. S. D. BabarHOD Computer Engineering

Dr. M. S. GaikwadPrincipal

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(Include Topics which are necessary for your project)

1. Introduction

Project Title: Smartphone Applications for Health and Fitness

Software Used: Android Studio

Main Features:

- A fitness app is an application that can be downloaded on any mobile device and used anywhere to get fit. As of 2015, the number of health-related apps released on the two leading platforms, iPhone operating system (iOS) and Android, had reached more than 165,000.
- Apps can perform various functions such as allowing users to set fitness goals, tracking caloric intake, gathering workout ideas, and sharing progress on social media to facilitate healthy behavior change.
- They can be used as a platform to promote healthy behavior change with personalized workouts, fitness advice and nutrition plans.
- Fitness apps can work in conjunction with wearable devices to synchronize their health data to third-party devices for easier accessibility.
- Tracking goals, monitoring health issues, and staying motivated are the three main reasons people use fitness apps.
- Some of the features we'll mention here are key to success because they help users get what they expect from a high-quality app.
- Creating Accounts: Accounts are crucial because they allow users to store information and retain their data if they change devices. Moreover, no competition is possible without accounts – we'll talk about competition later.
- Configuring Notifications: Notifications are crucial when it comes to motivation! The most common problem with sports is losing the enthusiasm you had at the beginning. In addition, users can just forget about their plans for exercising, so the app's task is to remind them.
- Setting Targets: All fitness applications have to let users set targets. Crossfit apps need to have targets for workouts, while activity tracking apps need to have targets for number of steps or hours of sleep.
- > Settings: Settings are needed to make your app customizable and easy to use. Remember that the settings menu has to be consistent and simple, yet comprehensive.
- ➤ Pre-set Exercise Routines: This feature is specific to workout apps. The main problem with most workout applications is that the routines can't be customized. We recommend making routines customizable, as it's more convenient for users.

2. Objective

- > To understand user perspectives about fitness apps
- > To understand the impact of fitness application on users.
- > To study the impact of fitness application to optimize time and cost.
- > To understand the popularity of fitness apps among users.

3. Motivation

Here some of my motivations why I learn to create fitness mobile apps:

- 1. A drive to learn new things. To learn new programming language, platform, etc.
- 2. Self-satisfaction. It's a great feeling to achieve something new or interesting.
- 3. A drive to create something useful for other people.
- 4. Career advancement. The skills and knowledge I gain will be useful for my future career.
- 5. Financial. It would be great to get some money out of all of the above.
- 6. The smartphone changed everyone's lives. The creation of app stores changed developers careers. It's our obligation to create useful and captivating experiences

4. Project Code

MAIN FIRST WINDOW:

```
package com.example.milti;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.view.View;
import android.widget.ImageView;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    TextView titlepage, subtitlepage, btnexercise;

    View bgprogress;

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

        titlepage = (TextView) findViewById(R.id.titlepage);
        subtitlepage = (TextView) findViewById(R.id.subtitlepage);
        btnexercise = (TextView) findViewById(R.id.subritlepage);
        bgprogress = (View) findViewById(R.id.bpprogress);

    }

    public void openact(View v) {
        Intent a = new Intent(MainActivity.this, MainActivity2.class);
        startActivity(a);
    }
}
```

MAIN SECOND PAGE:

```
import androidx.appcompat.app.AppCompatActivity;
import android.net.Uri;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.LinearLayout;
import android.widget.Button;

public class MainActivity2 extends AppCompatActivity {

    TextView titlepage, subtitlepage, subintropage, btnexercise, fitonetitle, fitthreedesc;

    Button UrlOpen;
    View divpage, bgprogress;
```

```
LinearLayout fitone, fittwo, fitthree, fitfour;
    setContentView(R.layout.activity_main2);
    titlepage = (TextView) findViewById(R.id.titlepage);
    subtitlepage = (TextView) findViewById(R.id.subtitlepage);
subintropage = (TextView) findViewById(R.id.subintropage);
    fitthreedesc = (TextView) findViewById(R.id.fitthreedesc);
    UrlOpen = (Button) findViewById(R.id.button1);
    fitone = (LinearLayout) findViewById(R.id.fitone);
fittwo = (LinearLayout) findViewById(R.id.fittwo);
    divpage = (View) findViewById(R.id.divpage);
    bgprogress = (View) findViewById(R.id.bgprogress);
    UrlOpen.setOnClickListener(new View.OnClickListener() {
              Intent Getintent = new Intent(Intent.ACTION VIEW,
```

BMI (FIRST CLASS):

```
import androidx.appcompat.app.AppCompatActivity;
import android.widget.Button;
import static com.example.milti.BMICalcUtil.BMI CATEGORY HEALTHY;
import static com.example.milti.BMICalcUtil.BMI CATEGORY OBESE;
import static com.example.milti.BMICalcUtil.BMI_CATEGORY_OVERWEIGHT;
import static com.example.milti.BMICalcUtil.BMI CATEGORY UNDERWEIGHT;
public class Push extends MainActivity2 {
    private EditText weightKgEditText, heightCmEditText;
    private EditText weightLbsEditText, heightFtEditText, heightInEditText;
    private TextView bmiTextView, categoryTextView;
    private ToggleButton toggleUnitsButton;
    private CardView bmiResultCardView;
    private boolean inMetricUnits;
        setContentView(R.layout.activity push);
        weightKgEditText = findViewById(R.id.activity_main_weightkgs);
        heightCmEditText = findViewById(R.id.activity main heightcm);
        weightLbsEditText = findViewById(R.id.activity_main_weightlbs);
        heightFtEditText = findViewById(R.id.activity_main_heightfeet);
heightInEditText = findViewById(R.id.activity_main_heightinches);
        calculateButton = findViewById(R.id.calculateButton);
        toggleUnitsButton = findViewById(R.id.activity_main_toggleunits);
        categoryTextView = findViewById(R.id.activity main category);
        inMetricUnits = true;
        bmiResultCardView.setVisibility(View.GONE);
                     if (weightKgEditText.length() == 0 || heightCmEditText.length()
                        Toast.makeText(Push.this, "Populate Weight and Height to
```

```
double heightInCms
Double.parseDouble(heightCmEditText.getText().toString());
                        double weightInKgs =
Double.parseDouble(weightKgEditText.getText().toString());
                        double bmi
BMICalcUtil.getInstance().calculateBMIMetric(heightInCms, weightInKgs);
                        displayBMI(bmi);
heightFtEditText.length() == 0 || heightInEditText.length() == 0) {
                        double heightFeet =
Double.parseDouble(heightFtEditText.getText().toString());
                        double heightInches
Double.parseDouble(heightInEditText.getText().toString());
                        double weightLbs =
Double.parseDouble(weightLbsEditText.getText().toString());
                        double bmi =
BMICalcUtil.getInstance().calculateBMIImperial(heightFeet, heightInches,
weightLbs);
        toggleUnitsButton.setOnClickListener(new View.OnClickListener() {
                inMetricUnits = !inMetricUnits;
        if (inMetricUnits) {
            heightCmEditText.setVisibility(View.VISIBLE);
            weightKgEditText.setVisibility(View.VISIBLE);
            heightFtEditText.setVisibility(View.GONE);
            heightInEditText.setVisibility(View.GONE);
            weightLbsEditText.setVisibility(View.GONE);
            heightCmEditText.setVisibility(View.GONE);
            weightKgEditText.setVisibility(View.GONE);
            heightFtEditText.setVisibility(View.VISIBLE);
            heightInEditText.setVisibility(View.VISIBLE);
            weightLbsEditText.setVisibility(View.VISIBLE);
        bmiResultCardView.setVisibility(View.VISIBLE);
        String bmiCategory = BMICalcUtil.getInstance().classifyBMI(bmi);
        categoryTextView.setText(bmiCategory);
        switch (bmiCategory) {
            case BMI CATEGORY UNDERWEIGHT:
                bmiResultCardView.setCardBackgroundColor(Color.YELLOW);
            case BMI CATEGORY HEALTHY:
                bmiResultCardView.setCardBackgroundColor(Color.GREEN);
```

BMI CAL(SECOND CLASS):

```
public static final BMICalcUtil instance = new BMICalcUtil();
   private static final int CENTIMETERS IN METER = 100;
    private static final int BMI_IMPERIAL_WEIGHT_SCALAR = 703;
    public static final String BMI CATEGORY UNDERWEIGHT = "Underweight";
    public static final String BMT CATEGORY HEALTHY = "Healthy Weight Range";
    public static final String BMI CATEGORY OVERWEIGHT = "Overweight";
    public static final String BMI_CATEGORY OBESE = "Obese";
        return instance;
        return (weightKg / ((heightCm / CENTIMETERS_IN_METER) * (heightCm /
CENTIMETERS IN METER)));
        double totalHeightInInches = (heightFeet * INCHES_IN_FOOT) + heightInches;
        return (BMI IMPERIAL WEIGHT SCALAR * weightLbs) / (totalHeightInInches *
totalHeightInInches);
            return BMI_CATEGORY UNDERWEIGHT;
        return BMI_CATEGORY_HEALTHY;
} else if (bmi >= 25 && bmi < 30) {
   return BMI_CATEGORY_OVERWEIGHT;
            return BMI CATEGORY OBESE;
```

WORKOUT 1:

```
package com.example.milti;
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.content.Intent;
public class Workout1 extends AppCompatActivity {
    EditText TitleW;
    Button UrlOpen;
    TextView textView, textView2, textView3, textView4, textView5, textView6,
            TitleW = findViewById(R.id.TitleW);
            textView4=findViewById(R.id.textView4);
            textView8=findViewById(R.id.textView8);
        UrlOpen = (Button) findViewById(R.id.button1);
        UrlOpen.setOnClickListener(new View.OnClickListener() {
                 Intent Getintent = new Intent(Intent.ACTION VIEW,
                startActivity(Getintent);
```

WORKOUT 2:

```
package com.example.milti;
import androidx.appcompat.app.AppCompatActivity;
import android.net.Uri;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class Excercise extends AppCompatActivity {
```

```
EditText TitleW;
Button Urlopen;
TextView textView, textView2, textView3, textView4, textView5, textView6,
textView7, textView8;

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

    TitleW = findViewById(R.id.TitleW);
    textView3=findViewById(R.id.textView);
    textView4=findViewById(R.id.textView2);
    textView4=findViewById(R.id.textView3);
    textView4=findViewById(R.id.textView5);
    textView6=findViewById(R.id.textView6);
    textView6=findViewById(R.id.textView6);
    textView7=findViewById(R.id.textView8);

UrlOpen = (Button) findViewById(R.id.button1);

UrlOpen.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent Getintent = new
    Intent (Intent.ACTION_VIEW,Uri.parse("https://www.youtube.com/watch?v=Fy3uNFyDYqU"));
        startActivity(Getintent);
    }
    });
}
```

WORKOUT 3:

```
package com.example.milti;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

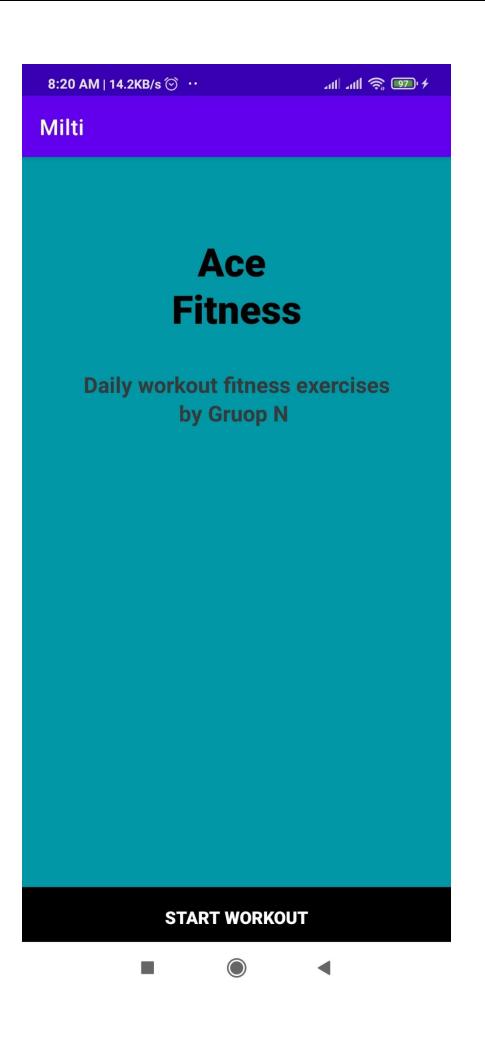
public class Workout3 extends AppCompatActivity {
    EditText TitleW;
    Button UrlOpen;
    TextView textView, textView2, textView3, textView4, textView5, textView6,
textView7, textView8;

@Override
    protected void onCreate (Bundle savedInstanceState) {
        super.onCreate (savedInstanceState);
        setContentView (R.layout.activity_workout3);

        TitleW = findViewById(R.id.TitleW);
        textView2=findViewById(R.id.textView2);
```

5. Steps to Run the Project Start the app Enter the main intro page towards the second main page where there are lot of options. • You can check your calories in the website linked to the button and plan a daily meal for your targeted calories given by the website. You can check you BMI in the calculator for underweight, normal and obese. Then there are three workout exercises of different levels(beginner, intermediate and extreme) with the specific YouTube videos for visual assistance.









\leftarrow

ACE FITNESS

ACE FITNESS

Lets get some workout done!

CLICK HERE FOR CALORIES CALCULATOR AND MEAL PLANS.

