Program 5

Create an application to show happy face smiley and sad face smiley to demonstrate button click events.

MainActivity.java

```
package com.example.a5happyface;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button button;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button
                = (Button) findViewById(R.id.button);
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                openNewActivity();
            }
        });

    }

    public void openNewActivity() {
        Intent intent = new Intent(this, MainActivity2.class);
        startActivity(intent);
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <com.example.a5happyface.FaceView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />
    <Button
        android:id="@+id/button"
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:text="---> Sad
Face" />
</RelativeLayout>
```

MainActivity2.java

```
package com.example.a5happyface;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity2 extends AppCompatActivity {
    Button button1;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    { super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2); button1
            = (Button) findViewById(R.id.button1);
        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                openNewActivity();
            }
        });

    }
    public void openNewActivity(){
        Intent intent1 = new Intent(this,MainActivity.class);
        startActivity(intent1);
    }
}
```

activity_main2.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout width="match parent"
android:layout_height="match_parent">
    <com.example.a5happyface.FaceView2
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />
    <Button
        android:id="@+id/button1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="---> Happy Face" />
</RelativeLayout>
```

FaceView.java

```
package com.example.a5happyface;
```

```
import android.content.Context;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.util.AttributeSet;
import android.view.View;
public class FaceView extends View {
    private static final String COLOR_HEX = "WHITE";
    private final Paint mPaint; private float
            xPosition; private float yPosition; private
    float radius; private float strokeWidth = 20;
    private float defaultScale = 0.90f; private
    float eyeRadius = 60; private float
            eyeYPosition; private float leftEyeXPosition;
    private float rightEyeXPosition;
    public FaceView(Context context, AttributeSet attrs) {
        super(context, attrs); mPaint = new Paint();
        mPaint.setAntiAlias(true);
    }
    @Override
    protected void onDraw(Canvas canvas) {
        super.onDraw(canvas);
        mPaint.setColor(Color.parseColor(COLOR_HEX));
        mPaint.setStrokeWidth(strokeWidth);
        mPaint.setStyle(Paint.Style.STROKE);
        canvas.drawPaint(mPaint); canvas.drawColor(Color.BLACK);
        // drawing outer circle
        // lets setup x cord, y cord, radius
// x, y position should point to center. //radius should be half the width
/ height
                xPosition = getMeasuredWidth() / 2;
        yPosition = getMeasuredHeight() / 2;
        radius = xPosition < yPosition ? xPosition : yPosition ;
        radius *= defaultScale;
        canvas.drawCircle(xPosition, yPosition, radius, mPaint);
        // Drawing Eyes.
        // lets find eye y position
        eyeYPosition = (float) (yPosition / 1.2);
        // lets find eye x position
        leftEyeXPosition = xPosition < yPosition ? xPosition / 2 : (float)
                (xPosition / 1.3);
        // lets find right eye x position
        rightEyeXPosition = xPosition < yPosition ? xPosition + xPosition /
2 :
                xPosition + xPosition / 4;
        // left eye
        canvas.drawCircle(leftEyeXPosition, eyeYPosition, eyeRadius,
mPaint);
        // right eye
        canvas.drawCircle(rightEyeXPosition, eyeYPosition, eyeRadius,
mPaint);
        // lets draw mouth.
        RectF oval = new RectF(leftEyeXPosition, yPosition + yPosition /
12,
                rightEyeXPosition, (float) (yPosition + yPosition / 2.5));
// left top rightbottom
                canvas.drawArc(oval, 10, 150, false, mPaint); // happy
face.
    }
}
```

FaceView2.java

```
package com.example.a5happyface;

import android.content.Context;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.util.AttributeSet;
import android.view.View;
public class FaceView2 extends View {
    private static final String COLOR_HEX = "WHITE";
    private final Paint mPaint; private float
            xPosition; private float yPosition; private
    float radius; private float strokeWidth = 20;
    private float defaultScale = 0.90f; private
    float eyeRadius = 60; private float
            eyeYPosition; private float leftEyeXPosition;
    private float rightEyeXPosition;
    public FaceView2(Context context, AttributeSet attrs)
    { super(context, attrs); mPaint = new
            Paint(); mPaint.setAntiAlias(true);
    }
    @Override
    protected void onDraw(Canvas canvas) {
        super.onDraw(canvas);
        mPaint.setColor(Color.parseColor(COLOR_HEX));
        mPaint.setStrokeWidth(strokeWidth);
        mPaint.setStyle(Paint.Style.STROKE);
        canvas.drawPaint(mPaint);
        canvas.drawColor(Color.BLACK);
        // drawing outer circle
        // lets setup x cord, y cord, radius
// x, y position should point to center.
// radius should be half the width / height
        xPosition = getMeasuredWidth() / 2;
        yPosition = getMeasuredHeight() / 2;
        radius = xPosition < yPosition ? xPosition : yPosition ;
        radius *= defaultScale;
        canvas.drawCircle(xPosition, yPosition, radius, mPaint);
        // Drawing Eyes.
        // lets find eye y position
        eyeYPosition = (float) (yPosition / 1.2);
        // lets find eye x position
        leftEyeXPosition = xPosition < yPosition ? xPosition / 2 : (float)
                (xPosition / 1.3);
        // lets find right eye x position
         rightEyeXPosition = xPosition < yPosition ? xPosition + xPosition
/ 2 :
                xPosition + xPosition / 4;
        // left eye
        canvas.drawCircle(leftEyeXPosition, eyeYPosition, eyeRadius,
mPaint);
        // right eye
        canvas.drawCircle(rightEyeXPosition, eyeYPosition, eyeRadius,
mPaint);
        // lets draw mouth.
        RectF oval = new RectF(leftEyeXPosition, yPosition + yPosition / 5,
```

```
                rightEyeXPosition, (float) (yPosition + yPosition / 2)); //
left top right bottom
        canvas.drawArc(oval, 200, 140, false, mPaint); // sad face.
    }
}
```

OUTPUT: