Plutonium-0.5A- SNL

Omega ChopStick (Hand Game) Android app

[GENRE: COMBINATORIAL GAMES]

Project Report

Developed By Sahil N Lalani

Void Matrix[:] Studio

NOTE: I've made this all by myself nobody has helped or guided.

(Degree)

Bachelor Of Computer Applications (BCA)

Supervised By Vilas Vadher

Principal: dr. Jigar Raval

Submitted To-

Shree k.m. savjani & smt. k.k. savjani college Veraval

Affiliated With

January 2023(BCA Sem. 6th)

Certificate Of Originality

This is to certify that the project report entitled ChopStick(Hand Game) submitted to km & kk savjani college affiliated with BKNMU in partial fulfilment of the requirement for the award of the degree of Bachelor Of Computer Application(BCA) , is an authentic and original work carried out by Sahil N Lalani ,SPU ID-2020001747.

This project is a genuine work done by the student and has not been submitted to any other university/institute for the fulfilment of the requirement of any course of study.

Vilas vadher

Supervisor

Statement Of Originality

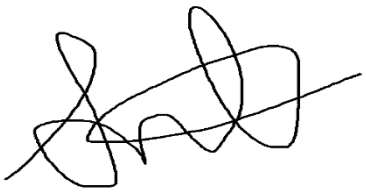
I, the undersigned

Name: Sahil Naushadali Lalani

SPU ID: 2020001747

Certify that this project was made all by myself and isn't copied or plagiarized from any people if it would be proven that this project was plagiarized or copied from other's then I will be ready to accept a sanction.

X



Acknowledgments

First of all, I would like to thank my parents who always support me and then I would like to thank my friends and some of my college professors for providing me valuable feedback during my game development, and thanks to this college so that I got a second chance to create the game like this.

Preface

The aim of this project is to improve the reasoning power of people. it is a game that is played in physically but by the implementation of my logic now it can be played on Android as well as computer. I am inspired by Mojang studio's "MINECARFT" game.

Chopsticks is a hand game for two or more players, in which players extend a number of fingers from each hand and transfer those scores by taking turns to tap one hand against another. Chopsticks is an example of a combinatorial game, and is solved in the sense that with perfect play, an optimal strategy from any point is known.

Android(java) programming is used to make this game, for the front-end XML and for back-end Firebase Realtime Database along with Android studio IDE for development.

Abstract

I am fond of playing games I never had a console game like Xbox or play station or Nintendo but I definitely have been playing android games although I have played on console at my friend's, this chopstick game I started playing in my 11 the grade, this is a game played physically through our hands.

This my very second game that I have made and this will be very helpful for my future steps into game development.

I am so glad to introduce a physical game that now can be played on android which I have implemented by myself.

I have used Android(java) programming for making this game, XML for designing and for game logic core java. For sprites and some images, I have used Flaticon.com website and for editing them MS picture manager.

Contents

Section 1: Introduction

This chapter covers the project proposal and feasibility of the proposal along with background study, product and business perspective, the scopes and some preliminary idea of our game.

1.1 Gaming in the Field of Software Engineering

In the fast growing field of software engineering and development and even more rapidly growing sector of game development the future is hard to predict. I am working with this game as my software project is a 3 credit course and as part of our degree we choose this type of work for doing better with development cycle, development period, graphics, scripting, adopting new technology, animation.

In general software project is a project focusing on the creation of software. Consequently,

Success can be measured by taking a look at the resulting software.

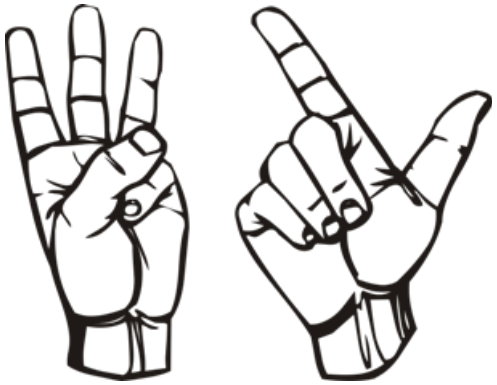
In a game project, the product is a game. But and here comes the point: A game is much more than just its software. It has to provide content to become enjoyable. Just like a web server. Without content the server is useless, and the quality cannot be measured. This has an important effect on the game project as a whole. The software part of the project is not the only one, and it must be considered in connection to all other parts: The environment of the game, the story, characters, game plays, the artwork, and so on.

1.2 Background of this Project

Background is a set of events invented for a plot, presented as preceding and leading up to that plot. It is a literary device of a narrative history all chronologically earlier than the narrative of primary interest. In our project it's a single and dual player strategy game emphasizing logical thinking and planning. They often stress resource and time management, Tactical organization and execution are necessary, and the game creators usually place the decision-making skills and delivery of commands in the player's hands.

1.3 Game overview

Chopsticks is a game of strategy as well as basic math. It has roots in Japan and can also called Finger Chess, Swords, Split, Magic Fingers, Chinese Fingers, Cherries, Sticks, and Twiddly Dinks. Though there are many variations of rules and different names, the overall theory and spirit of the game remains the same. This game is not the widely known beginner's piano song though it shares the same name.



Rules

This official set of rules is called rollover where five fingers are subtracted should a hand's sum exceeds 5 as described below.

1. A hand is live if it has at least one finger, and this is indicated by raising at least one finger. If a hand has zero fingers, the hand is dead, and this is indicated by raising zero fingers (i.e. a closed fist).
2. If any hand of any player reaches exactly five fingers, then the hand is dead.
3. Each player begins with one finger raised on each hand. After the first player turns proceed clockwise.
4. On a player's turn, they must either attack or split. There are two types of splits, transfers and divisions.
5. To attack, a player uses one of their live hands to strike an opponent's live hand. The number of fingers on the opponent's struck hand will increase by the number of fingers on the hand used to strike.
6. To transfer, a player strikes their own two hands together, and transfers raised fingers from one hand to the other as desired. However, a player cannot transfer fingers to make a hand have more than 4 fingers.
7. If a player has a dead hand, the player can divide the fingers between the other hand and the dead hand by transferring fingers from the other hand to the dead hand. However, players are required to attack at least once during the game.
8. A player with two dead hands is eliminated from the game.
9. A player wins once all opponents are eliminated.
10. If you go over 5 you subtract the sum of all of the numbers by 5

1.4 About the Game Project

In this the players will get two buttons for controlling their hands' fingers according to various contexts, players can also create account for accessing such services and delete it whenever they want. Players can also play without creating account as a guest user.

After they will get to the main screen where they will be seeing several options which are "play with computer", "player vs player", "online player vs player", "settings", "how to play", "profile", "about game", "global chat", "experience level", "feedback" and "sign out".

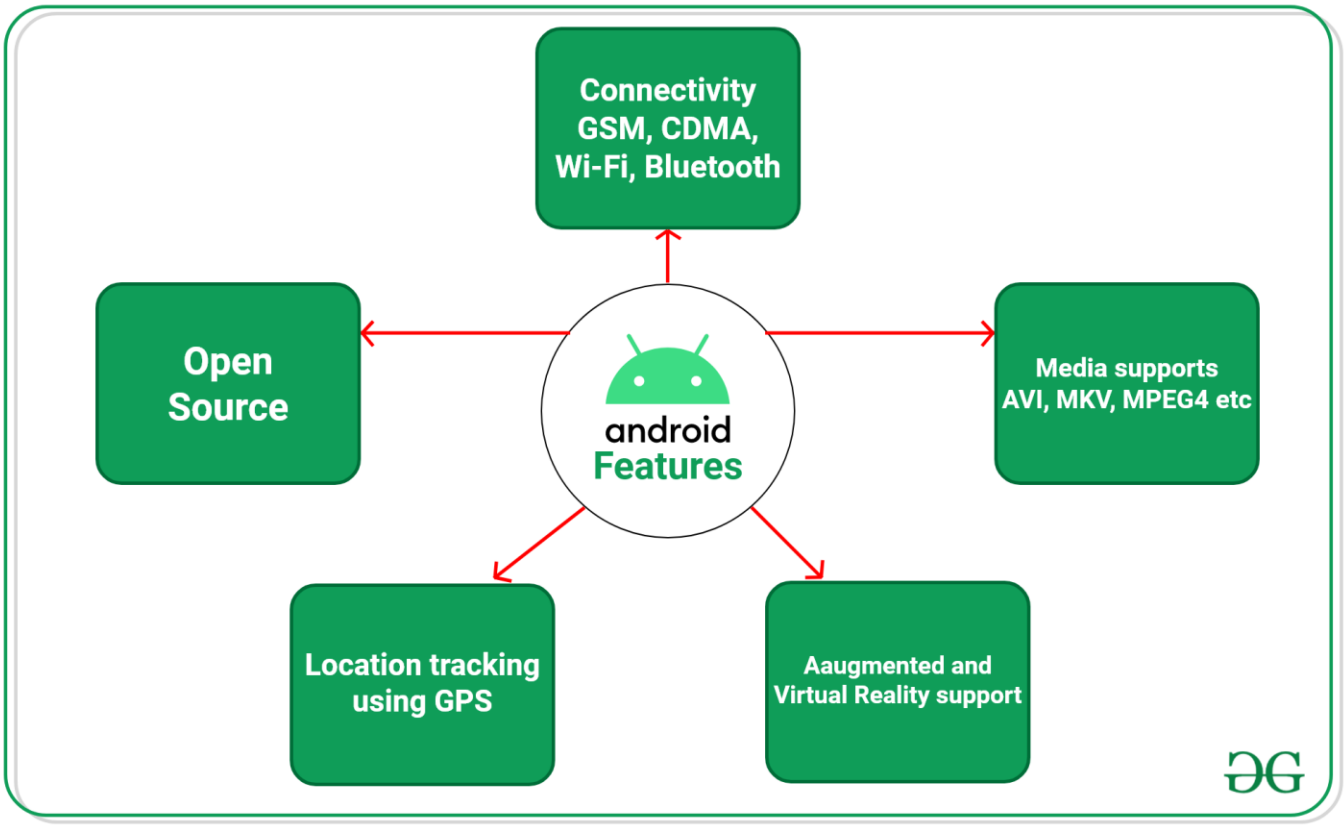
Section 2: Technical Overview

2.1 Introduction to Android

Android operating system is the largest installed base among various mobile platforms across the globe. Hundreds of millions of mobile devices are powered by Android in more than 190 countries of the world. It conquered around 71% of the global market share by the end of 2021, and this trend is growing bigger every other day. The company named Open Handset Alliance developed Android for the first time that is based on the modified version of the Linux kernel and other open-source software. Google sponsored the project at initial stages and in the year 2005, it acquired the whole company. In September 2008, the first Android-powered device was launched in the market. Android dominates the mobile OS industry because of the long list of features it provides. It's user-friendly, has huge community support, provides a greater extent of customization, and a large number of companies build Android-compatible smartphones. As a result, the market observes a sharp increase in the demand for developing Android mobile applications, and with that companies need smart developers with the right skill set. At first, the purpose of Android was thought of as a mobile operating system. However, with the advancement of code libraries and its popularity among developers of the divergent domain, Android becomes an absolute set of software for all devices like tablets, wearables, set-top boxes, smart TVs, notebooks, etc.

2.2 Features of Android

Android is a powerful open-source operating system that open-source provides immense features and some of these are listed below.

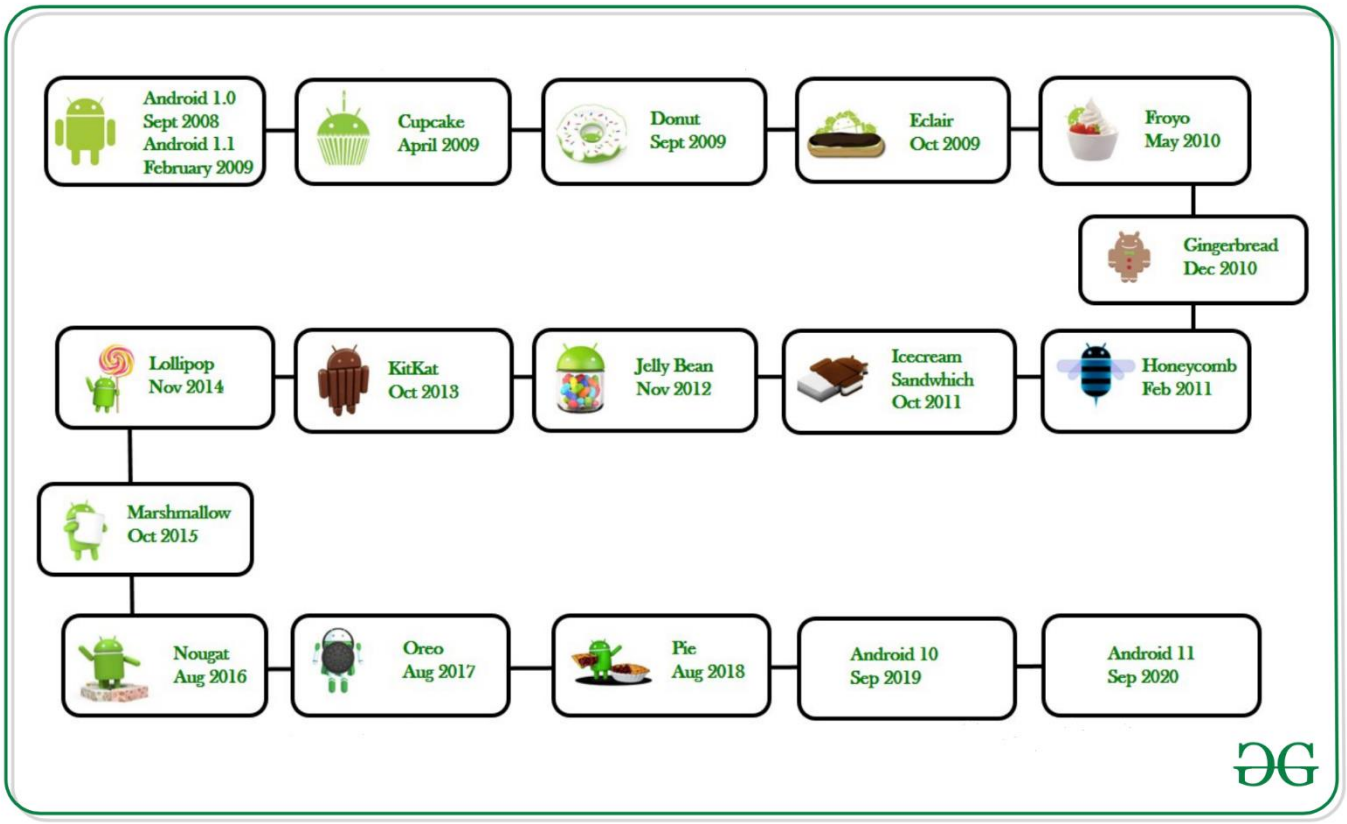


- Android Open Source Project so we can customize the OS based on our requirements.
- Android supports different types of connectivity for GSM, CDMA, Wi-Fi, Bluetooth, etc. for telephonic conversation or data transfer.
- Using wifi technology we can pair with other devices while playing games or using other applications.
- It contains multiple APIs to support location-tracking services such as GPS.
- We can manage all data storage-related activities by using the file manager.
- It contains a wide range of media supports like AVI, MKV, FLV, MPEG4, etc. to play or record a variety of audio/video.
- It also supports different image formats like JPEG, PNG, GIF, BMP, MP3, etc.
- It supports multimedia hardware control to perform playback or recording using a camera and microphone.
- Android has an integrated open-source WebKit layout-based web browser to support User Interfaces like HTML5, and CSS3.

- Android supports multi-tasking means we can run multiple applications at a time and can switch between them.
- It provides support for virtual reality or 2D/3D Graphics.

2.3 Android Versions

Google first publicly announced Android in November 2007 but was released on 23 SEPTEMBER 2008 to be exact. The first device to bring Android into the market was the HTC Dream with the version Android 1.0. Since then, Google released a lot of android versions such as Apple Pie, Banana Bread, Cupcake, Donut, Éclair, Froyo, Gingerbread, Jellybeans, Kitkat, Lollipop, marshmallow, Nougat, Oreo, etc. with extra functionalities and new features.



The following table shows the version details of android which is released by Google from 2007 to date.

Code Name	Version	API level	Release date
–	Android 1.0	1	September 23, 2008

Code Name	Version	API level	Release date
–	Android 1.1	2	February 9, 2009
Cupcake	Android 1.5	3	April 30, 2009
Donut	Android 1.6	4	September 15, 2009
Eclair	Android 2.0 – 2.1	5-7	October 26, 2009
Froyo	Android 2.2 – 2.2.3	8	May 20, 2010
Gingerbread	Android 2.3 – 2.3.4	9-10	December 6, 2010
Honeycomb	Android 3.0.x – 3.2.x	11 – 13	February 22, 2011
Ice Cream Sandwich	Android 4.0 – 4.0.4	14 – 15	October 18, 2011
Jelly Bean	Android 4.1 – 4.1.2	16 – 18	July 9, 2012
Kitkat	Android 4.4 – 4.4.4	19	July 9, 2012
Lollipop	Android 5.0 – 5.1	21 – 22	October 17, 2014
Marshmallow	Android 6.0 – 6.0.1	23	October 5, 2015
Nougat	Android 7.0 – 7.1	24 – 25	August 22, 2016
Oreo	Android 8.0	26	August 21, 2017

Code Name	Version	API level	Release date
Pie	Android 9.0	27	August 6, 2018
Android Q	Android 10.0	29	September 3, 2019
Android 11	Android 11.0	30	September 8, 2020
Snow Cone	Android 12.0 – 12.1	31-32	October 4, 2021
Tiramisu	Android 13		UPCOMING

Programming Languages used in Developing Android Applications

1. Java
2. Kotlin

Developing the Android Application using Kotlin is preferred by Google, as Kotlin is made an official language for Android Development, which is developed and maintained by JetBrains. Previously before Java is considered the official language for Android Development. Kotlin is made official for Android Development in Google I/O 2017.

Advantages of Android Development

- The Android is an open-source Operating system and hence possesses a vast community for support.
- The design of the Android Application has guidelines from Google, which becomes easier for developers to produce more intuitive user applications.
- Fragmentation gives more power to Android Applications. This means the application can run two activities on a single screen.
- Releasing the Android application in the Google play store is easier when it is compared to other platforms.

Disadvantages of Android Development

- Fragmentation provides a very intuitive approach to user experience but it has some drawbacks, where the development team needs time to adjust to the various screen sizes of mobile smartphones that are now available in the market and invoke the particular features in the application.
- The Android devices might vary broadly. So the testing of the application becomes more difficult.
- As the development and testing consume more time, the cost of the application may increase, depending on the application's complexity and features.

Section 3: Software Requirement Specification (SRC)

This chapter covers the requirements specification of my game “ChopStick”. It includes the specification of this documentation with general description, specific requirements, and analysis of models. It also includes changes management of this requirement specification in case of any change.

2.1 Introduction

In this section the documentation of this report is specified. It specifies the document convention, document scope and also provides a suggestion for the readers of the document.

2.1.1 Purpose of this Chapter

This Software Requirements Specification (SRS) part is intended to give a complete overview of my Project the game “ChopStick” including the action flow, initial user interface and story therein. The SRS document details all features upon which we have currently decided with reference to the manner and importance of their implementation.

2.1.2 Intended Audience and Reading Suggestions

The SRS document also gives project managers a way to ensure the game’s adherence to our original vision. Although the document may be read from front to back for a complete understanding of the project, it was written in sections and hence can be read as such. For an overview of the document and the project itself, see Overall Description. For a detailed description of the game-play elements and their interaction with the player, read System Features. Readers interested in the game-play interface and navigation between different front-end menus should go through External Interface Requirements. Technical standards to which I will hold the project, it is laid out in Other Nonfunctional Requirements. The development schedule, meanwhile, will be maintained in the Key Milestones.

2.2 General Description

This section includes the perspective of my game, requirements and the system environment.

2.2.1 Hardware requirements

- INTEL I3 Processor or higher.
- 4 GB RAM &above
- Hard disk 6 GB &above
- Runtime specifications: jelly bean or higher version, 500mb RAM

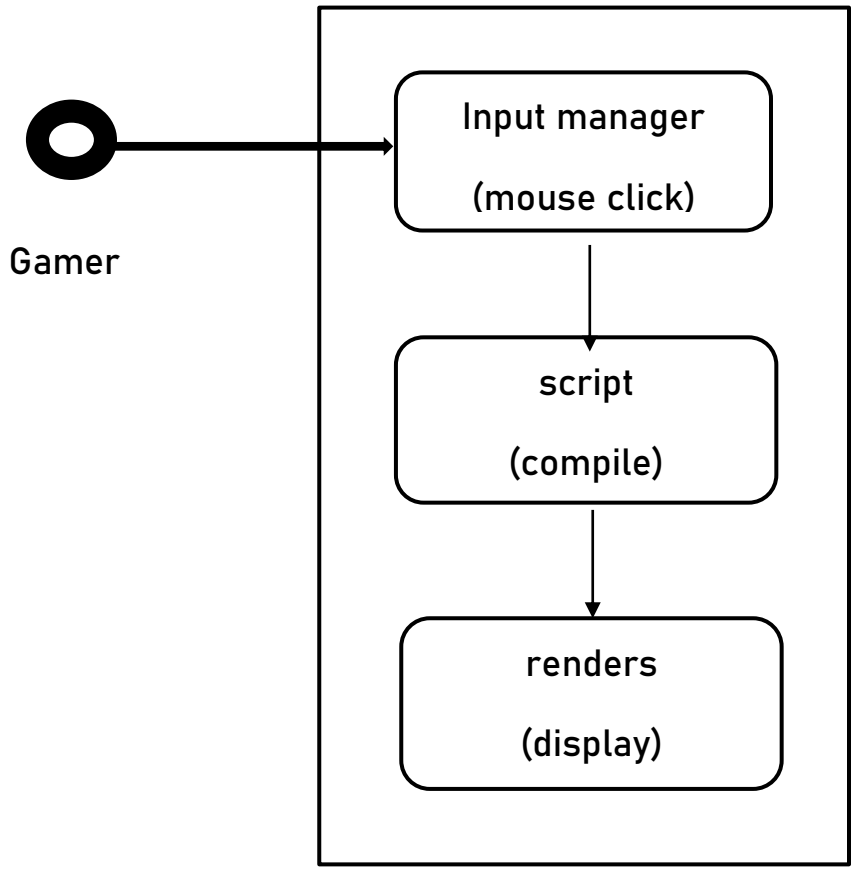
2.2.2 Software requirements

- Operating system: Windows/Mac OS/Linux
- Runtime target: Android phone / Virtual android emulator
- Language: JAVA
- Front-end: XML
- Back-end: Firebase Real Time Database
- IDE: Android studio

2.3 System Environment

Gamer can interact with system by giving input (click to start game) to the system. System gives those inputs to script, if any change occurs (if the value is changed) this object is sent to render to display the things.

Below is the diagram to represent how the game works:



2.3.1. Software Interface

"OmegaChopStick" has been developed using some pretty good development stuff.

Working tools and platform

- Android studio IDE for whole game development
- Flaticon.com for creating sprites
- Images from Bing.com
- MS picture manager for editing sprites and background-images
- Firebase Realtime Database for backend

2.3.2 User Characteristics for the System

There could be one user or two at a time in this software and the user interacts with the game (system) in different manner.

So, Gamer is the only one who communicates with the system through playing the game. And this gamer can be any person. The primary requirement is that, the gamer must read the playing procedure provided by me (developers).

2.4 Analysis Model of Our Game Project

This section describes the Software Requirements Specification of my project by analyzing the proper models of requirement engineering.

2.4.1 Scenario Based Model

This Model depicts how the user interacts with the system and the specific sequence of activities that occur as the software is used.

2.5 Requirement Change Management of my System

I as a developer intend to release a complete and fully functional game that follows the guidelines mentioned in the SRS document. updates will likely be required. These updates

would consist of any bug fixes that are necessary, compatibility patches for all of the current PCs that support windows/mac/ubuntu and expansions of the content. If the players find any issues or have any comments then they would be able to contact the developers through the official support by providing the review from the “feedback” option of game’s main menu.

The version of my game is “Plutonium-0.5A-SNL”.

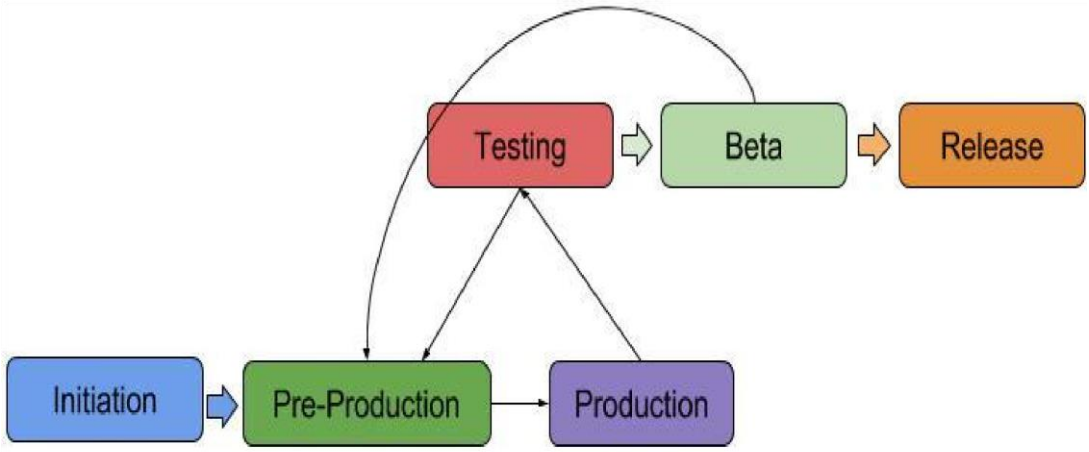
2.5.1 Bugs and Glitches

The players would be able to contact the developers through “feedback” option in game. This is where they would present any bugs or glitches they have detected and if they have any beliefs that the game is not functioning properly then General concerns or comments would also need to be submitted here.

Section 3: Game Development Life Cycle (GDLC)

The Phases

The GDLC typically consists of six phases shown below:



3.1 Initiation phase

The developer decides what kind of game they will make.

3.2 Pre-Production

Before the real production begins.

First pre-production:

- Game Design Document
- First prototype - shows gameplay (has to be fun)

Next cycles -> bug fixing and balancing

3.3 Production phase

The game assets and source code are made.

The result of production is the playable game in form of:

- Formal Details prototype - a playable game, has win-lose rules, co-relations between features, runs well.
- Refinement prototype - most mature prototype which only needs more polishing. Should be feature complete and almost ready to ship.

3.4 Testing phase

Evaluation of game features, value, concept and design.

Task: which questions should the testing answer?

Evaluation of game features, value, concept and design.

Test report -> all the bugs, thing that should be omitted, included or changed.

The test result should decide whether to reiterate or advance to beta testing.

Task: which questions should the testing answer?

Evaluation of game features, value, concept and design.

Some questions the testing should be answer:

1. Is the game still buggy?
2. Is it possible to get stuck in the game?
3. Is there any sign of exploits/glitch?
4. Is the game too easy/hard to beat?
5. Is there any feature missing?
6. Does the game run well on every platform?

3.5 Beta Phase

The beta test is testing cycle conducted by third party:

- publisher,
- potential buyer,
- game reviewer

Result should be a test report.

Decide whether the game is ready for shipping.

3.6 Release Phase

Work may seem to be done but it is not!

- Bug-fixing, patching
- Additions, special events
- Marketing
- Community management

Sub-phases

There are multiple sub-phases that help the game development in the long run.

Section 4: Graphics, Sound and Implementation of "OmegaChopStick" game

This chapter covers the project design phases, the system features and also the implementation of the features.

4.1 Implementation Tools Required

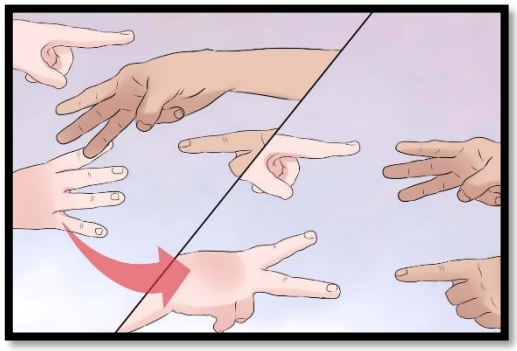
~~	Product of	Tool	Platform type	usage
	Jet brains	Android studio	IDE	To develop
		XML	MVC	For front-end designing
	Flaticon	Flaticon vector icons and stickers	website	For creating sprites
	Microsoft	Picture manager	image editor	For editing images
		bing	Web browser	For getting background images
	Google	Firebase	Realtime Database	For working with database in realtime from anywhere

4.2 Graphics for my game(sprites and images)

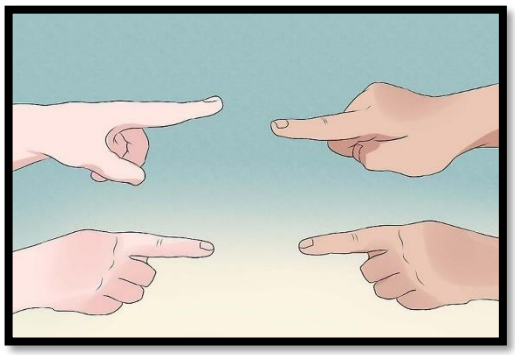
Logo of my “Void Matrix[:]” Studio

Logo of my “ChopStick” game

Default and unchangeable picture of player/user

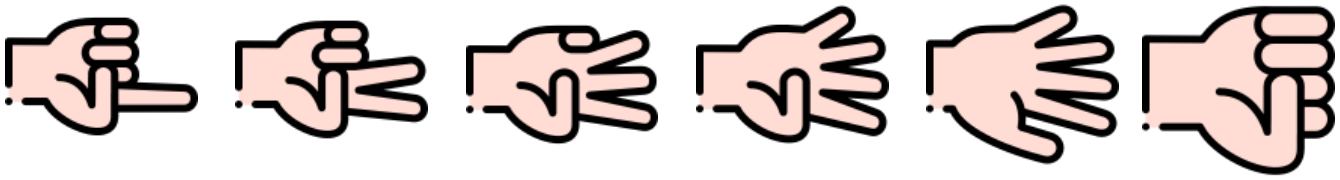


Background image of my loading screen

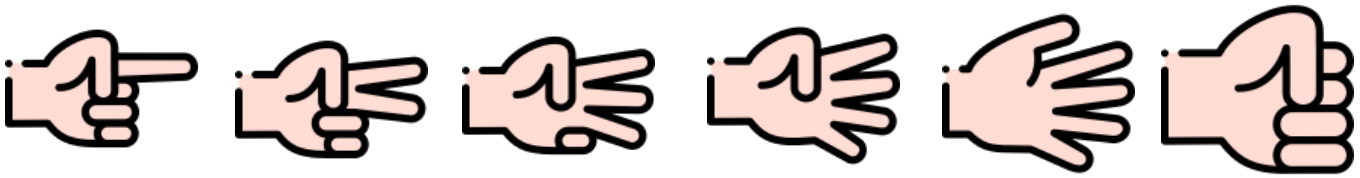


Background image of the main screen

Player & player 1's left hand

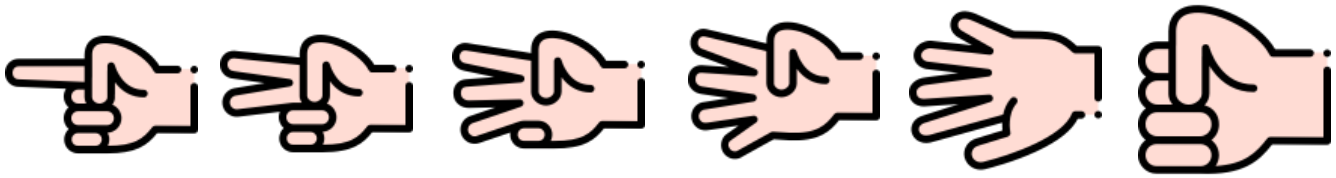


Player & player 1's right hand



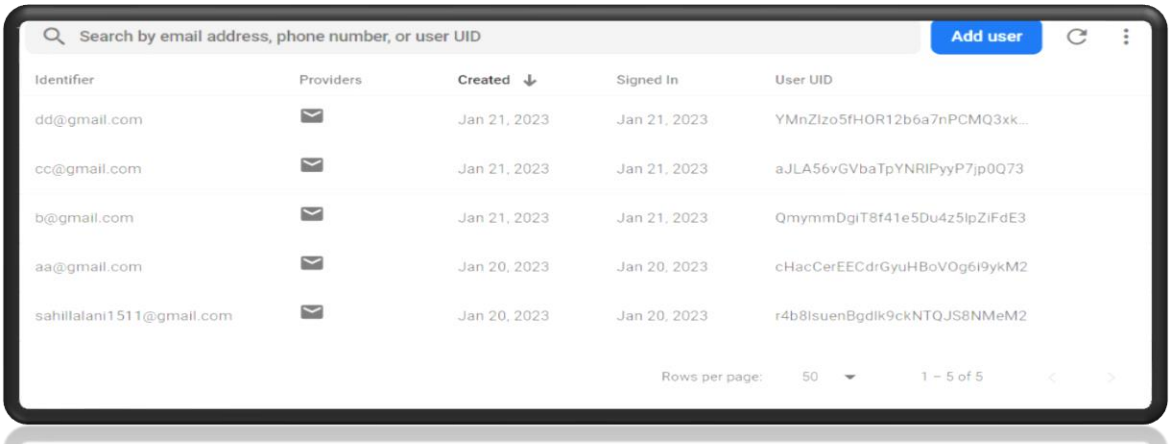
computer & player 2's right hand

Computer and player 2's left hands



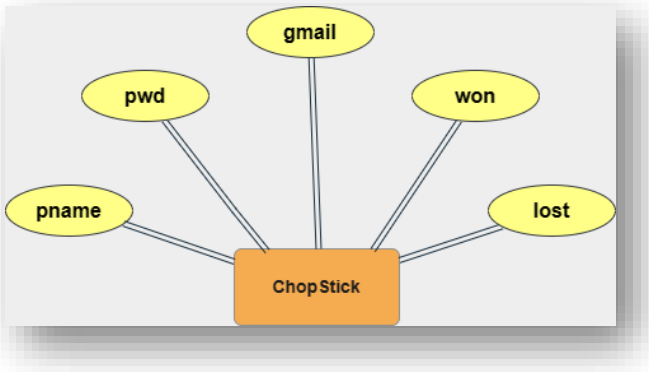
Section 5: Data dictionary & Diagrams

5.1 Data Dictionary

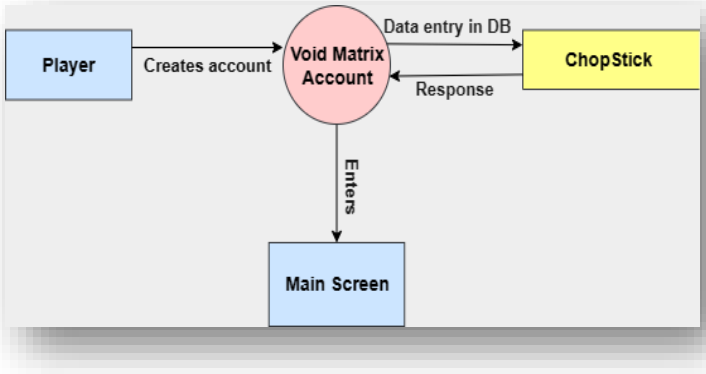


5.2diagrams

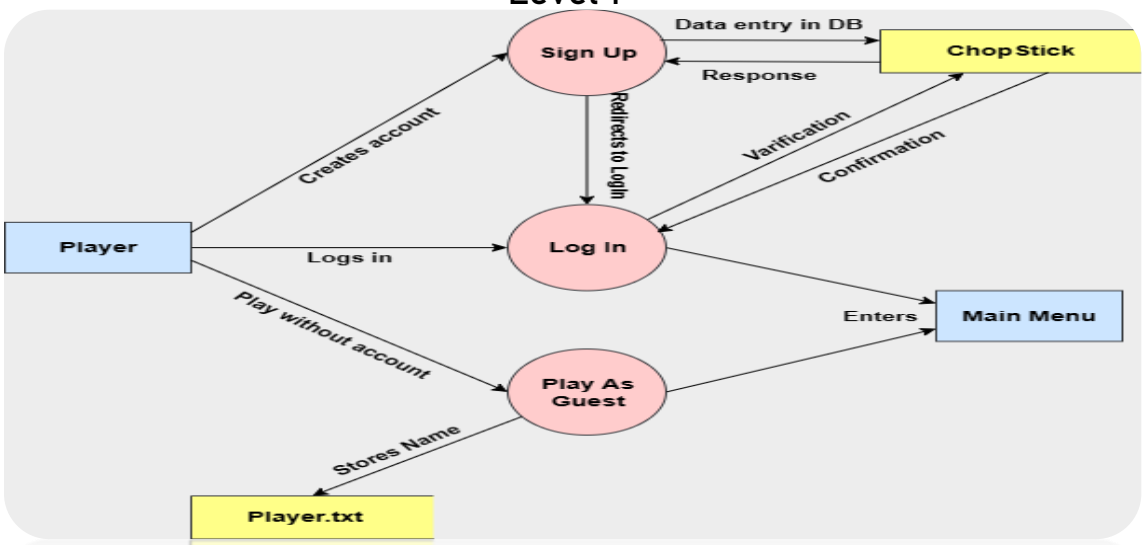
5.2.1 Entity Relationship Diagram(ERD)



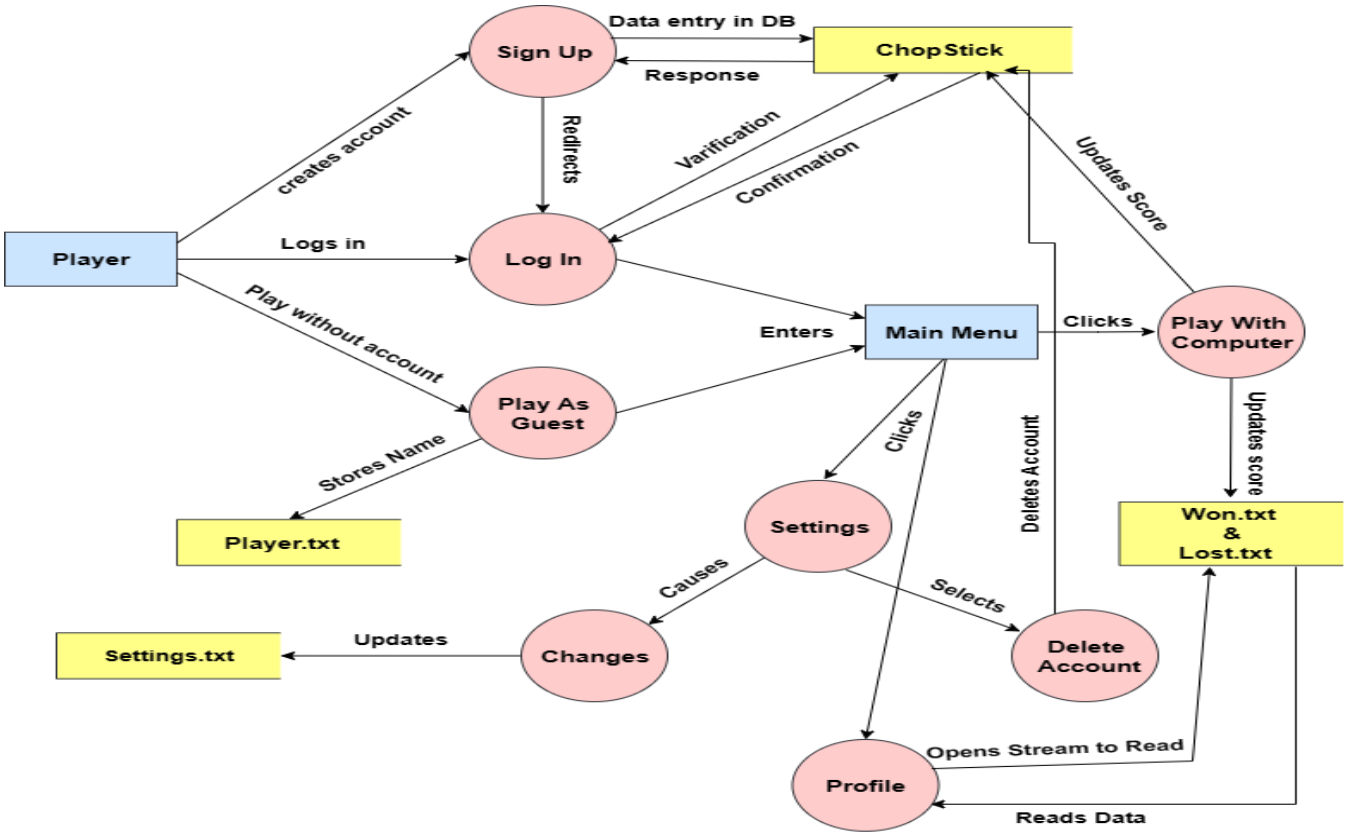
5.2.2 Data Flow Diagram (DFD) Level 0



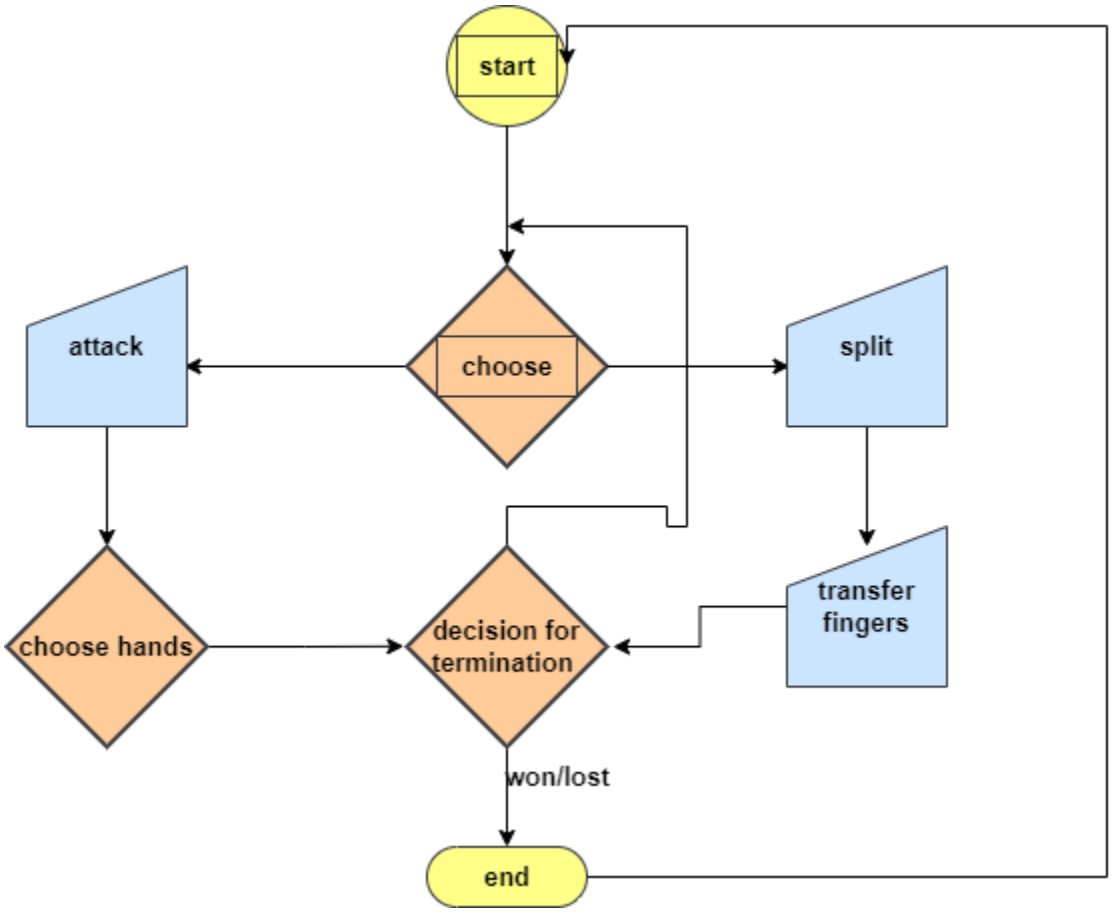
Level 1



Level 2



5.2.3 Flowchart



Section 6: Code of OmegaChopStick game

LoadingScreen.java

```
package com.voidmatrix_sahillalani.chopstickgameandroid;

import android.content.Context;
import android.content.Intent;
import android.graphics.Color;
import android.graphics.LinearGradient;
import android.graphics.Shader;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.os.Handler;
import android.text.TextPaint;
import android.view.Window;
import android.view.WindowManager;
import android.widget.ProgressBar;
import android.widget.TextView;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import com.google.firebase.auth.FirebaseAuth;

import java.io.BufferedReader;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;

public class LoadingScreen extends AppCompatActivity {
    public Handler h;
    private ProgressBar pb;
    private int loading=1;
    static public MediaPlayer mp;
    private TextView tv1,tv2,tv3,tv4;
    private BufferedReader inputReader;
    private FirebaseAuth uauth;
    private FileOutputStream fos;
```

```
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        mp=MediaPlayer.create(this, R.raw.swom);
        mp.setLooping(true);
        mp.start();

        try {
            fos = getApplicationContext().openFileOutput(getString(R.string.csfile),
Context.MODE_PRIVATE);
            fos.close();
        } catch (Exception e) {
            Toast.makeText(getApplicationContext(),e.getMessage(),Toast.LENGTH_SHORT).show();
        }

        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        getSupportActionBar().hide();

this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,WindowManage
r.LayoutParams.FLAG_FULLSCREEN);
        setContentView(R.layout.activity_loading_screen);
        h=new Handler();
        pb=findViewById(R.id.pb);
        tv1 = findViewById(R.id.textView1);
        tv2 = findViewById(R.id.textView2);
        tv3 = findViewById(R.id.textView3);
        tv4 = findViewById(R.id.textView4);
        LoadingScreen.Gradient_OB(tv1);
        LoadingScreen.Gradient_OB(tv2);
        LoadingScreen.Gradient_OB(tv3);
        LoadingScreen.Gradient_OB(tv4);

        StringBuffer stringBuffer = new StringBuffer();

        new Thread(new Runnable() {
            @Override
            public void run() {
                while (loading <= 100) {
                    loading++;
                    try {
                        Thread.sleep(50);
                    } catch (Exception e) {
```

```
                e.printStackTrace();
            }
            h.post(new Runnable() {
                @Override
                public void run() {

                    pb.setProgress(loading);
                }
            });
        }
        try{
            inputReader = new BufferedReader(new InputStreamReader(
                    getApplicationContext().openFileInput(getString(R.string.csfile))));
            if(inputReader.ready()){
                startActivity(new Intent(getApplicationContext(),MainScreen.class));
                finish();
            }
            else{
                startActivity(new Intent(getApplicationContext(),VoidMatrixAccount.class));
                finish();
            }
            //Attaching BufferedReader to the FileInputStream by the help of
InputStreamReader



        }catch(Exception e){

Toast.makeText(getApplicationContext(),e.getMessage(),Toast.LENGTH_LONG).show();
        }

      }
    }).start();

  }

  public static void Gradient_OB(TextView tv){
    TextPaint paint = tv.getPaint();
    float width = paint.measureText(tv.getText().toString());

    Shader textShader = new LinearGradient(0, 0, width, tv.getTextSize(),
        new int[]{
```

```
                Color.parseColor("#0000ff"),
                Color.parseColor("#0099ff"),
                Color.parseColor("#66ff66"),
            }, null, Shader.TileMode.CLAMP);
        tv.getPaint().setShader(textShader);
    }

}
```

Activity_LoadingScreen.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@raw/csm"
    tools:context=".LoadingScreen">

    <TextView
        android:id="@+id/textView4"
        android:layout_width="261dp"
        android:layout_height="42dp"
        android:fontFamily="sans-serif"
        android:foregroundGravity="center_horizontal"
        android:gravity="center_horizontal"
        android:includeFontPadding="false"
        android:text="@string/textview4"
        android:textColor="#6C0844"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.003"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0" />

    <TextView
```

```
    android:id="@+id/textView3"
    android:layout_width="209dp"
    android:layout_height="41dp"
    android:fontFamily="sans-serif"
    android:foregroundGravity="center_horizontal"
    android:gravity="center_horizontal"
    android:includeFontPadding="false"
    android:text="@string/textview3"
    android:textColor="#6C0844"
    android:textSize="34sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.33"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.005" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="204dp"
    android:layout_height="74dp"
    android:fontFamily="sans-serif"
    android:foregroundGravity="center_horizontal"
    android:gravity="center_horizontal"
    android:includeFontPadding="false"
    android:text="@string/textview2"
    android:textColor="#6C0844"
    android:textSize="34sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.005" />

<TextView
    android:id="@+id/textView1"
    android:layout_width="462dp"
    android:layout_height="157dp"
    android:fontFamily="sans-serif"
```

```
    android:foregroundGravity="center_horizontal"
    android:gravity="center_horizontal"
    android:includeFontPadding="false"
    android:text="@string/textview1"
    android:textColor="#6C0844"
    android:textSize="60sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.535"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.462" />

<ProgressBar
    android:id="@+id/pb"
    style="?android:attr/progressBarStyleHorizontal"
    android:layout_width="353dp"
    android:layout_height="51dp"
    android:indeterminate="false"
    android:max="100"
    android:progress="1"
    android:progressBackgroundTint="#534C4C"
    android:progressBackgroundTintMode="add"
    android:progressTint="#002FFF"
    android:scrollbarSize="8dp"
    android:scrollbarStyle="outsideOverlay"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.541"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.766" />

<ImageView
    android:id="@+id/imageView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.914"
    app:layout_constraintStart_toStartOf="parent"
```

```
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.285"
        app:srcCompat="@drawable/vms" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

VoidMatrixAccount.java

```
package com.voidmatrix_sahillalani.chopstickgameandroid;

import android.os.Bundle;
import android.app.TabActivity;
import android.content.Intent;
import android.content.res.Resources;
import android.view.Window;
import android.view.WindowManager;
import android.widget.EditText;
import android.widget.TabHost;
import android.widget.TabHost.TabSpec;

import androidx.appcompat.app.AppCompatActivity;
import androidx.viewpager.widget.ViewPager;

import com.google.android.material.tabs.TabLayout;

public class VoidMatrixAccount extends AppCompatActivity {

    private TabLayout tabLayout;
    private ViewPager viewPager;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        getSupportActionBar().hide();

this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,WindowManage
r.LayoutParams.FLAG_FULLSCREEN);
        setContentView(R.layout.activity_void_matrix_account);


        tabLayout=findViewById(R.id.tl);
```

```
        viewPager=findViewById(R.id.viewPager);

//        tabLayout.addTab(tabLayout.newTab().setText("Home"));
//        tabLayout.addTab(tabLayout.newTab().setText("Sport"));
//        tabLayout.addTab(tabLayout.newTab().setText("Movie"));
//        tabLayout.setTabGravity(TabLayout.GRAVITY_FILL);

        final MyAdapter adapter = new MyAdapter(this,getSupportFragmentManager(),
tabLayout.getTabCount());
        viewPager.setAdapter(adapter);

        viewPager.addOnPageChangeListener(new
TabLayout.TabLayoutOnPageChangeListener(tabLayout));

        tabLayout.addOnTabSelectedListener(new TabLayout.OnTabSelectedListener() {
            @Override
            public void onTabSelected(TabLayout.Tab tab) {
                viewPager.setCurrentItem(tab.getPosition());
            }

            @Override
            public void onTabUnselected(TabLayout.Tab tab) {

            }

            @Override
            public void onTabReselected(TabLayout.Tab tab) {

            }
        });
    }

    @Override
    public void onBackPressed(){
        finish();
    }
}
```

Activity_VoidMatrixAccount.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".VoidMatrixAccount">

    <com.google.android.material.tabs.TabLayout
        android:id="@+id/tl"
        android:layout_width="729dp"
        android:layout_height="59dp"
        app:layout_constraintBottom_toTopOf="@+id/viewPager"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.034"
        app:tabBackground="@drawable/gradient_oceanblue"
        app:tabIndicatorColor="#FF5722"
        app:tabTextColor="#EA653B">

        <com.google.android.material.tabs.TabItem
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="SIgn Up"
            tools:layout_editor_absoluteX="302dp"
            tools:layout_editor_absoluteY="2dp" />

        <com.google.android.material.tabs.TabItem
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Log In"
            tools:layout_editor_absoluteX="302dp"
            tools:layout_editor_absoluteY="2dp" />

        <com.google.android.material.tabs.TabItem
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Play As Guest"
```

```
        tools:layout_editor_absoluteX="302dp"
        tools:layout_editor_absoluteY="2dp" />
    </com.google.android.material.tabs.TabLayout>

    <androidx.viewpager.widget.ViewPager
        android:id="@+id/viewPager"
        android:layout_width="734dp"
        android:layout_height="294dp"
        android:background="@drawable/gradient_vma"
        android:contentDescription="@string/vp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.454"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0" />

    <ImageView
        android:id="@+id/imageView2"
        android:layout_width="67dp"
        android:layout_height="56dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="@+id/tl"
        app:layout_constraintHorizontal_bias="1.0"
        app:layout_constraintStart_toEndOf="@+id/imageView3"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.005"
        app:srcCompat="@drawable/vms" />