Check your BMI



Beginner Workout

Working on your daily body exercises resulting in fat loss and mind refresh



Medium Workout

Workout for full body muscle tone with calories burning

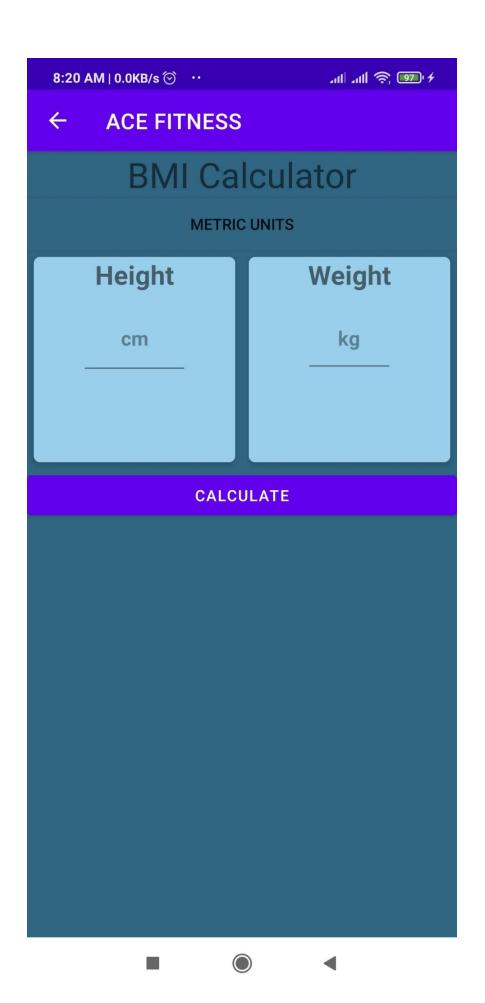


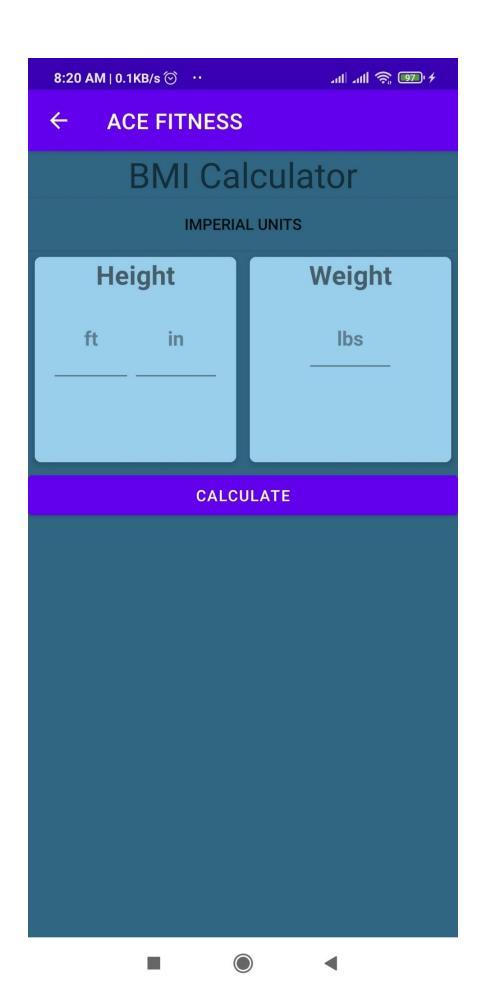
Extreme Workout

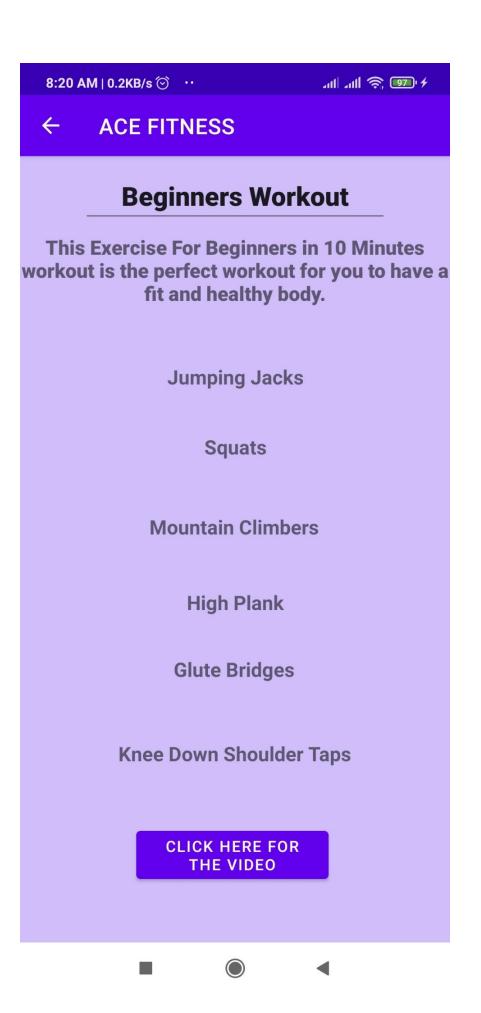
Intense Workout Session targeting the body parts for great muscle build.

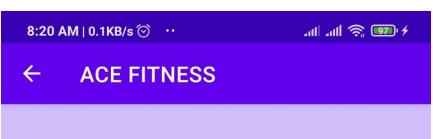












Medium Workout

This workout is for strengthen their muscles and to maximize fat burning effect at their best with 15 secs break between each set and 2 min

Squat Lunges 30 secs

Push Jacks 30 secs

Hogh Crunches 30 secs

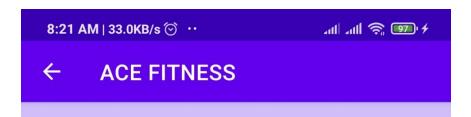
Squat Crunches 30 secs

Push Up + Crunches 30 secs

Double Crunches 30 secs

Repeat it atleast twice for 4-5 days a week.

