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Project Report

on

THE FOCAL POINT - FOCUS ENHANCER ANDROID APPLICATION

Submitted in Partial Fulfilment of the Requirement

For the Degree of
Bachelor of Technology
In
Computer Science and Engineering
By

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(ODD SEM, 2021-22)

DECLARATION

We hereby declare that this submission on "THE FOCAL POINT- FOCUS ENHANCER ANDROID APPLICATION" is our own work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text. We have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. We have used quotation marks to identify verbatim sentences and given credit to the original authors/sources.

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CERTIFICATE

Certified that **Ayush Gupta (**Roll no. 2002900100042), **Charu Gupta** (Roll no.2002900100046), **Daksh Kotian** (Roll no.2002900100048) have carried out the research work presented in this thesis entitled **"The Focal Point"** for the award of **Bachelor of Technology** from Dr. APJ Abdul Kalam Technical University, Lucknow under my/our (print only that is applicable) supervision. The report embodies results of original work, and studies are carried out by the student himself/herself (print only that is applicable) and the contents of the thesis do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

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ABSTRACT

As we all know in today's world with day-to-day advancement in technologies people are facing the problem of distraction. With so many distractions around us it is difficult to find a proper schedule and environment to maintain focus and meet the deadline.

There are various tools available but still people find it impossible to complete their tasks. With the help of Pomodoro technique and minimizing distractions around us we can maximize our time and complete our tasks on time.

With the help of supervised machine learning algorithm, we can predict the best timing session of any particular task which helps in better and faster completion of the work. In our application we have used Decision tree Classifier algorithm.

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Description

Introduction

Machine learning is the field of study that gives computers the capability to learn without being explicitly programmed. ML is one of the most exciting technologies that one would have never ever come across. As it is evident from the name, it gives the computer that makes it more similar to humans

Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, and is used in different business, science, and social science domains. In today's business world, data analysis plays a role in making decisions more scientific and helping businesses operate more effectively.

In this project we have used supervised learning. Decision Tree is a Supervised learning technique that can be used for both classification and Regression problems, but mostly it is preferred for solving Classification problems. It is a tree-structured classifier, where internal nodes represent the features of a dataset, branches represent the decision rules and each leaf node represents the outcome.

It is called a decision tree because, similar to a tree, it starts with the root node, which expands on further branches and constructs a tree-like structure.

Purpose of The Project

With so many distractions around the need of the hour is to increase focus level to promote mental stability. Our project aims to enhance an individual's concentration level by following various approaches like the Pomodoro technique, white noise, alpha music, etc. It follows a personalized plan according to one's need to work with more efficiency and yield better results.

Aims

1. Providing a platform to enhance the concentration ability of a person by trying approaches that suits them.
2. Contributing towards society to shape a better future

Objective

Some of the most important tasks that we can analyze from Netflix dataare:

1. To create an environment to complete tasks.
2. To increase the concentration power of an individual.
3. To manage time efficiently.
4. To reduce distractions around us.

Research Approach/Methodology

This project focuses on solving a real-world problem faced by every student by providing a comprehensive one-stop solution to the problem of lack of Focus and Concentration.

The Android Application provides a platform for every individual seeking to minimize distractions and channel their Focus to bring out the best outcome. Based on the well-known and tested technique of **Pomodoro**, the app uses intelligent recommendations to restrict distractions from other apps and notifications and also brings along a well-thought-out report on how well the user did in the respective session. By alerting the progress on the user's way to their set goals, the application also notifies facts and reminders based on different preset sessions for keeping them in line and converged. These ideas are implemented using the:

Android Studio (Main Android Application)

Firebase (Realtime Database)

Postman (API Management)

Heroku (API online hosting)

There are mainly 5 modules in this project they are as follows:

Numpy: Used for numerical algebraic calculations
Pandas: Used to read and prepare Data
Firebase: Used to store and retrieve data
Heroku: Used for API web hosting
Postman: Used for API management

Project Background

The report presents the idea of improving the concentration level in an individual by using various techniques like pomodoro technique. It uses machine learning algorithms which is used to predict the best time to complete any particular task in the best way possible hence differentiating our apps from others.

This application reduces distractions and promotes growth by using user's data and past working pattern.

Methodology

In our project we have used a dummy dataset which consists of the following fields: - tags, age, shift, minutes.

```
In [1]: import numpy as np
        import pandas as pd
        import seaborn as sns
        import os

In [9]: df=pd.read_csv("time_pred.csv")

In [10]: df
```

Out[10]:

	tags	age	shift	minutes
0	1	15	1	25
1	1	20	1	30
2	1	21	2	30
3	1	26	2	35
4	1	29	1	45
5	2	16	1	30
6	2	18	2	35
7	2	23	1	25
8	2	25	1	30
9	2	28	2	45
10	3	15	2	15
11	3	18	2	15
12	3	20	1	15
13	3	21	1	15
14	3	28	2	15
15	4	17	1	30

Figure 1: Code for Reading The Dataset

It will read the data from datasets and perform the analysis based on the data given in the figure 2 below:

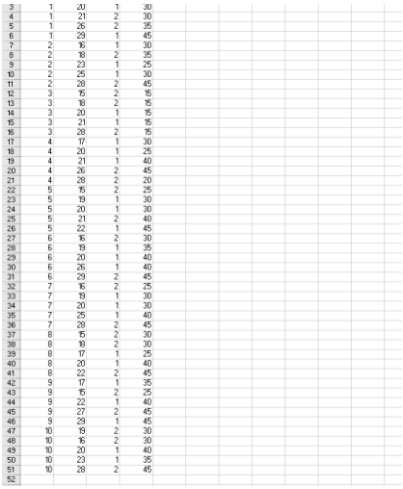


Figure 2: Dataset of Netflix Used in this Project

Pomodoro timer

The pomodoro timer is set according to the data provided by the algorithm. The timer and its corresponding break time is set and the timer begins. Here is the code for pomodoro timer as shown below (Figure 3).

```
//Break Timer Ends

//Return value for app lock management here
private boolean isConcentrationRunning () {
    return mConcentrationRunning;
}

private void resetTimer() {
    mTimeLeftInMillis = mStartTimeInMillis;
    updateCountDownText();
    updateWatchInterface();
}

private void updateCountDownText() {
    int hours = (int) (mTimeLeftInMillis / 1000) / 3600; //minis ko sec me change -> divide by
    int minutes = (int) ((mTimeLeftInMillis / 1000) % 3600) / 60;
    int seconds = (int) (mTimeLeftInMillis / 1000) % 60;

    String timeLeftFormatted;
    if (hours > 0) {
        timeLeftFormatted = String.format(Locale.getDefault(),
                format: "%d:%02d:%02d", hours, minutes, seconds);
    } else {
        timeLeftFormatted = String.format(Locale.getDefault(),
                format: "%02d:%02d", minutes, seconds);
    }

    mTextViewCountDown.setText(timeLeftFormatted);
    if (minutes == 0 && seconds == 1 ) {
        soundPool.play(whistle,  leftVolume: 1, rightVolume: 1, priority: 0, loop: 0, rate: 1);
    }
```

Figure 3: Code for pomodoro timer

The music is integrated in the app so as to enhance the concentration power. It is well known that white noise or alpha music is proven to be more impactful as compared to no music. To accomplish the following task following code is implemented. The code is as shown below in figure 4

```
});
updateSeek = (Thread) run() -> {
        int currentPosition = 0;
        try{
            while (currentPosition<mediaPlayer.getDuration()){
                currentPosition = mediaPlayer.getCurrentPosition();
                seekBar.setProgress(currentPosition);
                sleep( millis: 800);
            }
        }
        catch (Exception e){
            e.printStackTrace();
        }
};
updateSeek.start();

play.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(mediaPlayer.isPlaying()){
            play.setImageResource(R.drawable.play);
            mediaPlayer.pause();
        }
        else{
            play.setImageResource(R.drawable.pause);
            mediaPlayer.start();
        }
    }
});

previous.setOnClickListener(new View.OnClickListener() {
```

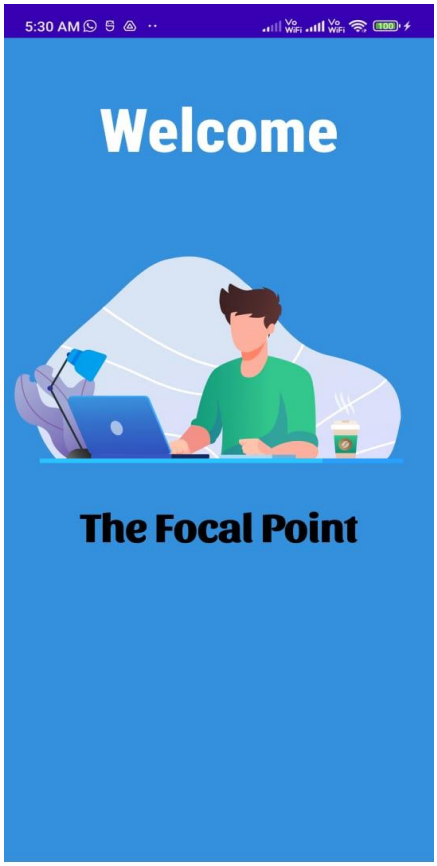
Figure 4: code for music integration

To record the progress of an individual, statistics of the tasks and number of hours is maintained. Through this method we can track the growth of the person and improve the performance and capability of the user. The code is as shown below