    <ImageView
        android:id="@+id/imageView3"
        android:layout_width="64dp"
        android:layout_height="59dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="@+id/tl"
        app:layout_constraintHorizontal_bias="0.001"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.005"
        app:srcCompat="@drawable/twohands72" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainScreen.java

```
package com.voidmatrix_sahillalani.chopstickgameandroid;

import android.content.DialogInterface;
import android.content.Intent;
import android.os.Bundle;
import android.text.InputType;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.EditText;
import android.widget.ProgressBar;
import android.widget.Toast;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.AppCompatTextView;

import com.google.firebase.auth.FirebaseAuth;
import com.google.firebase.auth.FirebaseUser;
import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;


import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.io.Writer;

public class MainScreen extends AppCompatActivity {
    public static AppCompatTextView pname,exp;
    ProgressBar pb;
    private String m_Text = "";
    private AlertDialog.Builder builder;
    public boolean email=false;
    private FirebaseAuth uauth;
    BufferedReader inputReader;
    StringBuffer stringBuffer,s2;
    String won,lost;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        getSupportActionBar().hide();

this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,WindowManage
r.LayoutParams.FLAG_FULLSCREEN);
        setContentView(R.layout.activity_main_screen);
       //  Toast.makeText(this,"success",Toast.LENGTH_SHORT).show();
        uauth= FirebaseAuth.getInstance();
        pname=findViewById(R.id.pname);
        exp=findViewById(R.id.exp);
        pb=findViewById(R.id.exps);

        stringBuffer = new StringBuffer();
        try {
            //Attaching BufferedReader to the FileInputStream by the help of InputStreamReader
             inputReader = new BufferedReader(new InputStreamReader(
                    getApplicationContext().openFileInput(getString(R.string.csfile))));
            String inputString;
            //Reading data line by line and storing it into the stringbuffer
            while ((inputString = inputReader.readLine()) != null) {
                stringBuffer.append(inputString).append("\n");
            }
            pname.setText(stringBuffer.toString());
            inputReader.close();
        } catch (IOException e) {
            Toast.makeText(getApplicationContext(),e.getMessage(),Toast.LENGTH_LONG).show();
        }


    }



    public void A_T_G(View view){
        Intent intent=new Intent(getApplicationContext(),AboutTheGame.class);
        startActivity(intent);
    }

    public void G_C(View view){
       // startActivity(new Intent(getApplicationContext(),GlobalChat.class));
        Toast.makeText(getApplicationContext(), "Still in production, Thank you for your
```

```
patience",Toast.LENGTH_SHORT).show();
    }

    public void H_T_P(View view){
        Intent intent=new Intent(getApplicationContext(),HowToPlay.class);
        startActivity(intent);
    }

    public void O_P_V_P(View view){
        Toast.makeText(getApplicationContext(), "Still in production, Thank you for your
patience",Toast.LENGTH_SHORT).show();
//        if(uauth.getCurrentUser() != null){
//            Intent intent=new Intent(getApplicationContext(),OnlinePlayerVsPlayer.class);
//            startActivity(intent);
//        }
//        else{
//            Toast.makeText(getApplicationContext(), "Please sign up to use this
facility!",Toast.LENGTH_SHORT).show();
//        }
    }

    public void P_V_P(View view){
        Intent intent=new Intent(getApplicationContext(),PlayerVsPlayer.class);
        startActivity(intent);
    }

    public void P_W_C(View view){
        Intent intent=new Intent(getApplicationContext(),PlayWithComputer.class);
        startActivity(intent);
    }

    public void SET_S(View view){
        Intent intent=new Intent(getApplicationContext(),Settings.class);
        intent.putExtra("pname",pname.getText().toString());
        startActivity(intent);
    }

    public void PF_I(View view){
        stringBuffer = new StringBuffer();
        try {
            //Attaching BufferedReader to the FileInputStream by the help of InputStreamReader
            inputReader = new BufferedReader(new InputStreamReader(
```

```
                getApplicationContext().openFileInput(getString(R.string.cspwon))));

            //Reading data line by line and storing it into the stringbuffer
            while ((won = inputReader.readLine()) != null) {
               stringBuffer.append(won).append("\n");
            }
            won=stringBuffer.toString();
            inputReader.close();
            s2=new StringBuffer();
            inputReader = new BufferedReader(new InputStreamReader(
                  getApplicationContext().openFileInput(getString(R.string.csplost))));

            //Reading data line by line and storing it into the stringbuffer
            while ((lost = inputReader.readLine()) != null) {
               stringBuffer.append(lost).append("\n");
            }
            lost=stringBuffer.toString();
            inputReader.close();

         } catch (IOException e) {
            Toast.makeText(getApplicationContext(),e.getMessage(),Toast.LENGTH_LONG).show();
         }
         builder = new AlertDialog.Builder(this);
         builder.setTitle("Player Name: "+pname.getText().toString()+"\n(Only matches played with
computer are counted)\nTotal Won: "+won+"\nTotal Lost: "+lost+"\nTotal Matches Played:
"+String.valueOf((Integer.parseInt(won)+Integer.parseInt(lost))));

         // Set up the buttons
         builder.setPositiveButton("Okay", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
               dialog.cancel();
            }
         });


         builder.show();
      }

      public void L_O(View view){
         CustomInputDialog2();
```

```
    }

    public void F_S(View view){

        CustomInputDialog();

    }

    public void CustomInputDialog(){
        builder = new AlertDialog.Builder(this);
        builder.setTitle("Any Feedback or Suggestion ?");

        final EditText input = new EditText(this);
        input.setInputType(InputType.TYPE_CLASS_TEXT);

        builder.setView(input);

        // Set up the buttons
        builder.setPositiveButton("Send", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                m_Text = input.getText().toString();
                FirebaseDatabase database = FirebaseDatabase.getInstance();
                DatabaseReference myRef = database.getReference("Feedback:
/"+MainScreen.pname);

                myRef.setValue(m_Text);



            }
        });
        builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                dialog.cancel();
            }
        });

        builder.show();
    }

    public void CustomInputDialog2(){
```

```
        builder = new AlertDialog.Builder(this);
        builder.setTitle("Do you really wanna log out?");

        // Set up the buttons
        builder.setPositiveButton("Yeah", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                uauth = FirebaseAuth.getInstance();
                FirebaseUser currentUser = uauth.getCurrentUser();
                FirebaseAuth.getInstance().signOut();
                startActivity(new Intent(getApplicationContext(),VoidMatrixAccount.class));
            }
        });
        builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                dialog.cancel();
            }
        });

        builder.show();
    }

    @Override
    public void onBackPressed(){
    }
```

Activity_MainScreen.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@raw/chopstick_main_cs"
    tools:context=".MainScreen">
```

```
<androidx.appcompat.widget.AppCompatTextView
    android:id="@+id/exp"
    android:layout_width="55dp"
    android:layout_height="53dp"
    android:background="@drawable/rounded_rectangle"
    android:gravity="center"
    android:text="0"
    android:textColor="#FF5722"
    android:textSize="20sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.345"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.005" />

<androidx.appcompat.widget.AppCompatTextView
    android:id="@+id/pname"
    android:layout_width="147dp"
    android:layout_height="35dp"
    android:gravity="center"
    android:text="player"
    android:textColor="#FFFFFF"
    android:textSize="20sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.005" />

<ImageButton
    android:id="@+id/LO"
    android:layout_width="78dp"
    android:layout_height="78dp"
    android:background="@drawable/cir"
    android:contentDescription="@string/up"
    android:onClick="L_O"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.001"
```

```
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.984"
    app:srcCompat="@drawable/logout" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/HTP"
    android:layout_width="205dp"
    android:layout_height="65dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="H_T_P"
    android:text="@string/button4"
    android:textColor="#ffffff"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.289"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.627" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/ATG"
    android:layout_width="205dp"
    android:layout_height="65dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="A_T_G"
    android:text="@string/button5"
    android:textColor="#ffffff"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.71"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.627" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/OPVP"
    android:layout_width="205dp"
```

```
    android:layout_height="65dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="O_P_V_P"
    android:text="@string/button3"
    android:textColor="#ffffff"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.917"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.323" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/PVP"
    android:layout_width="205dp"
    android:layout_height="65dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="P_V_P"
    android:text="@string/button2"
    android:textColor="#ffffff"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.323" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/PWC"
    android:layout_width="205dp"
    android:layout_height="65dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="P_W_C"
    android:text="@string/button1"
    android:textColor="#ffffff"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.079"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.323" />

<ImageButton
    android:id="@+id/UP"
    android:layout_width="78dp"
    android:layout_height="78dp"
    android:background="@drawable/cir"
    android:contentDescription="@string/up"
    android:onClick="PF_I"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.002"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.006"
    app:srcCompat="@drawable/user72" />

<ImageButton
    android:id="@+id/FS"
    android:layout_width="78dp"
    android:layout_height="78dp"
    android:background="@drawable/cir"
    android:contentDescription="@string/fs"
    android:onClick="F_S"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.993"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.006"
    app:srcCompat="@drawable/feedback" />

<ImageButton
    android:id="@+id/S"
    android:layout_width="78dp"
    android:layout_height="78dp"
    android:background="@drawable/cir"
    android:contentDescription="@string/s"
    android:onClick="SET_S"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.993"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.984"
        app:srcCompat="@drawable/settings" />

    <ImageButton
        android:id="@+id/GC"
        android:layout_width="78dp"
        android:layout_height="78dp"
        android:background="@drawable/cir"
        android:contentDescription="@string/lo"
        android:onClick="G_C"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.499"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.951"
        app:srcCompat="@drawable/chatbubble" />