CLICK HEDE EUD VIDEU



Extreme Workout

I full body home workout that helps you build muscle is short period of time. You have to perform them three to our sets with one minute break between each exercise and two minutes break after you complete the whole set

> Push up (weighted bag pack) 15rp

Jump squat (weighted bag pack)
15rp

Back extension (towel) 15rp

Pistol squats 10rp each leg

Elevated pike push ups 15rp

Bicep curl (weighted bag pack)
15rp

Deep push ups 15rp

Bicycle crunches 45sec

OLION HEDE EUD MIDEU

7. Advantages and disadvantages

ADVANTAGES:

- Monitor Your Diet Easily: Health Apps calculate the calories, Carbohydrates, proteins and fat content of your meal. In this way, you can avoid foods that may not be right for your health. You can track all your food intake easily and maintain digital food dairy at just one click.
- Monitor your progress: You can simply monitor all your workout and health progress at just one click. Fitness app enable you to fill in all your health details and updates, Which will give you an idea if your health has improved or not.
- ➤ Give Free health & fitness tips: You can also get free workout or exercise ideas that help you to plan your workout routine Easily
- ➤ All in one health tool: Fitness apps are like a one-step station where you can monitor all your lifestyle parameters like step count, diet, water intake, blood parameters and workout routine.
- ➤ **Keep you motivated:** One of the most important benefits of using this app is 'motivation'. Notification and reminders from fitness apps keep reminding you about your health goals, thus keeping you motivated.
- ➤ Help to loss Weight: Exercise is crucial to supporting a fast metabolism and burning more calories per day. It also helps you maintain your muscle mass and weight loss.
- Increase Your Energy Levels: Engaging in regular physical activity can increase your energy levels. This is true even in people with persistent fatigue and those suffering from serious illnesses.

DISADVANTAGES:

- ➤ Counting calories doesn't make sense: If there's a common characteristic to practically all fitness apps available on the market is their central goal: to motivate people to eat less and exercise more. Most of the time, they ask users to track what they eat and record their physical activity. That's how they can quantify whether users intake more calories than they burn every day.
- ➤ Lack of automation: And while we're talking about calories, it's important to note that most fitness apps ask users to log everything they eat each day. Fitness apps suffer from lack of automation features that allow users to input all required information together much quicker.
- ➤ **Drained battery:** Another serious disadvantage of fitness apps is that they require a lot of energy to track the activity of users. As a result, going out for a jog with a smartphone that counts steps or measures the heart rate through a connection to a wearable device works only with a full battery.
- ➤ Community support: According to experts in behaviour health, lack of community support from friends or family is a severe disadvantage when it comes to lifestyle changes such as adopting a healthier diet or getting more exercise.
- ➤ **Too much data:** Another serious problem with fitness apps is that they rely on a multitude of data about health. And with so many alternatives out there, it's hard to find the insights that work and apply them to mobile products.
- Gamification fails to provide long-term motivation: Most fitness apps rely on gamelike incentives to motivate specific behaviours, be it exercising regularly or counting calories. But all games to come to an end.

8. Conclusion

Healthcare providers are always seeking ways to monitor and improve their patients' health and fitness, and smartphone applications may fill this niche. Health and fitness apps can help people with exercise, diet, weight management, stress relief, and sleep monitoring. In addition, the healthcare providers can learn about their patients' health and fitness activities via data summaries provided by the apps. Apps that incorporate evidence-based behaviour change techniques are more likely to be effective. These apps also may serve as a handy tool to evaluate and motivate smartphone owners who have limited access to healthcare. More research is needed to objectively examine app effectiveness in changing patients' behaviours and improving their wellbeing. Health and fitness applications contain a wealth of behaviour change techniques typically used in clinical behavioural interventions and may represent a medium by which these interventions could be translated for widespread use. This app technology has the potential for a wide range of uses, including clinical, preventive, public health, and rehabilitation settings.

What I learn from PBL II

- We have learnt to break tasks between each other at each step possible and plan and manage time accordingly.
- We have discussed and have given feedback on our performance and developed stronger communication skills.
- We have understood the environment of working in a group. Being a leader and managing the group or being supportive in doing a task. We all have shared our talents and personalities.
- We have understood the advantages of workout and having a physical or mental state for an individual is important in life through the studies and research done in past to provide a detail answers.
- Making an app was new and challenging, which help in understanding how an app system work better and learnt the basic app development.