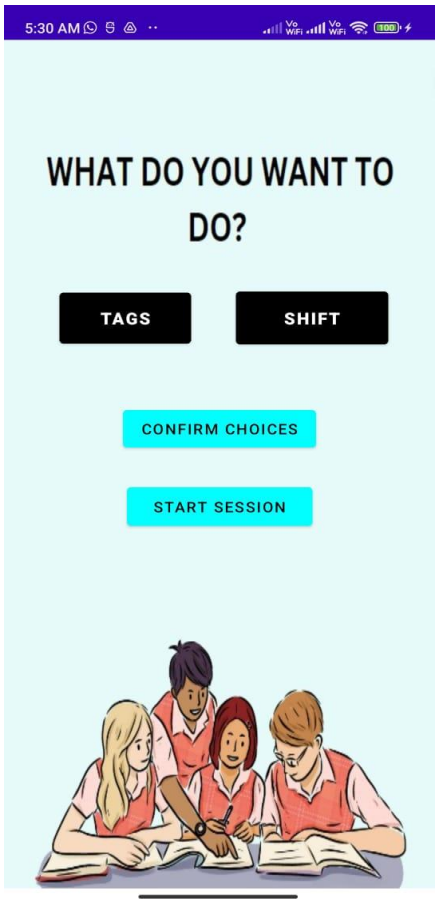
```
18
19      ArrayList<BarEntry> barArraylist;
20      @Override
21      protected void onCreate(Bundle savedInstanceState)
22      {
23          super.onCreate(savedInstanceState);
24          setContentView(R.layout.activity_main);
25          BarChart barChart = findViewById(R.id.barchart);
26          getData();
27          BarDataSet barDataSet = new BarDataSet(barArraylist, label: "STATS");
28          BarData barData = new BarData(barDataSet);
29          barChart.setData(barData);
30          //color bar data set
31          barDataSet.setColors(ColorTemplate.COLORFUL_COLORS);
32          //text color
33          barDataSet.setValueTextColor(Color.BLACK);
34          //setting text size
35          barDataSet.setValueTextSize(24f);
36          barChart.getDescription().setEnabled(true);
37      }
38
```

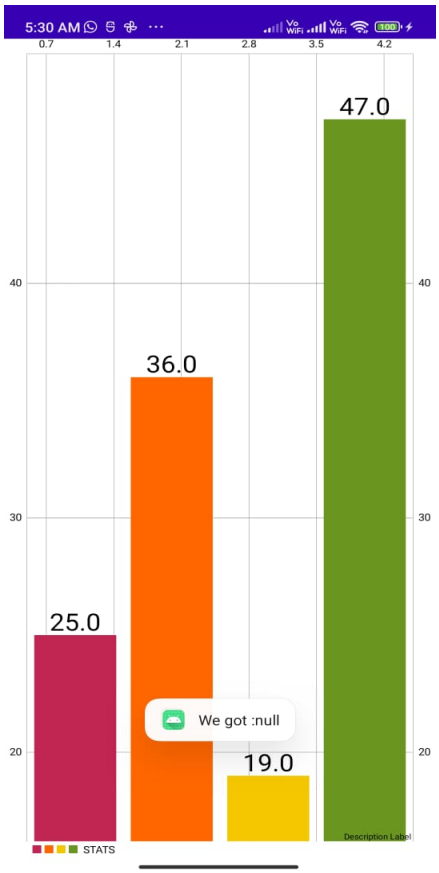
Figure 5: User Clicks on button Content Ratings

Results


5:30 AM
Welcome
The Focal Point


5:30 AM
Happy To See You
"Learning is a treasure that will follow its owner everywhere"
-Chinese proverb
ABOUT
STATS
MUSIC


5:30 AM
WHAT DO YOU WANT TO DO?
TAGS
SHIFT
CONFIRM CHOICES
START SESSION


5:30 AM
0.7
1.4
2.1
2.8
3.5
4.2
47.0
40
36.0
30
25.0
We got :null
19.0
20
STATS
Description Label

Conclusion

To conclude, we have made an application whose major task is increasing concentration of an individual by using pomodoro technique. This app reduces distractions and promotes time management and increases efficiency of the person. Through this app a person can meet the deadline of his task and promotes efficiency of the person. In this busy life, this app acts as a limelight which increases the focus power and concentration ability.

Supervised machine learning algorithms helps in prediction of the best time suitable for the completion of the task hence productivity grows exponentially.

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