    <ProgressBar
        android:id="@+id/exps"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="169dp"
        android:layout_height="13dp"
        android:progress="1"
        android:progressTint="#F44336"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.1" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

```
package com.voidmatrix_sahillalani.chopstickgameandroid;

import android.annotation.SuppressLint;
import android.content.DialogInterface;
import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.ImageButton;
import android.widget.ImageView;
import android.widget.ProgressBar;
import android.widget.Toast;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.content.res.AppCompatResources;
import androidx.appcompat.widget.AppCompatButton;
import androidx.appcompat.widget.AppCompatTextView;



import java.util.Random;
import java.util.Vector;

@SuppressWarnings({"unused","FieldCanBeLocal"})
@SuppressLint("SetTextI18n")
public class PlayWithComputer extends AppCompatActivity {

    public Handler h;
    private ProgressBar load;
    private ImageView i1,i2,p_l_bg,p_r_bg,cp_r_bg,cp_l_bg;
    private ImageButton quit;
    private AppCompatButton btnsplit, btnhit, btndone;
    private AppCompatTextView pname, insmsg;//pname= player name, insmsg=instruction msg
    //p_l = player_left , p_r= player_right, cp_l=computer/anotherplayer_left,
cp_r=computer/anotherplayer_right
    private ImageView pwcsplitup, pwcsplitdown,
            p_l_one, p_l_two, p_l_three, p_l_four, p_l_five, p_l_fist,
            p_r_one, p_r_two, p_r_three, p_r_four, p_r_five, p_r_fist,
```

```
        cp_l_one, cp_l_two, cp_l_three, cp_l_four, cp_l_five, cp_l_fist,
        cp_r_one, cp_r_two, cp_r_three, cp_r_four, cp_r_five, cp_r_fist;

    Random r = new Random();

    //p_l=player left, p_r=player right
    public boolean running = true, turn, hit=false, split=false, p_l, p_r, lock = true;

    //p_l_h= player left hand, p_r_h=player right hand, cp_l_h=computer/anotherplayer left hand
cp_r_h=vice versa
    public Vector<Integer> p_l_h = new Vector<Integer>(5),
        p_r_h = new Vector<Integer>(5),
        cp_l_h = new Vector<Integer>(5),
        cp_r_h = new Vector<Integer>(5);

    //cp_ch=computer choice, cp_ch_p_h=(cp_ch)player hand, cp_ch_c_h=(cp_ch)computer hand
    //prpr= previous player right, prpl=previous player left, cph=computer hand
    public int cp_ch,
        cp_ch_p_h,
        cp_ch_c_h,
        cp_l_size, cp_r_size, p_l_size, p_r_size,
        i, cp1, cp2, prpr, prpl, totalsplit,
        cph, rc, prcpl, prcpr, x, wcount, lcount;

    public AlertDialog.Builder builder;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        getSupportActionBar().hide();
        this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
WindowManager.LayoutParams.FLAG_FULLSCREEN);
        setContentView(R.layout.activity_pwc);

        quit = findViewById(R.id.pwcquit);

        load=findViewById(R.id.progressBar);

        btnsplit = findViewById(R.id.pwcsplit);
        btnhit = findViewById(R.id.pwchit);
        btndone = findViewById(R.id.pwcdone);
```

```
insmsg=findViewById(R.id.pwcinsmsg);
pname=findViewById(R.id.p);

pwcsplitup = findViewById(R.id.pvpsplitup);
pwcsplitdown = findViewById(R.id.pvpsplitdown);
btndone=findViewById(R.id.pwcdone);

p_l_one = findViewById(R.id.p_l_one);
p_l_two = findViewById(R.id.p_l_two);
p_l_three = findViewById(R.id.p_l_three);
p_l_four = findViewById(R.id.p_l_four);
p_l_five = findViewById(R.id.p_l_five);
p_l_fist = findViewById(R.id.p_l_fist);

p_r_one = findViewById(R.id.p_r_one);
p_r_two = findViewById(R.id.p_r_two);
p_r_three = findViewById(R.id.p_r_three);
p_r_four = findViewById(R.id.p_r_four);
p_r_five = findViewById(R.id.p_r_five);
p_r_fist = findViewById(R.id.p_r_fist);

cp_l_one = findViewById(R.id.cp_l_one);
cp_l_two = findViewById(R.id.cp_l_two);
cp_l_three = findViewById(R.id.cp_l_three);
cp_l_four = findViewById(R.id.cp_l_four);
cp_l_five = findViewById(R.id.cp_l_five);
cp_l_fist = findViewById(R.id.cp_l_fist);

cp_r_one = findViewById(R.id.cp_r_one);
cp_r_two = findViewById(R.id.cp_r_two);
cp_r_three = findViewById(R.id.cp_r_three);
cp_r_four = findViewById(R.id.cp_r_four);
cp_r_five = findViewById(R.id.cp_r_five);
cp_r_fist = findViewById(R.id.cp_r_fist);

i1 = findViewById(R.id.iv1);
i2 = findViewById(R.id.iv2);

p_l_bg=findViewById(R.id.p_l_bg);
p_r_bg=findViewById(R.id.p_r_bg);
cp_r_bg=findViewById(R.id.cp_r_bg);
```

```
    cp_l_bg=findViewById(R.id.cp_l_bg);


    new Thread(new Runnable() {
        @Override
        public void run() {
            Game_loop();
        }
    }).start();

}

public void pwc_q(View view) {

    custom_dialog(view);
}

public void custom_dialog(View v) {
    builder = new AlertDialog.Builder(this);
    builder.setTitle("Do you really want to quit ?");

    builder.setView(R.layout.dialog);

    // Set up the buttons
    builder.setPositiveButton("Okay", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {

            startActivity(new Intent(getApplicationContext(), MainScreen.class));

        }
    });
    builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {
            dialog.cancel();
        }
    });

    builder.show();

}
```

```
public void confirmation_dialog(){
    builder = new AlertDialog.Builder(this);
    builder.setTitle("Do you want to play again ?");

    builder.setView(R.layout.dialog);

    // Set up the buttons
    builder.setPositiveButton("Yes", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {

            startActivity(new Intent(getApplicationContext(), PlayWithComputer.class));

        }
    });
    builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {
            dialog.cancel();
            startActivity(new Intent(getApplicationContext(), MainScreen.class));
        }
    });

    builder.show();
}

public void delay(int sleep) {
    try {
        Thread.sleep(sleep);
    } catch (Exception e) {
        Toast.makeText(getApplicationContext(), e.getMessage(), Toast.LENGTH_SHORT).show();
    }
}


public void loading() {

    for (int i = 0; i < 10; i++) {
        load.post(new Runnable() {
            @Override
            public void run() {
```

```
                insmsg.setText("");
                load.setVisibility(View.VISIBLE);
            }
        });
        delay(150);
    }
    load.setVisibility(View.INVISIBLE);
}

public synchronized void Game_loop() {
    p_l_h.add(1);
    p_r_h.add(1);
    cp_l_h.add(1);
    cp_r_h.add(1);

    loading();
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("...Randomly Choosing the turn!...");
        }
    });
    delay(2000);
    loading();
    if (r.nextInt(2) == 1) {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Computer's turn");
            }
        });
        delay(1000);
        turn = true;
    } else {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Player's turn");
            }
        });
        delay(1000);
        turn = false;
```

```
}

while (running) {
    if (cp_l_h.isEmpty() && cp_r_h.isEmpty()) {
        pla_won();
    } else if (p_l_h.isEmpty() && p_r_h.isEmpty()) {
        com_won();
    } else {
        if (turn) {
            Com_turn();
            render_p_r_hit(p_r_h.size());
            render_p_l_hit(p_l_h.size());
            render_cp_split(cp_l_h.size(),cp_r_h.size());
            if (cp_l_h.isEmpty() && cp_r_h.isEmpty()) {
                pla_won();
            } else if (p_l_h.isEmpty() && p_r_h.isEmpty()) {
                com_won();
            } else
                turn = false;

        } else {
            Pla_turn();
            render_cp_l_hit(cp_l_h.size());
            render_cp_r_hit(cp_r_h.size());
            render_p_split(p_l_h.size(),p_r_h.size());
            while (lock) {
                delay(1000);
            }
            loading();
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    p_l_bg.setVisibility(View.INVISIBLE);
                    p_r_bg.setVisibility(View.INVISIBLE);
                    cp_r_bg.setVisibility(View.INVISIBLE);
                    cp_l_bg.setVisibility(View.INVISIBLE);
                }
            });
            if (cp_l_h.isEmpty() && cp_r_h.isEmpty()) {
                pla_won();
            } else if (p_l_h.isEmpty() && p_r_h.isEmpty()) {
                com_won();
```

```
                } else {
                    turn = true;
                    lock = true;
                }
            }
        }
    }

}



public void Com_turn() {
    loading();
    i2.post(new Runnable() {
        @Override
        public void run() {

i2.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.splash));
        }
    });
    delay(250);

i2.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.gradient_msgpwc));
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("Computer is making the move");
        }
    });

    delay(1000);

    if (cp_l_h.size() == 1 && cp_r_h.size() == 0) {
        loading();
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Computer chose to attack");
            }
```

```
        });

        delay(1000);
        if (p_l_h.isEmpty()) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your right hand");
                }
            });

            delay(3000);
            C_L_R_HIT();
        } else if (p_r_h.isEmpty()) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your left hand");
                }
            });

            delay(3000);
            C_L_L_HIT();
        } else {
            cp_ch_p_h = r.nextInt(2);//p : 0=l , 1=r
            if (cp_ch_p_h == 0) {
                loading();
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("Computer's left hand -> Your left hand");
                    }
                });

                delay(3000);
                C_L_L_HIT();
            } else {
                loading();
                insmsg.post(new Runnable() {
                    @Override
```

```
                public void run() {
                    insmsg.setText("Computer's left hand -> Your right hand");
                }
            });

            delay(3000);
            C_L_R_HIT();
        }
    }
} else if (cp_l_h.size() == 0 && cp_r_h.size() == 1) {
    loading();
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("Computer chose to attack");
        }
    });

    delay(1000);
    if (p_l_h.isEmpty()) {
        loading();
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Computer's right hand -> Your right hand");
            }
        });

        delay(3000);
        C_R_R_HIT();
    } else if (p_r_h.isEmpty()) {
        loading();
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Computer's right hand -> Your left hand");
            }
        });

        delay(3000);
        C_R_L_HIT();
    } else {
```

```
            cp_ch_p_h = r.nextInt(2);//p : 0=l , 1=r
            if (cp_ch_p_h == 0) {
                loading();
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("Computer's right hand -> Your left hand");
                    }
                });

                delay(3000);
                C_R_L_HIT();
            } else {
                loading();
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("Computer's right hand -> Your right hand");
                    }
                });

                delay(3000);
                C_R_R_HIT();
            }
        }
    } else if (cp_l_h.size() + cp_r_h.size() > 4) {
        cp_ch_c_h = r.nextInt(2);//c : 0=l , 1=r
        cp_ch_p_h = r.nextInt(2);//p : 0=l , 1=r
        loading();
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Computer chose to attack");
            }
        });

        delay(1000);

        if (p_l_h.isEmpty()) {
            if (cp_ch_c_h == 0) {
                loading();
                insmsg.post(new Runnable() {
```

```
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your right hand");
                }
            });

            delay(3000);
            C_L_R_HIT();
        } else {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your right hand");
                }
            });

            delay(3000);
            C_R_R_HIT();
        }
    } else if (p_r_h.isEmpty()) {
        if (cp_ch_c_h == 0) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your left hand");
                }
            });

            delay(3000);
            C_L_L_HIT();
        } else {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your left hand");
                }
            });

            delay(3000);
```

```
            C_R_L_HIT();
        }
    } else {
        if (cp_ch_c_h == 0 && cp_ch_p_h == 0) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your left hand");
                }
            });

            delay(3000);
            C_L_L_HIT();
        } else if (cp_ch_c_h == 0 && cp_ch_p_h == 1) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your right hand");
                }
            });

            delay(3000);
            C_L_R_HIT();
        } else if (cp_ch_c_h == 1 && cp_ch_p_h == 0) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your left hand");
                }
            });

            delay(3000);
            C_R_L_HIT();
        } else if (cp_ch_c_h == 1 && cp_ch_p_h == 1) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your right hand");
```

```
                }
            });

            delay(3000);
            C_R_R_HIT();
        }

    }
} else {

    cp_ch = r.nextInt(4);//0=a , 1=s , 2=a, 3=s

    if (cp_ch == 0 || cp_ch == 2) {
        cp_ch_c_h = r.nextInt(2);//c : 0=l , 1=r
        cp_ch_p_h = r.nextInt(2);//p : 0=l , 1=r
        loading();
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Computer chose to attack");
            }
        });

        delay(1000);

        if (cp_l_h.isEmpty()) {
            if (p_l_h.isEmpty()) {
                loading();
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("Computer's right hand -> Your right hand");
                    }
                });

                delay(3000);
                C_R_R_HIT();
            } else if (p_r_h.isEmpty()) {
                loading();
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
```

```
                insmsg.setText("Computer's right hand -> Your left hand");
            }
        });

        delay(3000);
        C_R_L_HIT();
    } else {
        cp_ch_p_h = r.nextInt(2);//p : 0=l , 1=r
        if (cp_ch_p_h == 0) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your left hand");
                }
            });

            delay(3000);
            C_R_L_HIT();
        } else {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your right hand");
                }
            });

            delay(3000);
            C_R_R_HIT();
        }
    }
} else if (cp_r_h.isEmpty()) {
    if (p_l_h.isEmpty()) {
        loading();
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("Computer's left hand -> Your right hand");
            }
        });
```

```
            delay(3000);
            C_L_R_HIT();
        } else if (p_r_h.isEmpty()) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your left hand");
                }
            });

            delay(3000);
            C_L_L_HIT();
        } else {
            cp_ch_p_h = r.nextInt(2);//p : 0=l , 1=r
            if (cp_ch_p_h == 0) {
                loading();
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("Computer's left hand -> Your left hand");
                    }
                });

                delay(3000);
                C_L_L_HIT();
            } else {
                loading();
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("Computer's left hand -> Your right hand");
                    }
                });

                delay(3000);
                C_L_R_HIT();
            }
        }
    } else if (p_l_h.isEmpty()) {
        if (cp_ch_c_h == 0) {
            loading();
```

```
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your right hand");
                }
            });

            delay(3000);
            C_L_R_HIT();
        } else {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your right hand");
                }
            });

            delay(3000);
            C_R_R_HIT();
        }
    } else if (p_r_h.isEmpty()) {
        if (cp_ch_c_h == 0) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your left hand");
                }
            });

            delay(3000);
            C_L_L_HIT();
        } else {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your left hand");
                }
            });
```

```
            delay(3000);
            C_R_L_HIT();
        }
    } else {
        if (cp_ch_c_h == 0 && cp_ch_p_h == 0) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your left hand");
                }
            });

            delay(3000);
            C_L_L_HIT();
        } else if (cp_ch_c_h == 0 && cp_ch_p_h == 1) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's left hand -> Your right hand");
                }
            });

            delay(3000);
            C_L_R_HIT();
        } else if (cp_ch_c_h == 1 && cp_ch_p_h == 0) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("Computer's right hand -> Your left hand");
                }
            });

            delay(3000);
            C_R_L_HIT();
        } else if (cp_ch_c_h == 1 && cp_ch_p_h == 1) {
            loading();
            insmsg.post(new Runnable() {
                @Override
                public void run() {
```

```
                insmsg.setText("Computer's right hand -> Your right hand");
            }
        });

        delay(3000);
        C_R_R_HIT();
    }
}

} else {
    loading();
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("Computer chose to split");
        }
    });

    delay(1000);
    do {
        prcpl = cp_l_h.size();
        prcpr = cp_r_h.size();
        cp1 = cp_l_h.size() + cp_r_h.size();
        cph = r.nextInt(2);//0=L,1=R
        rc = r.nextInt(cp1 + 1);
        cp2 = cp1 - rc;
        if (cph == 0) {
            cp_l_h.removeAllElements();
            cp_r_h.removeAllElements();
            for (i = 0; i < rc; i++) {
                cp_l_h.add(1);
            }
            for (i = 0; i < cp2; i++) {
                cp_r_h.add(1);
            }
            loading();
        } else if (cph == 1) {
            cp_l_h.removeAllElements();
            cp_r_h.removeAllElements();
            for (i = 0; i < rc; i++) {
                cp_r_h.add(1);
            }
```

```
                for (i = 0; i < cp2; i++) {
                    cp_l_h.add(1);
                }
                loading();
            }
        }
        while (cp_l_h.size() == cp_r_h.size() || cp_l_h.size() == prcpr && cp_r_h.size() == prcpl ||
cp_l_h.size() == prcpl || cp_r_h.size() == prcpr);

        render_cp_split(cp_l_h.size(),cp_r_h.size());

      }
    }
  }

  public void com_won () {
    loading();
    //Toast.makeText(getApplicationContext(),"): You Lost :(",Toast.LENGTH_SHORT).show();
    insmsg.post(new Runnable() {
      @Override
      public void run() {
        insmsg.setText("): You Lost :(");
      }
    });

    delay(1000);
    runOnUiThread(new Runnable() {
      @Override
      public void run() {
        confirmation_dialog();
      }
    });
    running=false;
  }

  //computer-Hit
  public void C_L_L_HIT ()
  {
    runOnUiThread(new Runnable() {
      @Override
      public void run() {
        cp_l_bg.setVisibility(View.VISIBLE);
```

```
            p_l_bg.setVisibility(View.VISIBLE);
        }
    });

    x = cp_l_h.size();
    for (i = 0; i < x; i++) {
        if (p_l_h.size() == 5) {
            p_l_h.removeAllElements();
            p_l_5_0();
        }
        p_l_h.add(1);
    }
    if (p_l_h.size() == 5) {
        p_l_h.removeAllElements();
    }
    loading();
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_bg.setVisibility(View.INVISIBLE);
            p_l_bg.setVisibility(View.INVISIBLE);
        }
    });
    render_p_l_hit(p_l_h.size());
}

public void C_L_R_HIT ()
{
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_bg.setVisibility(View.VISIBLE);
            p_r_bg.setVisibility(View.VISIBLE);
        }
    });

    x = cp_l_h.size();
    for (i = 0; i < x; i++) {
        if (p_r_h.size() == 5) {
            p_r_h.removeAllElements();
            p_r_5_0();
        }
```

```
            p_r_h.add(1);
        }
        if (p_r_h.size() == 5) {
            p_r_h.removeAllElements();
        }
        loading();
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                cp_l_bg.setVisibility(View.INVISIBLE);
                p_r_bg.setVisibility(View.INVISIBLE);
            }
        });
        render_p_r_hit(p_r_h.size());
    }

    public void C_R_L_HIT ()
    {
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                cp_r_bg.setVisibility(View.VISIBLE);
                p_l_bg.setVisibility(View.VISIBLE);
            }
        });

        x = cp_r_h.size();
        for (i = 0; i < x; i++) {
            if (p_l_h.size() == 5) {
                p_l_h.removeAllElements();
                p_l_5_0();
            }
            p_l_h.add(1);
        }
        if (p_l_h.size() == 5) {
            p_l_h.removeAllElements();
        }
        loading();
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                cp_r_bg.setVisibility(View.INVISIBLE);
```

```
            p_l_bg.setVisibility(View.INVISIBLE);
        }
    });
    render_p_l_hit(p_l_h.size());
}

public void C_R_R_HIT ()
{
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_bg.setVisibility(View.VISIBLE);
            p_r_bg.setVisibility(View.VISIBLE);
        }
    });

    x = cp_r_h.size();

    for (i = 0; i < x; i++) {
        if (p_r_h.size() == 5) {
            p_r_h.removeAllElements();
            p_r_5_0();
        }
        p_r_h.add(1);
    }
    if (p_r_h.size() == 5) {
        p_r_h.removeAllElements();
    }
    loading();
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_bg.setVisibility(View.INVISIBLE);
            p_r_bg.setVisibility(View.INVISIBLE);
        }
    });
    render_p_r_hit(p_r_h.size());
}

public void Pla_turn () {
    loading();
```

```
        i1.post(new Runnable() {
            @Override
            public void run() {

i1.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.splash));

            }
        });
        delay(250);

i1.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.gradient_msgpwc));

        if (p_l_h.size() == 0 && p_r_h.size() == 1 || p_r_h.size() == 0 && p_l_h.size() == 1) {
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText(".....You can only attack.....");
                }
            });
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    btnhit.setVisibility(View.VISIBLE);
                    btnsplit.setVisibility(View.VISIBLE);
                    btnsplit.setEnabled(false);
                }
            });
        }
        else {
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("What do you wanna do ?");
                }
            });
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    btnhit.setVisibility(View.VISIBLE);
                    btnsplit.setVisibility(View.VISIBLE);
```

```
                btnsplit.setEnabled(true);
            }
        });
    }
}

public void Split(View view) {
    split = true;
    hit = false;

    cp_l_size = cp_l_h.size();
    cp_r_size = cp_r_h.size();

    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            btnsplit.setVisibility(View.GONE);
            btnhit.setVisibility(View.GONE);

            pwcsplitup.setVisibility(View.VISIBLE);
            pwcsplitdown.setVisibility(View.VISIBLE);
        }
    });

    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("Click on the up and down arrow\n"
                    + "For splitting the fingers by one,\n");
        }
    });

    prpr = p_l_h.size();
    prpl = p_r_h.size();
    totalsplit = prpr + prpl;
}

public void split_up(View view) {
    if (split) {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
```

```
            insmsg.setText(".....Splitting.....");
        }
    });

    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            btndone.setVisibility(View.VISIBLE);
        }
    });

    //up for adding left

    if (p_l_h.size() >= 4)
        Toast.makeText(getApplicationContext(),
                "You can't kill your own hand!,\nIn splitting, decrement of fingers isn't allowed",
                Toast.LENGTH_LONG).show();

    else if (p_r_h.size() == 0)
        Toast.makeText(getApplicationContext(),
                "No fingers left to transfer\nYou got a fist on right hand",
                Toast.LENGTH_LONG).show();

    else {
        p_l_h.add(1);
        p_r_h.remove(p_r_h.lastElement());
        render_p_split(p_l_h.size(),p_r_h.size());
    }
  }
}

public void split_down(View view) {
  if (split) {
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText(".....Splitting.....");
        }
    });
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
```

```
            btndone.setVisibility(View.VISIBLE);
        }
    });

    //down for right
    if (p_r_h.size() >= 4)
        Toast.makeText(getApplicationContext(),
                "You can't kill your own hand!,\nIn splitting, decrement of fingers isn't allowed",
                Toast.LENGTH_LONG).show();
    else if (p_l_h.size() == 0) {
        Toast.makeText(getApplicationContext(),
                "No fingers left to transfer\nYou got a fist on left hand",
                Toast.LENGTH_LONG).show();
    } else {
        p_r_h.add(1);
        p_l_h.remove(p_l_h.lastElement());
        render_p_split(p_l_h.size(),p_r_h.size());
    }

  }
}

public void done (View view){
  if (p_l_h.size() == prpr && p_r_h.size() == prpl || p_l_h.size() == prpl && p_r_h.size() == prpr) {
    Toast.makeText(getApplicationContext(),
            "Splitting is same as previous State! make something different",
            Toast.LENGTH_LONG).show();

  } else {
    runOnUiThread(new Runnable() {
      @Override
      public void run() {
        btndone.setVisibility(View.GONE);
        pwcsplitup.setVisibility(View.GONE);
        pwcsplitdown.setVisibility(View.GONE);
      }
    });
    split = false;
    lock = false;
  }
}
```

```
    public void Hit(View view){
        hit = true;
        split = false;
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btnsplit.setVisibility(View.GONE);
                btnhit.setVisibility(View.GONE);
            }
        });

        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("First click on either of your hands\n"
                        + "and then computer's for the attack");
            }
        });
    }

    public void p_left_h (View view){
        if (hit) {
            if (p_l_h.size() == 0) {
                Toast.makeText(getApplicationContext(), "No fingers left to Hit!",
Toast.LENGTH_LONG).show();
            } else {
                p_l = true;
                p_r = false;
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText(".....Your left hand.....");
                    }
                });
                runOnUiThread(new Runnable() {
                    @Override
                    public void run() {
                        p_l_bg.setVisibility(View.VISIBLE);
                        p_r_bg.setVisibility(View.INVISIBLE);
                    }
                });
            }
```

```
        }
    }

    public void p_right_h(View view){
        if (hit) {
            if (p_r_h.size() == 0) {
                Toast.makeText(getApplicationContext(), "No fingers left to Hit!",
Toast.LENGTH_LONG).show();
            } else {
                p_r = true;
                p_l = false;
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText(".....Your right hand.....");
                    }
                });
                runOnUiThread(new Runnable() {
                    @Override
                    public void run() {
                        p_r_bg.setVisibility(View.VISIBLE);
                        p_l_bg.setVisibility(View.INVISIBLE);
                    }
                });
            }
        }
    }

    public void cp_left_h(View view){
        if (hit) {
            if (cp_l_h.size() == 0) {
                Toast.makeText(getApplicationContext(), "No fingers left to be Hit",
Toast.LENGTH_LONG).show();
            } else {
                if (p_l) {
                    insmsg.post(new Runnable() {
                        @Override
                        public void run() {
                            insmsg.setText(".....Your left hand -> Computer's left hand.....");
                        }
                    });
                    for (i = 0; i < p_l_h.size(); i++) {
```

```
            if (cp_l_h.size() == 5)
                cp_l_h.removeAllElements();
            cp_l_h.add(1);
        }
        if (cp_l_h.size() == 5) {
            cp_l_h.removeAllElements();
        }
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                cp_l_bg.setVisibility(View.VISIBLE);
                render_cp_l_hit(cp_l_h.size());
                render_cp_r_hit(cp_r_h.size());
            }
        });
    } else {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(".....Your right hand -> Computer's left hand.....");
            }
        });
        for (i = 0; i < p_r_h.size(); i++) {
            if (cp_l_h.size() == 5)
                cp_l_h.removeAllElements();
            cp_l_h.add(1);
        }
        if (cp_l_h.size() == 5) {
            cp_l_h.removeAllElements();
        }
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                cp_l_bg.setVisibility(View.VISIBLE);
                render_cp_l_hit(cp_l_h.size());
                render_cp_r_hit(cp_r_h.size());
            }
        });
    }
    hit = false;
    lock = false;
}
```

```
        }
    }

    public void cp_right_h(View view){
        if (hit) {
            if (cp_r_h.size() == 0) {
                Toast.makeText(getApplicationContext(), "No fingers left to be Hit",
Toast.LENGTH_LONG).show();
            } else {
                if(p_r) {
                    insmsg.post(new Runnable() {
                        @Override
                        public void run() {
                            insmsg.setText(".....Your right hand -> Computer's right hand.....");
                        }
                    });
                    for (i = 0; i < p_r_h.size(); i++) {
                        if (cp_r_h.size() == 5)
                            cp_r_h.removeAllElements();
                        cp_r_h.add(1);
                    }
                    if (cp_r_h.size() == 5) {
                        cp_r_h.removeAllElements();
                    }
                    runOnUiThread(new Runnable() {
                        @Override
                        public void run() {
                            cp_r_bg.setVisibility(View.VISIBLE);
                            render_cp_l_hit(cp_l_h.size());
                            render_cp_r_hit(cp_r_h.size());
                        }
                    });
                } else {
                    insmsg.post(new Runnable() {
                        @Override
                        public void run() {
                            insmsg.setText(".....Your left hand -> Computer's right hand.....");
                        }
                    });
                    for (i = 0; i < p_l_h.size(); i++) {
                        if (cp_r_h.size() == 5)
                            cp_r_h.removeAllElements();
```

```
                cp_r_h.add(1);
            }
            if (cp_r_h.size() == 5) {
                cp_r_h.removeAllElements();
            }
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    cp_r_bg.setVisibility(View.VISIBLE);
                    render_cp_l_hit(cp_l_h.size());
                    render_cp_r_hit(cp_r_h.size());
                }
            });
        }
        hit = false;
        lock = false;
    }
  }
}

public void pla_won () {
  loading();
  //Toast.makeText(getApplicationContext(),"(: You Won :)",Toast.LENGTH_LONG).show();
  insmsg.post(new Runnable() {
      @Override
      public void run() {
          insmsg.setText("(: You Won :)");
      }
  });

  delay(1000);
  runOnUiThread(new Runnable() {
      @Override
      public void run() {
          confirmation_dialog();
      }
  });
  running=false;
}


public void render_p_split(int p_l_h,int p_r_h){
```

```
    switch (p_l_h) {
        case 0:
            p_l_0();
            break;
        case 1:
            p_l_1();
            break;
        case 2:
            p_l_2();
            break;
        case 3:
            p_l_3();
            break;
        case 4:
            p_l_4();
            break;
    }

    switch (p_r_h) {
        case 0:
            p_r_0();
            break;
        case 1:
            p_r_1();
            break;
        case 2:
            p_r_2();
            break;
        case 3:
            p_r_3();
            break;
        case 4:
            p_r_4();
            break;
    }
}

public void render_cp_split(int cp_l_h,int cp_r_h){
    switch (cp_l_h) {
        case 0:
            cp_l_0();
            break;
```

```
            case 1:
                cp_l_1();
                break;
            case 2:
                cp_l_2();
                break;
            case 3:
                cp_l_3();
                break;
            case 4:
                cp_l_4();
                break;
        }

        switch (cp_r_h) {
            case 0:
                cp_r_0();
                break;
            case 1:
                cp_r_1();
                break;
            case 2:
                cp_r_2();
                break;
            case 3:
                cp_r_3();
                break;
            case 4:
                cp_r_4();
                break;
        }
    }

    public void render_p_l_hit(int size){
        switch (size) {
            case 0:
                p_l_0();
                break;
            case 1:
                p_l_1();
                break;
            case 2:
```

```
            p_l_2();
            break;
        case 3:
            p_l_3();
            break;
        case 4:
            p_l_4();
            break;
        case 5:
            p_l_5_0();
            break;
    }
}

public void render_p_r_hit(int size){
    switch (size) {
        case 0:
            p_r_0();
            break;
        case 1:
            p_r_1();
            break;
        case 2:
            p_r_2();
            break;
        case 3:
            p_r_3();
            break;
        case 4:
            p_r_4();
            break;
        case 5:
            p_r_5_0();
            break;
    }
}

public void render_cp_l_hit(int size){
    switch (size) {
        case 0:
            cp_l_0();
            break;
```

```
        case 1:
            cp_l_1();
            break;
        case 2:
            cp_l_2();
            break;
        case 3:
            cp_l_3();
            break;
        case 4:
            cp_l_4();
            break;
        case 5:
            cp_r_5_0();
            break;
    }
}

public void render_cp_r_hit(int size){
    switch (size) {
        case 0:
            cp_r_0();
            break;
        case 1:
            cp_r_1();
            break;
        case 2:
            cp_r_2();
            break;
        case 3:
            cp_r_3();
            break;
        case 4:
            cp_r_4();
            break;
        case 5:
            cp_r_5_0();
            break;
    }
}
```

```
//below section is all for rendering the fingers according to the manipulated size of vector

//cp_l_fingers
public void cp_l_0 () {
   runOnUiThread(new Runnable() {
      @Override
      public void run() {
         cp_l_fist.setVisibility(View.VISIBLE);
         cp_l_one.setVisibility(View.GONE);
         cp_l_two.setVisibility(View.GONE);
         cp_l_three.setVisibility(View.GONE);
         cp_l_four.setVisibility(View.GONE);
         cp_l_five.setVisibility(View.GONE);
      }
   });
}

public void cp_l_1 () {
   runOnUiThread(new Runnable() {
      @Override
      public void run() {
         cp_l_one.setVisibility(View.VISIBLE);
         cp_l_fist.setVisibility(View.GONE);
         cp_l_two.setVisibility(View.GONE);
         cp_l_three.setVisibility(View.GONE);
         cp_l_four.setVisibility(View.GONE);
         cp_l_five.setVisibility(View.GONE);
      }
   });
}

public void cp_l_2 () {
   runOnUiThread(new Runnable() {
      @Override
      public void run() {
         cp_l_two.setVisibility(View.VISIBLE);
         cp_l_fist.setVisibility(View.GONE);
         cp_l_one.setVisibility(View.GONE);
         cp_l_three.setVisibility(View.GONE);
         cp_l_four.setVisibility(View.GONE);
         cp_l_five.setVisibility(View.GONE);
      }
```

```
    });
}

public void cp_l_3 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_three.setVisibility(View.VISIBLE);
            cp_l_fist.setVisibility(View.GONE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_four.setVisibility(View.GONE);
            cp_l_five.setVisibility(View.GONE);
        }
    });
}

public void cp_l_4 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_four.setVisibility(View.VISIBLE);
            cp_l_fist.setVisibility(View.GONE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_three.setVisibility(View.GONE);
            cp_l_five.setVisibility(View.GONE);
        }
    });
}

public void cp_l_5_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_five.setVisibility(View.VISIBLE);
            delay(1000);
            cp_l_five.setVisibility(View.GONE);
            cp_l_fist.setVisibility(View.VISIBLE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_three.setVisibility(View.GONE);
```

```
            cp_l_four.setVisibility(View.GONE);
        }
    });
}


//cp_r_fingers
public void cp_r_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_fist.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
        }
    });
}

public void cp_r_1 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_one.setVisibility(View.VISIBLE);
            cp_r_fist.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
        }
    });
}

public void cp_r_2 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_two.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
```

```
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
            cp_r_fist.setVisibility(View.GONE);
        }
    });
}

public void cp_r_3 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_three.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
            cp_r_fist.setVisibility(View.GONE);
        }
    });
}

public void cp_r_4 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_four.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
            cp_r_fist.setVisibility(View.GONE);
        }
    });
}

public void cp_r_5_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_five.setVisibility(View.VISIBLE);
            delay(1000);
            cp_r_five.setVisibility(View.GONE);
```

```
            cp_r_fist.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
        }
    });
}


//p_l_fingers
public void p_l_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_fist.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
        }
    });
}

public void p_l_1 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_one.setVisibility(View.VISIBLE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
        }
    });
}

public void p_l_2 () {
    runOnUiThread(new Runnable() {
        @Override
```

```
        public void run() {
            p_l_two.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
        }
    });
}

public void p_l_3(){
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_three.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
        }
    });
}

public void p_l_4() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_four.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
        }
    });
}

public void p_l_5_0() {
    runOnUiThread(new Runnable() {
        @Override
```

```
        public void run() {
            p_l_five.setVisibility(View.VISIBLE);
            delay(1000);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
        }
    });
}


//p_r_fingers
public void p_r_0() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_fist.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
            p_r_two.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
        }
    });
}

public void p_r_1() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_one.setVisibility(View.VISIBLE);
            p_r_two.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}
```

```
public void p_r_2() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_two.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}

public void p_r_3() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_three.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
            p_r_two.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}

public void p_r_4() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_four.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
            p_r_two.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}
```

```
    public void p_r_5_0 () {
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                p_r_five.setVisibility(View.VISIBLE);
                delay(1000);
                p_r_five.setVisibility(View.GONE);
                p_r_fist.setVisibility(View.VISIBLE);
                p_r_one.setVisibility(View.GONE);
                p_r_two.setVisibility(View.GONE);
                p_r_three.setVisibility(View.GONE);
                p_r_four.setVisibility(View.GONE);
            }
        });

    }

}
```

Activity_PWC.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/gradient_pwc2"
    tools:context=".PlayWithComputer">

    <ImageButton
        android:id="@+id/pwcquit"
        android:layout_width="42dp"
        android:layout_height="41dp"
        android:background="@drawable/cir2"
        android:contentDescription="@string/up"
        android:onClick="pwc_q"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.499"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.002"
    app:srcCompat="@drawable/cancelnew40"
    tools:ignore="TouchTargetSizeCheck,ImageContrastCheck" />

<ImageView
    android:id="@+id/iv1"
    android:layout_width="230dp"
    android:layout_height="333dp"
    android:contentDescription="@string/todo"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.027"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    android:background="@drawable/gradient_msgpwc" />

<ImageView
    android:id="@+id/iv2"
    android:layout_width="230dp"
    android:layout_height="333dp"
    android:contentDescription="@string/todo"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.973"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    android:background="@drawable/gradient_msgpwc"/>

<androidx.appcompat.widget.AppCompatTextView
    android:id="@+id/p"
    android:layout_width="94dp"
    android:layout_height="23dp"
    android:background="@drawable/gradient_pname_p"
    android:gravity="center"
    android:text="Player"
    android:textColor="#FF5722"
    android:textSize="16sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
```

```
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.113"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.041" />

  <androidx.appcompat.widget.AppCompatTextView
    android:id="@+id/p2"
    android:layout_width="94dp"
    android:layout_height="23dp"
    android:background="@drawable/gradient_pname_p"
    android:gravity="center"
    android:text="Computer"
    android:textColor="#FF5722"
    android:textSize="16sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.888"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.041" />

  <androidx.appcompat.widget.AppCompatTextView
    android:id="@+id/pwcinsmsg"
    android:layout_width="260dp"
    android:layout_height="160dp"
    android:background="@drawable/gradient_pnlpvp"
    android:gravity="center"
    android:textColor="#F5F3F0"
    android:textSize="16sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.499"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.936" />

  <androidx.appcompat.widget.AppCompatTextView
    android:id="@+id/vs"
    android:layout_width="83dp"
```

```
    android:layout_height="63dp"
    android:background="@drawable/vs"
    android:gravity="center"
    android:text="V/S"
    android:textColor="#FF5722"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.408" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/pwcsplit"
    android:layout_width="120dp"
    android:layout_height="44dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="Split"
    android:text="Split"
    android:textColor="#FF5722"
    android:textSize="18sp"
    android:textStyle="bold"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.384"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.179"
    tools:ignore="TouchTargetSizeCheck" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/pwchit"
    android:layout_width="120dp"
    android:layout_height="44dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="Hit"
    android:text="Hit"
    android:textColor="#FF5722"
    android:textSize="18sp"
    android:textStyle="bold"
```

```
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.614"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.179"
    tools:ignore="TouchTargetSizeCheck" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/pwcdone"
    android:layout_width="120dp"
    android:layout_height="44dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="done"
    android:text="Done"
    android:textColor="#FF5722"
    android:textSize="18sp"
    android:textStyle="bold"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.499"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.179"
    tools:ignore="TouchTargetSizeCheck" />

<ImageView
    android:id="@+id/p_l_bg"
    android:layout_width="116dp"
    android:layout_height="114dp"
    android:background="@drawable/cir3"
    android:visibility="invisible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.097"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198" />

<ImageView
```

```
    android:id="@+id/p_r_bg"
    android:layout_width="116dp"
    android:layout_height="114dp"
    android:background="@drawable/cir3"
    android:visibility="invisible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.097"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868" />

<ImageView
    android:id="@+id/cp_r_bg"
    android:layout_width="116dp"
    android:layout_height="114dp"
    android:background="@drawable/cir3"
    android:visibility="invisible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.894"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198" />

<ImageView
    android:id="@+id/cp_l_bg"
    android:layout_width="116dp"
    android:layout_height="114dp"
    android:background="@drawable/cir3"
    android:visibility="invisible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.9"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868" />

<ImageView
    android:id="@+id/pvpsplitdown"
    android:layout_width="66dp"
    android:layout_height="26dp"
```

```
    android:onClick="split_down"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.071"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.532"
    app:srcCompat="@drawable/down_arrow"
    tools:ignore="SpeakableTextPresentCheck,TouchTargetSizeCheck" />

<ImageView
    android:id="@+id/pvpsplitup"
    android:layout_width="66dp"
    android:layout_height="26dp"
    android:onClick="split_up"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.178"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.532"
    app:srcCompat="@drawable/upload"
    tools:ignore="SpeakableTextPresentCheck,TouchTargetSizeCheck" />

<ImageView
    android:id="@+id/p_r_fist"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/p_r_fist"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />
```

```
<ImageView
    android:id="@+id/p_r_five"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/p_r_five"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_r_four"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/p_r_four"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_r_three"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
```

```
    app:srcCompat="@drawable/p_r_three"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_r_two"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/p_r_two"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_r_one"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_right_h"
    android:visibility="visible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/p_r_one"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_l_fist"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.893"
```

```
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/cp_l_fist"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_l_five"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.893"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/cp_l_five"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_l_four"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.893"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/cp_l_four"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_l_three"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_left_h"
    android:visibility="gone"
```

```
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.893"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/cp_l_three"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_l_two"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.893"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/cp_l_two"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_l_one"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_left_h"
    android:visibility="visible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.893"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.868"
    app:srcCompat="@drawable/cp_l_one"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_l_fist"
    android:layout_width="110dp"
```

```
    android:layout_height="114dp"
    android:onClick="p_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/p_l_fist"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_l_five"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/p_l_five"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_l_four"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/p_l_four"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />
```

```
<ImageView
    android:id="@+id/p_l_three"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/p_l_three"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_l_two"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_left_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/p_l_two"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/p_l_one"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="p_left_h"
    android:visibility="visible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.105"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
```

```
    app:srcCompat="@drawable/p_l_one"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_r_fist"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.894"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/cp_r_fist"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_r_five"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.894"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/cp_r_five"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_r_four"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.894"
```

```
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/cp_r_four"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_r_three"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.894"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/cp_r_three"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_r_two"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_right_h"
    android:visibility="gone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.894"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.198"
    app:srcCompat="@drawable/cp_r_two"
    tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

<ImageView
    android:id="@+id/cp_r_one"
    android:layout_width="110dp"
    android:layout_height="114dp"
    android:onClick="cp_right_h"
    android:visibility="visible"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.894"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.198"
        app:srcCompat="@drawable/cp_r_one"
        tools:ignore="SpeakableTextPresentCheck,DuplicateClickableBoundsCheck" />

    <ProgressBar
        android:id="@+id/progressBar"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="175dp"
        android:layout_height="117dp"
        android:indeterminate="true"
        android:indeterminateTint="#FF5722"
        android:max="100"
        android:progress="0"
        android:progressBackgroundTint="#FFFFFF"
        android:progressTint="#FF5722"
        android:scrollbarSize="6dp"
        android:visibility="invisible"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.877" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

PlayerVsPlayer.java

```
package com.voidmatrix_sahillalani.chopstickgameandroid;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.content.res.AppCompatResources;
import androidx.appcompat.widget.AppCompatButton;
import androidx.appcompat.widget.AppCompatTextView;
```

```
import android.annotation.SuppressLint;
import android.content.DialogInterface;
import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.ImageButton;
import android.widget.ImageView;
import android.widget.ProgressBar;
import android.widget.Toast;

import java.util.Random;
import java.util.Vector;

@SuppressLint("SetTextI18n")
@SuppressWarnings({"unused","FieldCanBeLocal"})
public class PlayerVsPlayer extends AppCompatActivity {

    public Handler h;
    private ProgressBar load;
    private ImageView i1,i2,p_l_bg,p_r_bg,cp_r_bg,cp_l_bg;
    private ImageButton quit;
    private AppCompatButton btnsplit, btnhit, btndone;
    private AppCompatTextView pname, pname2, insmsg;//pname= player name,
insmsg=instruction msg
    //p_l = player_left , p_r= player_right, cp_l=computer/anotherplayer_left,
cp_r=computer/anotherplayer_right
    private ImageView pvpsplitup, pvpsplitdown,pvpsplitup2,pvpsplitdown2,
            p_l_one, p_l_two, p_l_three, p_l_four, p_l_five, p_l_fist,
            p_r_one, p_r_two, p_r_three, p_r_four, p_r_five, p_r_fist,
            cp_l_one, cp_l_two, cp_l_three, cp_l_four, cp_l_five, cp_l_fist,
            cp_r_one, cp_r_two, cp_r_three, cp_r_four, cp_r_five, cp_r_fist;

    Random r = new Random();

    //p_l=player left, p_r=player right
    public boolean running = true, turn, hit=false, split=false, p_l, p_r,cp_l,cp_r, lock ;

    //p_l_h= player left hand, p_r_h=player right hand, cp_l_h=computer/anotherplayer left hand
cp_r_h=vice versa
```

```
    public Vector<Integer> p_l_h = new Vector<Integer>(5),
            p_r_h = new Vector<Integer>(5),
            cp_l_h = new Vector<Integer>(5),
            cp_r_h = new Vector<Integer>(5);

    //cp_ch=computer choice, cp_ch_p_h=(cp_ch)player hand, cp_ch_c_h=(cp_ch)computer hand
    //prpr= previous player right, prpl=previous player left, cph=computer hand
    public int cp_ch,
            cp_ch_p_h,
            cp_ch_c_h,
            cp_l_size, cp_r_size, p_l_size, p_r_size,
            i, cp1, cp2, rpr, lpr, totalsplit,
            cph, rc, x, wcount, lcount;

    public AlertDialog.Builder builder;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        getSupportActionBar().hide();

this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,WindowManage
r.LayoutParams.FLAG_FULLSCREEN);
        setContentView(R.layout.activity_pvp);

        quit = findViewById(R.id.pwcquit);

        load=findViewById(R.id.progressBar);

        btnsplit = findViewById(R.id.pwcsplit);
        btnhit = findViewById(R.id.pwchit);
        btndone = findViewById(R.id.pwcdone);

        insmsg=findViewById(R.id.pwcinsmsg);
        pname=findViewById(R.id.p);
        pname2=findViewById(R.id.p2);

        pvpsplitup = findViewById(R.id.pvpsplitup);
        pvpsplitdown = findViewById(R.id.pvpsplitdown);
        pvpsplitup2=findViewById(R.id.pvpsplitup2);
        pvpsplitdown2=findViewById(R.id.pvpsplitdown2);
```

```
btndone=findViewById(R.id.pwcdone);

p_l_one = findViewById(R.id.p_l_one);
p_l_two = findViewById(R.id.p_l_two);
p_l_three = findViewById(R.id.p_l_three);
p_l_four = findViewById(R.id.p_l_four);
p_l_five = findViewById(R.id.p_l_five);
p_l_fist = findViewById(R.id.p_l_fist);

p_r_one = findViewById(R.id.p_r_one);
p_r_two = findViewById(R.id.p_r_two);
p_r_three = findViewById(R.id.p_r_three);
p_r_four = findViewById(R.id.p_r_four);
p_r_five = findViewById(R.id.p_r_five);
p_r_fist = findViewById(R.id.p_r_fist);

cp_l_one = findViewById(R.id.cp_l_one);
cp_l_two = findViewById(R.id.cp_l_two);
cp_l_three = findViewById(R.id.cp_l_three);
cp_l_four = findViewById(R.id.cp_l_four);
cp_l_five = findViewById(R.id.cp_l_five);
cp_l_fist = findViewById(R.id.cp_l_fist);

cp_r_one = findViewById(R.id.cp_r_one);
cp_r_two = findViewById(R.id.cp_r_two);
cp_r_three = findViewById(R.id.cp_r_three);
cp_r_four = findViewById(R.id.cp_r_four);
cp_r_five = findViewById(R.id.cp_r_five);
cp_r_fist = findViewById(R.id.cp_r_fist);

i1 = findViewById(R.id.iv1);
i2 = findViewById(R.id.iv2);

p_l_bg=findViewById(R.id.p_l_bg);
p_r_bg=findViewById(R.id.p_r_bg);
cp_r_bg=findViewById(R.id.cp_r_bg);
cp_l_bg=findViewById(R.id.cp_l_bg);


new Thread(new Runnable() {
    @Override
    public void run() {
```

```
            Game_loop();
        }
    }).start();

}

public void pvp_q(View view){
    custom_dialog(view);
}

public void custom_dialog(View v) {
    builder = new AlertDialog.Builder(this);
    builder.setTitle("Do you really want to quit ?");

    builder.setView(R.layout.dialog);

    // Set up the buttons
    builder.setPositiveButton("Okay", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {

            startActivity(new Intent(getApplicationContext(), MainScreen.class));

        }
    });
    builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {
            dialog.cancel();
        }
    });

    builder.show();

}

public void confirmation_dialog(){
    builder = new AlertDialog.Builder(this);
    builder.setTitle("Do you want to play again ?");

    builder.setView(R.layout.dialog);
```

```
    // Set up the buttons
    builder.setPositiveButton("Yes", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {

            startActivity(new Intent(getApplicationContext(), PlayWithComputer.class));

        }
    });
    builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {
            dialog.cancel();
            startActivity(new Intent(getApplicationContext(), MainScreen.class));
        }
    });

    builder.show();
}

public void delay(int sleep) {
    try {
        Thread.sleep(sleep);
    } catch (Exception e) {
        Toast.makeText(getApplicationContext(), e.getMessage(), Toast.LENGTH_SHORT).show();
    }
}


public void loading() {

    for (int i = 0; i < 10; i++) {
        load.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("");
                load.setVisibility(View.VISIBLE);
            }
        });
        delay(150);
    }
    load.setVisibility(View.INVISIBLE);
```

```
}

public synchronized void Game_loop() {
    p_l_h.add(1);
    p_r_h.add(1);
    cp_l_h.add(1);
    cp_r_h.add(1);

    loading();
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("...Randomly Choosing the turn!...");
        }
    });
    delay(2000);
    loading();
    if (r.nextInt(2) == 1) {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(pname2.getText().toString()+"'s turn");
            }
        });
        delay(1000);
        turn = true;
    } else {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(pname.getText().toString()+"'s turn");
            }
        });
        delay(1000);
        turn = false;
    }

    while (running) {
        if (cp_l_h.isEmpty() && cp_r_h.isEmpty()) {
            pla_won();
        } else if (p_l_h.isEmpty() && p_r_h.isEmpty()) {
            Pla2_won();
```

```
} else {
    if (turn) {
        Pla2_turn();
        lock=true;
        while(lock){
            delay(1000);
        }
        render_p_r_hit(p_r_h.size());
        render_p_l_hit(p_l_h.size());
        render_cp_split(cp_l_h.size(),cp_r_h.size());
        loading();
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                p_l_bg.setVisibility(View.INVISIBLE);
                p_r_bg.setVisibility(View.INVISIBLE);
                cp_r_bg.setVisibility(View.INVISIBLE);
                cp_l_bg.setVisibility(View.INVISIBLE);
            }
        });
        if (cp_l_h.isEmpty() && cp_r_h.isEmpty()) {
            pla_won();
        } else if (p_l_h.isEmpty() && p_r_h.isEmpty()) {
            Pla2_won();
        } else
            turn = false;

    } else {
        Pla_turn();
        lock=true;
        while (lock) {
            delay(1000);
        }
        render_cp_l_hit(cp_l_h.size());
        render_cp_r_hit(cp_r_h.size());
        render_p_split(p_l_h.size(),p_r_h.size());
        loading();
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                p_l_bg.setVisibility(View.INVISIBLE);
                p_r_bg.setVisibility(View.INVISIBLE);
```

```
                    cp_r_bg.setVisibility(View.INVISIBLE);
                    cp_l_bg.setVisibility(View.INVISIBLE);
                }
            });
            if (cp_l_h.isEmpty() && cp_r_h.isEmpty()) {
                pla_won();
            } else if (p_l_h.isEmpty() && p_r_h.isEmpty()) {
                Pla2_won();
            } else {
                turn = true;
            }
        }
    }
}



public void Pla2_turn() {
    loading();
    i2.post(new Runnable() {
        @Override
        public void run() {

i2.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.splas
h));
        }
    });
    delay(250);

i2.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.gradi
ent_msgpwc));

    if (cp_l_h.size() == 0 && cp_r_h.size() == 1 || cp_r_h.size() == 0 && cp_l_h.size() == 1) {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(".....You can only attack.....");
            }
        });
        runOnUiThread(new Runnable() {
```

```
            @Override
            public void run() {
                btnhit.setVisibility(View.VISIBLE);
                btnsplit.setVisibility(View.VISIBLE);
                btnsplit.setEnabled(false);
            }
        });
    }
    else {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("What do you wanna do ?");
            }
        });
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btnhit.setVisibility(View.VISIBLE);
                btnsplit.setVisibility(View.VISIBLE);
                btnsplit.setEnabled(true);
            }
        });
    }
}

public void Pla2_won() {
    loading();
    //Toast.makeText(getApplicationContext(),"): You Lost :(",Toast.LENGTH_SHORT).show();
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("(: "+pname2.getText().toString()+" Won :)");
        }
    });

    delay(1000);
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            confirmation_dialog();
        }
```

```
        });
        running=false;
    }

    public void Pla_turn () {
        loading();

        i1.post(new Runnable() {
            @Override
            public void run() {

i1.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.splas
h));

            }
        });
        delay(250);

i1.setBackground(AppCompatResources.getDrawable(getApplicationContext(),R.drawable.gradi
ent_msgpwc));

        if (p_l_h.size() == 0 && p_r_h.size() == 1 || p_r_h.size() == 0 && p_l_h.size() == 1) {
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText(".....You can only attack.....");
                }
            });
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    btnhit.setVisibility(View.VISIBLE);
                    btnsplit.setVisibility(View.VISIBLE);
                    btnsplit.setEnabled(false);
                }
            });
        }
        else {
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("What do you wanna do ?");
```

```
            }
        });
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btnhit.setVisibility(View.VISIBLE);
                btnsplit.setVisibility(View.VISIBLE);
                btnsplit.setEnabled(true);
            }
        });
    }
}

public void pla_won () {
    loading();
    //Toast.makeText(getApplicationContext(),"(: You Won :)",Toast.LENGTH_LONG).show();
    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("(: "+pname.getText().toString()+" Won :)");
        }
    });

    delay(1000);
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            confirmation_dialog();
        }
    });
    running=false;
}

public void Split(View view) {
    split = true;
    hit = false;
    if(!turn){
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btnsplit.setVisibility(View.GONE);
                btnhit.setVisibility(View.GONE);
```

```
                pvpsplitup.setVisibility(View.VISIBLE);
                pvpsplitdown.setVisibility(View.VISIBLE);
            }
        });
        lpr = p_l_h.size();
        rpr = p_r_h.size();
        totalsplit = lpr + rpr;
    }else{
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btnsplit.setVisibility(View.GONE);
                btnhit.setVisibility(View.GONE);

                pvpsplitup2.setVisibility(View.VISIBLE);
                pvpsplitdown2.setVisibility(View.VISIBLE);
            }
        });
        lpr = cp_l_h.size();
        rpr = cp_r_h.size();
        totalsplit = lpr + rpr;
    }

    insmsg.post(new Runnable() {
        @Override
        public void run() {
            insmsg.setText("Click on the up and down arrow\n"
                    + "For splitting the fingers by one,\n");
        }
    });
}

public void split_up(View view) {
    if (!turn && split) {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(".....Splitting.....");
            }
        });
```

```
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btndone.setVisibility(View.VISIBLE);
            }
        });

        //up for adding left

        if (p_l_h.size() >= 4)
            Toast.makeText(getApplicationContext(),
                    "You can't kill your own hand!,\nIn splitting, decrement of fingers isn't allowed",
                    Toast.LENGTH_LONG).show();

        else if (p_r_h.size() == 0)
            Toast.makeText(getApplicationContext(),
                    "No fingers left to transfer\nYou got a fist on right hand",
                    Toast.LENGTH_LONG).show();

        else {
            p_l_h.add(1);
            p_r_h.remove(p_r_h.lastElement());
            render_p_split(p_l_h.size(),p_r_h.size());
        }
    }
    else if(turn && split){
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(".....Splitting.....");
            }
        });

        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btndone.setVisibility(View.VISIBLE);
            }
        });

        //up for adding right
```

```
        if (cp_r_h.size() >= 4)
            Toast.makeText(getApplicationContext(),
                    "You can't kill your own hand!,\nIn splitting, decrement of fingers isn't allowed",
                    Toast.LENGTH_LONG).show();

        else if (cp_l_h.size() == 0)
            Toast.makeText(getApplicationContext(),
                    "No fingers left to transfer\nYou got a fist on left hand",
                    Toast.LENGTH_LONG).show();

        else {
            cp_r_h.add(1);
            cp_l_h.remove(cp_l_h.lastElement());
            render_cp_split(cp_l_h.size(),cp_r_h.size());
        }
    }
}

public void split_down(View view) {
    if (!turn && split) {
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(".....Splitting.....");
            }
        });
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btndone.setVisibility(View.VISIBLE);
            }
        });

        //down for right
        if (p_r_h.size() >= 4)
            Toast.makeText(getApplicationContext(),
                    "You can't kill your own hand!,\nIn splitting, decrement of fingers isn't allowed",
                    Toast.LENGTH_LONG).show();
        else if (p_l_h.size() == 0) {
            Toast.makeText(getApplicationContext(),
                    "No fingers left to transfer\nYou got a fist on left hand",
                    Toast.LENGTH_LONG).show();
```

```
        } else {
            p_r_h.add(1);
            p_l_h.remove(p_l_h.lastElement());
            render_p_split(p_l_h.size(),p_r_h.size());
        }
    }
    else if(turn && split){
        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText(".....Splitting.....");
            }
        });
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btndone.setVisibility(View.VISIBLE);
            }
        });

        //down for left
        if (cp_l_h.size() >= 4)
            Toast.makeText(getApplicationContext(),
                    "You can't kill your own hand!,\nIn splitting, decrement of fingers isn't allowed",
                    Toast.LENGTH_LONG).show();
        else if (cp_r_h.size() == 0) {
            Toast.makeText(getApplicationContext(),
                    "No fingers left to transfer\nYou got a fist on right hand",
                    Toast.LENGTH_LONG).show();
        } else {
            cp_l_h.add(1);
            cp_r_h.remove(cp_r_h.lastElement());
            render_cp_split(cp_l_h.size(),cp_r_h.size());
        }
    }
  }

  public void done (View view){
    if(turn) {
        if (cp_l_h.size() == rpr && cp_r_h.size() == lpr || cp_l_h.size() == lpr && cp_r_h.size() ==
rpr) {
            Toast.makeText(getApplicationContext(),
```

```
                "Splitting is same as previous State! make something different",
                Toast.LENGTH_LONG).show();
        } else {
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    btndone.setVisibility(View.GONE);
                    pvpsplitup.setVisibility(View.GONE);
                    pvpsplitdown.setVisibility(View.GONE);
                    pvpsplitup2.setVisibility(View.GONE);
                    pvpsplitdown2.setVisibility(View.GONE);
                }
            });
            split = false;
            lock = false;
        }
    }
    else{
        if (p_l_h.size() == rpr && p_r_h.size() == lpr || p_l_h.size() == lpr && p_r_h.size() == rpr) {
            Toast.makeText(getApplicationContext(),
                    "Splitting is same as previous State! make something different",
                    Toast.LENGTH_LONG).show();

        } else {
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    btndone.setVisibility(View.GONE);
                    pvpsplitup.setVisibility(View.GONE);
                    pvpsplitdown.setVisibility(View.GONE);
                    pvpsplitup2.setVisibility(View.GONE);
                    pvpsplitdown2.setVisibility(View.GONE);
                }
            });
            split = false;
            lock = false;
        }
    }

}

 public void Hit(View view){
```

```
        hit = true;
        split = false;
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                btnsplit.setVisibility(View.GONE);
                btnhit.setVisibility(View.GONE);
            }
        });

        insmsg.post(new Runnable() {
            @Override
            public void run() {
                insmsg.setText("First click on either of your hands\n"
                        + "and then opponent's for the attack");
            }
        });
    }

    public void p_left_h (View view){
        if (!turn && hit) {
            if (p_l_h.size() == 0) {
                Toast.makeText(getApplicationContext(), "No fingers left to Hit!",
Toast.LENGTH_LONG).show();
            } else {
                p_l = true;
                p_r = false;
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("....."+pname.getText().toString()+" left hand.....");
                    }
                });
                runOnUiThread(new Runnable() {
                    @Override
                    public void run() {
                        p_l_bg.setVisibility(View.VISIBLE);
                        p_r_bg.setVisibility(View.INVISIBLE);
                    }
                });
            }
        }
```

```
        else if(turn && hit){
            if (p_l_h.size() == 0) {
                Toast.makeText(getApplicationContext(), "No fingers left to be Hit",
Toast.LENGTH_LONG).show();
            } else {
                if (cp_l) {
                    insmsg.post(new Runnable() {
                        @Override
                        public void run() {
                            insmsg.setText("....."+pname2.getText().toString()+" left hand ->
"+pname.getText().toString()+"'s left hand.....");
                        }
                    });
                    for (i = 0; i < cp_l_h.size(); i++) {
                        if (p_l_h.size() == 5)
                            p_l_h.removeAllElements();
                        p_l_h.add(1);
                    }
                    if (p_l_h.size() == 5) {
                        p_l_h.removeAllElements();
                    }
                    runOnUiThread(new Runnable() {
                        @Override
                        public void run() {
                            p_l_bg.setVisibility(View.VISIBLE);
                            render_p_l_hit(p_l_h.size());
                            render_p_r_hit(p_r_h.size());
                        }
                    });
                } else {
                    insmsg.post(new Runnable() {
                        @Override
                        public void run() {
                            insmsg.setText("....."+pname2.getText().toString()+" right hand ->
"+pname.getText().toString()+"'s left hand.....");
                        }
                    });
                    for (i = 0; i < cp_r_h.size(); i++) {
                        if (p_l_h.size() == 5)
                            p_l_h.removeAllElements();
                        p_l_h.add(1);
                    }
```

```
            if (p_l_h.size() == 5) {
                p_l_h.removeAllElements();
            }
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    p_l_bg.setVisibility(View.VISIBLE);
                    render_p_l_hit(p_l_h.size());
                    render_p_r_hit(p_r_h.size());
                }
            });
        }
        hit = false;
        lock = false;
      }
    }
  }

  public void p_right_h(View view){
    if (!turn && hit) {
      if (p_r_h.size() == 0) {
        Toast.makeText(getApplicationContext(), "No fingers left to Hit!",
Toast.LENGTH_LONG).show();
      } else {
        p_r = true;
        p_l = false;
        insmsg.post(new Runnable() {
          @Override
          public void run() {
            insmsg.setText("....."+pname.getText().toString()+" right hand.....");
          }
        });
        runOnUiThread(new Runnable() {
          @Override
          public void run() {
            p_r_bg.setVisibility(View.VISIBLE);
            p_l_bg.setVisibility(View.INVISIBLE);
          }
        });
      }
    }
    else if(turn && hit){
```

```
        if (p_r_h.size() == 0) {
            Toast.makeText(getApplicationContext(), "No fingers left to be Hit",
Toast.LENGTH_LONG).show();
        } else {
            if (cp_l) {
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("....."+pname2.getText().toString()+" left hand ->
"+pname.getText().toString()+"'s right hand.....");
                    }
                });
                for (i = 0; i < cp_l_h.size(); i++) {
                    if (p_r_h.size() == 5)
                        p_r_h.removeAllElements();
                    p_r_h.add(1);
                }
                if (p_r_h.size() == 5) {
                    p_r_h.removeAllElements();
                }
                runOnUiThread(new Runnable() {
                    @Override
                    public void run() {
                        p_r_bg.setVisibility(View.VISIBLE);
                        render_p_l_hit(p_l_h.size());
                        render_p_r_hit(p_r_h.size());
                    }
                });
            } else {
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("....."+pname2.getText().toString()+" right hand ->
"+pname.getText().toString()+"'s right hand.....");
                    }
                });
                for (i = 0; i < cp_r_h.size(); i++) {
                    if (p_r_h.size() == 5)
                        p_r_h.removeAllElements();
                    p_r_h.add(1);
                }
                if (p_r_h.size() == 5) {
```

```
                p_r_h.removeAllElements();
            }
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    p_r_bg.setVisibility(View.VISIBLE);
                    render_p_l_hit(p_l_h.size());
                    render_p_r_hit(p_r_h.size());
                }
            });
        }
        hit = false;
        lock = false;
      }
    }
  }

  public void cp_left_h(View view){
    if(turn && hit){
      if (cp_l_h.size() == 0) {
        Toast.makeText(getApplicationContext(), "No fingers left to Hit!",
Toast.LENGTH_LONG).show();
      } else {
        cp_l = true;
        cp_r = false;
        insmsg.post(new Runnable() {
          @Override
          public void run() {
            insmsg.setText("....."+pname2.getText().toString()+" left hand.....");
          }
        });
        runOnUiThread(new Runnable() {
          @Override
          public void run() {
            cp_l_bg.setVisibility(View.VISIBLE);
            cp_r_bg.setVisibility(View.INVISIBLE);
          }
        });
      }
    }
    else if (!turn && hit) {
      if (cp_l_h.size() == 0) {
```

```
            Toast.makeText(getApplicationContext(), "No fingers left to be Hit",
Toast.LENGTH_LONG).show();
        } else {
            if (p_l) {
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("....."+pname.getText().toString()+" left hand ->
"+pname2.getText().toString()+"'s left hand.....");
                    }
                });
                for (i = 0; i < p_l_h.size(); i++) {
                    if (cp_l_h.size() == 5)
                        cp_l_h.removeAllElements();
                    cp_l_h.add(1);
                }
                if (cp_l_h.size() == 5) {
                    cp_l_h.removeAllElements();
                }
                runOnUiThread(new Runnable() {
                    @Override
                    public void run() {
                        cp_l_bg.setVisibility(View.VISIBLE);
                        render_cp_l_hit(cp_l_h.size());
                        render_cp_r_hit(cp_r_h.size());
                    }
                });
            } else {
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("....."+pname.getText().toString()+" right hand ->
"+pname2.getText().toString()+"'s left hand.....");
                    }
                });
                for (i = 0; i < p_r_h.size(); i++) {
                    if (cp_l_h.size() == 5)
                        cp_l_h.removeAllElements();
                    cp_l_h.add(1);
                }
                if (cp_l_h.size() == 5) {
                    cp_l_h.removeAllElements();
```

```
                }
                runOnUiThread(new Runnable() {
                    @Override
                    public void run() {
                        cp_l_bg.setVisibility(View.VISIBLE);
                        render_cp_l_hit(cp_l_h.size());
                        render_cp_r_hit(cp_r_h.size());
                    }
                });
            }
            hit = false;
            lock = false;
        }
    }

}

public void cp_right_h(View view){
    if(turn && hit){
        if (cp_r_h.size() == 0) {
            Toast.makeText(getApplicationContext(), "No fingers left to Hit!",
Toast.LENGTH_LONG).show();
        } else {
            cp_l = false;
            cp_r = true;
            insmsg.post(new Runnable() {
                @Override
                public void run() {
                    insmsg.setText("....."+pname2.getText().toString()+" right hand.....");
                }
            });
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    cp_l_bg.setVisibility(View.INVISIBLE);
                    cp_r_bg.setVisibility(View.VISIBLE);
                }
            });
        }
    }
    if (!turn && hit) {
        if (cp_r_h.size() == 0) {
```

```
            Toast.makeText(getApplicationContext(), "No fingers left to be Hit",
Toast.LENGTH_LONG).show();
        } else {
            if(p_r) {
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("....."+pname.getText().toString()+" right hand ->
"+pname2.getText().toString()+"'s right hand.....");
                    }
                });
                for (i = 0; i < p_r_h.size(); i++) {
                    if (cp_r_h.size() == 5)
                        cp_r_h.removeAllElements();
                    cp_r_h.add(1);
                }
                if (cp_r_h.size() == 5) {
                    cp_r_h.removeAllElements();
                }
                runOnUiThread(new Runnable() {
                    @Override
                    public void run() {
                        cp_r_bg.setVisibility(View.VISIBLE);
                        render_cp_l_hit(cp_l_h.size());
                        render_cp_r_hit(cp_r_h.size());
                    }
                });
            } else {
                insmsg.post(new Runnable() {
                    @Override
                    public void run() {
                        insmsg.setText("....."+pname.getText().toString()+" left hand ->
"+pname2.getText().toString()+"'s right hand.....");
                    }
                });
                for (i = 0; i < p_l_h.size(); i++) {
                    if (cp_r_h.size() == 5)
                        cp_r_h.removeAllElements();
                    cp_r_h.add(1);
                }
                if (cp_r_h.size() == 5) {
                    cp_r_h.removeAllElements();
```

```
            }
            runOnUiThread(new Runnable() {
                @Override
                public void run() {
                    cp_r_bg.setVisibility(View.VISIBLE);
                    render_cp_l_hit(cp_l_h.size());
                    render_cp_r_hit(cp_r_h.size());
                }
            });
        }
        hit = false;
        lock = false;
    }
  }

}



  public void render_p_split(int p_l_h,int p_r_h){
    switch (p_l_h) {
        case 0:
            p_l_0();
            break;
        case 1:
            p_l_1();
            break;
        case 2:
            p_l_2();
            break;
        case 3:
            p_l_3();
            break;
        case 4:
            p_l_4();
            break;
    }

    switch (p_r_h) {
        case 0:
            p_r_0();
```

```
            break;
        case 1:
            p_r_1();
            break;
        case 2:
            p_r_2();
            break;
        case 3:
            p_r_3();
            break;
        case 4:
            p_r_4();
            break;
    }
}

public void render_cp_split(int cp_l_h,int cp_r_h){
    switch (cp_l_h) {
        case 0:
            cp_l_0();
            break;
        case 1:
            cp_l_1();
            break;
        case 2:
            cp_l_2();
            break;
        case 3:
            cp_l_3();
            break;
        case 4:
            cp_l_4();
            break;
    }

    switch (cp_r_h) {
        case 0:
            cp_r_0();
            break;
        case 1:
            cp_r_1();
            break;
```

```
        case 2:
            cp_r_2();
            break;
        case 3:
            cp_r_3();
            break;
        case 4:
            cp_r_4();
            break;
    }
}

public void render_p_l_hit(int size){
    switch (size) {
        case 0:
            p_l_0();
            break;
        case 1:
            p_l_1();
            break;
        case 2:
            p_l_2();
            break;
        case 3:
            p_l_3();
            break;
        case 4:
            p_l_4();
            break;
        case 5:
            p_l_5_0();
            break;
    }
}

public void render_p_r_hit(int size){
    switch (size) {
        case 0:
            p_r_0();
            break;
        case 1:
            p_r_1();
```

```
            break;
        case 2:
            p_r_2();
            break;
        case 3:
            p_r_3();
            break;
        case 4:
            p_r_4();
            break;
        case 5:
            p_r_5_0();
            break;
    }
}

public void render_cp_l_hit(int size){
    switch (size) {
        case 0:
            cp_l_0();
            break;
        case 1:
            cp_l_1();
            break;
        case 2:
            cp_l_2();
            break;
        case 3:
            cp_l_3();
            break;
        case 4:
            cp_l_4();
            break;
        case 5:
            cp_r_5_0();
            break;
    }
}

public void render_cp_r_hit(int size){
    switch (size) {
        case 0:
```

```
            cp_r_0();
            break;
        case 1:
            cp_r_1();
            break;
        case 2:
            cp_r_2();
            break;
        case 3:
            cp_r_3();
            break;
        case 4:
            cp_r_4();
            break;
        case 5:
            cp_r_5_0();
            break;
    }
}


//below section is all for rendering the fingers according to the manipulated size of vector

//cp_l_fingers
public void cp_l_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_fist.setVisibility(View.VISIBLE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_three.setVisibility(View.GONE);
            cp_l_four.setVisibility(View.GONE);
            cp_l_five.setVisibility(View.GONE);
        }
    });
}

public void cp_l_1 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
```

```
            cp_l_one.setVisibility(View.VISIBLE);
            cp_l_fist.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_three.setVisibility(View.GONE);
            cp_l_four.setVisibility(View.GONE);
            cp_l_five.setVisibility(View.GONE);
        }
    });
}

public void cp_l_2 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_two.setVisibility(View.VISIBLE);
            cp_l_fist.setVisibility(View.GONE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_three.setVisibility(View.GONE);
            cp_l_four.setVisibility(View.GONE);
            cp_l_five.setVisibility(View.GONE);
        }
    });
}

public void cp_l_3 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_three.setVisibility(View.VISIBLE);
            cp_l_fist.setVisibility(View.GONE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_four.setVisibility(View.GONE);
            cp_l_five.setVisibility(View.GONE);
        }
    });
}

public void cp_l_4 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
```

```
            cp_l_four.setVisibility(View.VISIBLE);
            cp_l_fist.setVisibility(View.GONE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_three.setVisibility(View.GONE);
            cp_l_five.setVisibility(View.GONE);
        }
    });
}

public void cp_l_5_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_l_five.setVisibility(View.VISIBLE);
            delay(1000);
            cp_l_five.setVisibility(View.GONE);
            cp_l_fist.setVisibility(View.VISIBLE);
            cp_l_one.setVisibility(View.GONE);
            cp_l_two.setVisibility(View.GONE);
            cp_l_three.setVisibility(View.GONE);
            cp_l_four.setVisibility(View.GONE);
        }
    });
}


//cp_r_fingers
public void cp_r_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_fist.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
        }
    });
}
```

```
public void cp_r_1 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_one.setVisibility(View.VISIBLE);
            cp_r_fist.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
        }
    });
}

public void cp_r_2 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_two.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
            cp_r_fist.setVisibility(View.GONE);
        }
    });
}

public void cp_r_3 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_three.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
            cp_r_fist.setVisibility(View.GONE);
        }
    });
}
```

```
public void cp_r_4 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_four.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_five.setVisibility(View.GONE);
            cp_r_fist.setVisibility(View.GONE);
        }
    });
}

public void cp_r_5_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            cp_r_five.setVisibility(View.VISIBLE);
            delay(1000);
            cp_r_five.setVisibility(View.GONE);
            cp_r_fist.setVisibility(View.VISIBLE);
            cp_r_one.setVisibility(View.GONE);
            cp_r_two.setVisibility(View.GONE);
            cp_r_three.setVisibility(View.GONE);
            cp_r_four.setVisibility(View.GONE);
        }
    });
}


//p_l_fingers
public void p_l_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_fist.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
```

```
        }
    });
}

public void p_l_1 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_one.setVisibility(View.VISIBLE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
        }
    });
}

public void p_l_2 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_two.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
        }
    });
}

public void p_l_3(){
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_three.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
```

```
        }
    });
}

public void p_l_4() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_four.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.GONE);
        }
    });
}

public void p_l_5_0() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_l_five.setVisibility(View.VISIBLE);
            delay(1000);
            p_l_five.setVisibility(View.GONE);
            p_l_fist.setVisibility(View.VISIBLE);
            p_l_one.setVisibility(View.GONE);
            p_l_two.setVisibility(View.GONE);
            p_l_three.setVisibility(View.GONE);
            p_l_four.setVisibility(View.GONE);
        }
    });
}


//p_r_fingers
public void p_r_0() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_fist.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
```

```
            p_r_two.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
        }
    });
}

public void p_r_1() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_one.setVisibility(View.VISIBLE);
            p_r_two.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}

public void p_r_2() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_two.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}

public void p_r_3() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_three.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
```

```
            p_r_two.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}

public void p_r_4() {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_four.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
            p_r_two.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.GONE);
        }
    });
}

public void p_r_5_0 () {
    runOnUiThread(new Runnable() {
        @Override
        public void run() {
            p_r_five.setVisibility(View.VISIBLE);
            delay(1000);
            p_r_five.setVisibility(View.GONE);
            p_r_fist.setVisibility(View.VISIBLE);
            p_r_one.setVisibility(View.GONE);
            p_r_two.setVisibility(View.GONE);
            p_r_three.setVisibility(View.GONE);
            p_r_four.setVisibility(View.GONE);
        }
    });

}

}
```

```
package com.voidmatrix_sahillalani.chopstickgameandroid;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.AppCompatTextView;
import androidx.appcompat.widget.SwitchCompat;

import android.content.Context;
import android.content.DialogInterface;
import android.content.Intent;
import android.os.Bundle;
import android.text.InputType;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.CompoundButton;
import android.widget.EditText;
import android.widget.Switch;
import android.widget.Toast;

import com.google.android.gms.tasks.OnCompleteListener;
import com.google.android.gms.tasks.Task;
import com.google.firebase.auth.FirebaseAuth;
import com.google.firebase.auth.FirebaseUser;

import java.io.FileOutputStream;

public class Settings extends AppCompatActivity {


    private SwitchCompat mu;
    FirebaseUser user;
    private AlertDialog.Builder builder;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        getSupportActionBar().hide();
```

```
this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,WindowManage
r.LayoutParams.FLAG_FULLSCREEN);
        setContentView(R.layout.activity_settings);

        user = FirebaseAuth.getInstance().getCurrentUser();
        mu=findViewById(R.id.music);

        mu.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton buttonView, boolean isChecked) {
                // on below line we are checking
                // if switch is checked or not.
                if (isChecked) {
                    // on below line we are setting text
                    // if switch is checked.
                    LoadingScreen.mp.stop();

                } else {
                    // on below line we are setting text
                    // if switch is unchecked.
                    LoadingScreen.mp.setLooping(true);
                    LoadingScreen.mp.start();

                }
            }
        });

    }

    public void s_q(View view){

        startActivity(new Intent(getApplicationContext(),MainScreen.class));
        finish();
    }

    public void updateuname(View view){
        builder = new AlertDialog.Builder(this);
        builder.setTitle("Change username");

        final EditText input = new EditText(this);
        input.setInputType(InputType.TYPE_CLASS_TEXT);
```

```
        builder.setView(input);

        // Set up the buttons
        builder.setPositiveButton("Okay", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                String filename="NewCSP2";
                String pname=input.getText().toString();
                FileOutputStream fos;
                try {
                    fos = getApplicationContext().openFileOutput(filename, Context.MODE_PRIVATE);
                    //default mode is PRIVATE, can be APPEND etc.
                    fos.write(pname.getBytes());
                    fos.close();

                } catch (Exception e) {

Toast.makeText(getApplicationContext(),e.getMessage(),Toast.LENGTH_LONG).show();
                }
                MainScreen.pname.setText(pname);
                Toast.makeText(getApplicationContext(),"Username updated
successfully",Toast.LENGTH_SHORT).show();
                finish();

            }
        });
        builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                dialog.cancel();
            }
        });

        builder.show();
    }

    public void deleteacc(View view){
        builder = new AlertDialog.Builder(this);
        builder.setTitle("Do you really wanna delete?");

        // Set up the buttons
```

```
        builder.setPositiveButton("Yeah", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                user.delete()
                        .addOnCompleteListener(new OnCompleteListener<Void>() {
                            @Override
                            public void onComplete(@NonNull Task<Void> task) {
                                if (task.isSuccessful()) {
                                    Toast.makeText(getApplicationContext(),"Account deleted
successfully",Toast.LENGTH_SHORT).show();
                                }
                            }
                        });
                startActivity(new Intent(getApplicationContext(),VoidMatrixAccount.class));
            }
        });
        builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                dialog.cancel();
            }
        });

        builder.show();

    }

}
```

Activity_Settings.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/gradient_pwc2"
    tools:context=".Settings">
```

```
<ImageButton
    android:id="@+id/setquit"
    android:layout_width="42dp"
    android:layout_height="41dp"
    android:background="@drawable/cir2"
    android:contentDescription="@string/up"
    android:onClick="s_q"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.499"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.002"
    app:srcCompat="@drawable/cancelnew40"
    tools:ignore="TouchTargetSizeCheck,ImageContrastCheck" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/updateuname"
    android:layout_width="194dp"
    android:layout_height="55dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="updateuname"
    android:text="Update Username"
    android:textColor="#ffffff"
    android:textSize="18sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.26"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.861" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/deleteacc"
    android:layout_width="194dp"
    android:layout_height="55dp"
    android:background="@drawable/rounded_rectangle"
    android:onClick="deleteacc"
    android:text="Delete Account"
    android:textColor="#ffffff"
    android:textSize="18sp"
```

```
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.732"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.862" />

    <androidx.appcompat.widget.SwitchCompat
        android:id="@+id/music"
        android:layout_width="117dp"
        android:layout_height="110dp"
        android:checked="true"
        android:text="Music"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.232"
        app:thumbTint="#FF5722"
        app:trackTint="#FF9800" />

    <SeekBar
        android:id="@+id/seekbar"
        android:layout_width="196dp"
        android:layout_height="40dp"
        android:backgroundTintMode="src_over"
        android:max="100"
        android:progress="1"
        android:progressTint="#FF9800"
        android:thumbTint="#FF5722"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.499"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.606" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Section 7: Testing of "OmegaChopStick" game

This chapter includes some test cases for the game to check if the game works property in various situations. We are giving four test examples for four different situations here.

Database verification test case:

Sr.no	Test Case Id	Test Case Name	Test Case Description	Step	Executed Result	Actual Result	Test Case Status
1	Log in	Validate Login	To verify that login id on registration on Database	Enter login id or password and click on login button	Login Successfully or an error message	Successfully	Pass
2	Sign up	Information of the user	Successfully	Pass			
3	Play as guest	Player name stored locally	successful	pass			

Test case for game: [each test led to an improvement]

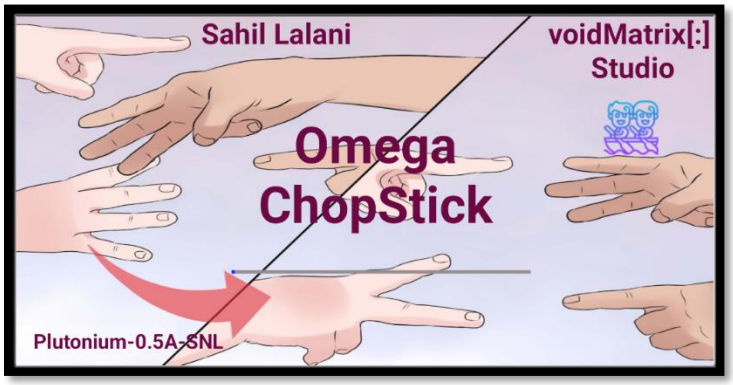
1. Animation of hands works perfectly (Tested 23-24 times).
2. Users' session is maintained using the concept of file handling.
3. Launch label's progress bar animation works correctly (tested 10 times)

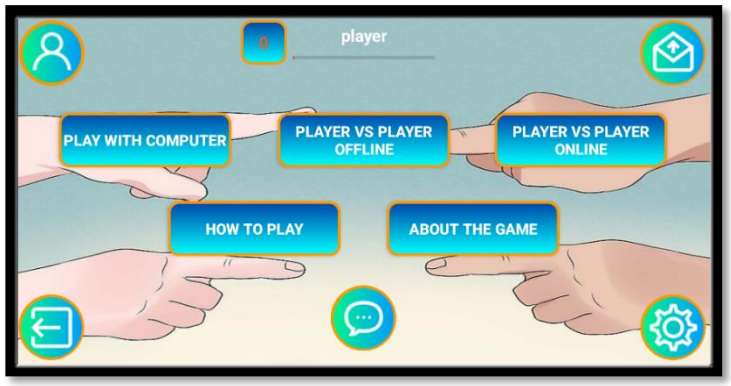
Section 8: User manual of “OmegaChopStick” game with Snapshots

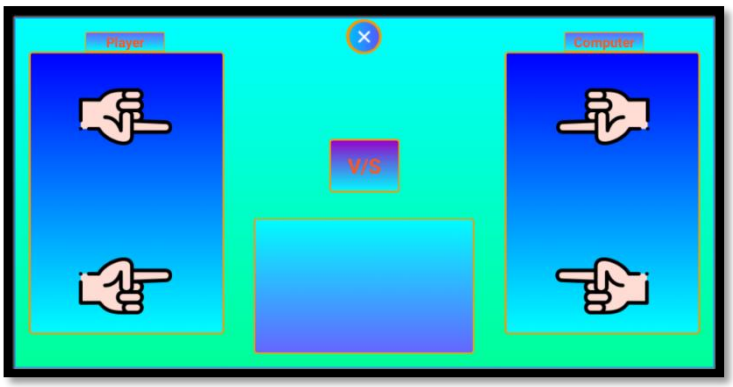
This chapter provides a user instruction for the players. It includes the procedure of playing and also contains some snapshots to give some ideas of the game to the player before starting playing it.

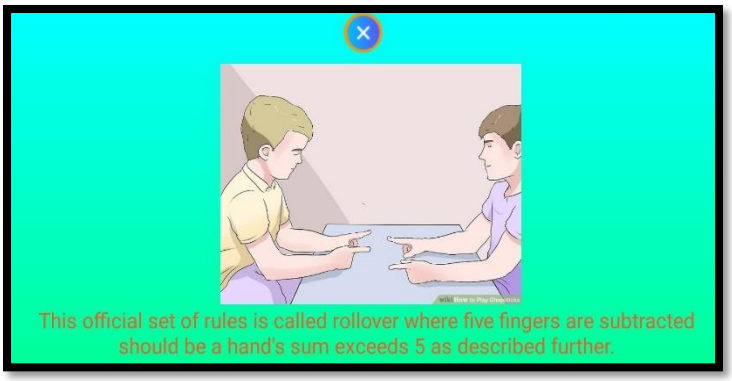
Playing Procedure

Gamer first interacts with system Ul to start playing. I provide playing tips to all users so that they can easily understand about the playing procedure.









Section 9: Conclusion

The main objective of this project was to design and develop a 2D Combinatorial game without having used any game engine and learn the maximum amount of things possible while doing it.

For this purpose, the different graphic elements of the game were designed, allowing me to learn how to efficiently use the core java concept, Flaticon.com, Firebase Realtime Database in order to achieve the desired results. In this manner, each design has been done faster and better than the previous one. Similarly, I have learned how to design simple albeit necessary sound effects for the game by combining audio.

Regarding the game itself, all of the game logic and the objects were designed and subsequently implemented using Android studio IDE. As a result, the video-game is composed of one single perfectly playable sections which includes many different objects and obstacles to overcome. This is the part that I have most enjoyed, because I really like programming and designing game logic. Additionally, coming up with finger movements' logic provided me a fun challenge, and gave me the opportunity to learn many different issues about game design and development.

Limitations

- Some settings are not stored permanently.
- Players can not set profile picture.
- Global chat and online match-making are still in production.

Future enhancements

Definitely the ones that are described above in limitations and furthermore now I shall be trying to make a web application for this game.

Section 10: Appendix

Appendix A: Abbreviation & Acronyms

Term	Definition
Animation	the rapid display of a sequence of images to create an illusion of movement.
Graphics	visual presentations on some surface, such as a wall, canvas, screen, paper, or stone to brand, inform, illustrate, or entertain.
Sprites	In a computer game a sprite is the name usually given to a two-dimensional bitmap computer graphic, designed to be integrated into a level, intro or exit screen. They can be static or animated.
SRS	Software Requirements Specification
GDLC	Game Development Life Cycle
UI	User Interface
Gamer	A person who plays a game or games, typically a participant in a computer or role-playing game.
System	A system is a set of interacting or interdependent components forming an integrated whole or a set of elements (often called 'components) and relationships which are different from relationships of the set orits elements to other elements or sets.
Event	Changing the state of an object is known as an event. For example, click on button, dragging mouse etc.
Class	A class is a blueprint for the object.
Object	An instance of class that is real world and runtime entity that has state and behavior.
DFD	Data Flow Diagram
JAVA File IO	For working with files and its input/output
API	Application Programming Interface

IDE	Integrated Development Environment
GUI	Graphical User Interface

Appendix B: References

Image Icons & Symbols (flaticon.com)

https://www.bing.com/

https://www.android.com/

https://stackoverflow.com/

https://firebase.google.com/docs/database/

https://www.wikihow.com

https://en.wikipedia.org/

l0.drawio - diagrams.net

Tutorials List - Javatpoint

Oxford Learner's Dictionaries | Find definitions, translations, and grammar explanations at Oxford Learner's Dictionaries (oxfordlearnersdictionaries.com)

Cambridge Dictionary | English Dictionary, Translations & Thesaurus

Dictionary by Merriam-Webster: America's most-trusted online dictionary