Program 5
Create an application to show happy face smiley and sad face smiley to demonstrate button click events.

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.smily.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>
```

activity_sec

```
<?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.smily.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>
```

MainActivity.java

```
package com.example.smily;

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);
    }

}
```

MainActivity2.java

```
package com.example.smily;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

import com.example.smily.databinding.ActivityMain2Binding;
import androidx.appcompat.app.AppCompatActivity;
import androidx.navigation.ui.AppBarConfiguration;

public class MainActivity2 extends AppCompatActivity {
    Button button1;

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

}
```

FaceView.java

```
package com.example.smily;

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 = "BLACK";
    private final Paint mPaint;
    private float xPosition;
    private float yPosition;
    private float radius;
    private float strokeWidth = 10;
    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);

        // 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,
```

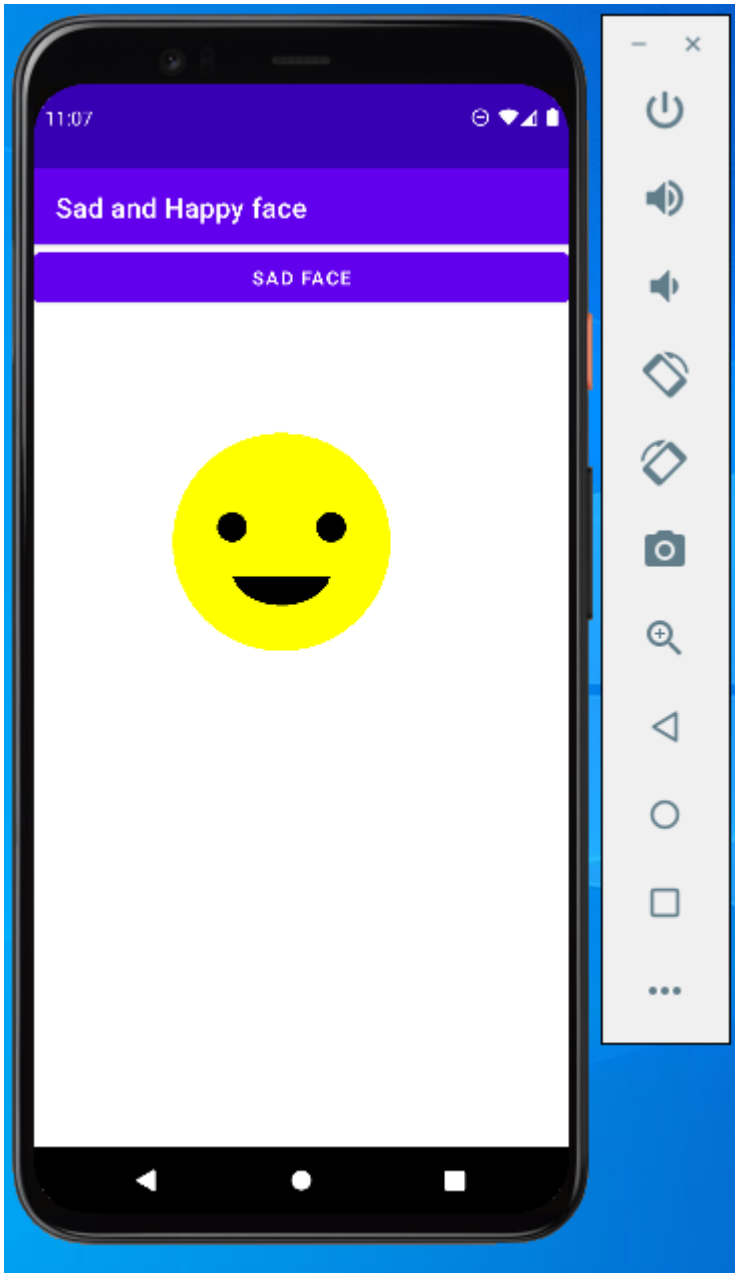
```
mPaint);

        // 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
right bottom

 //       canvas.drawArc(oval, 200, 140, false, mPaint); // sad face.
        canvas.drawArc(oval, 10, 150, false, mPaint); // happy face.
    }
}
```

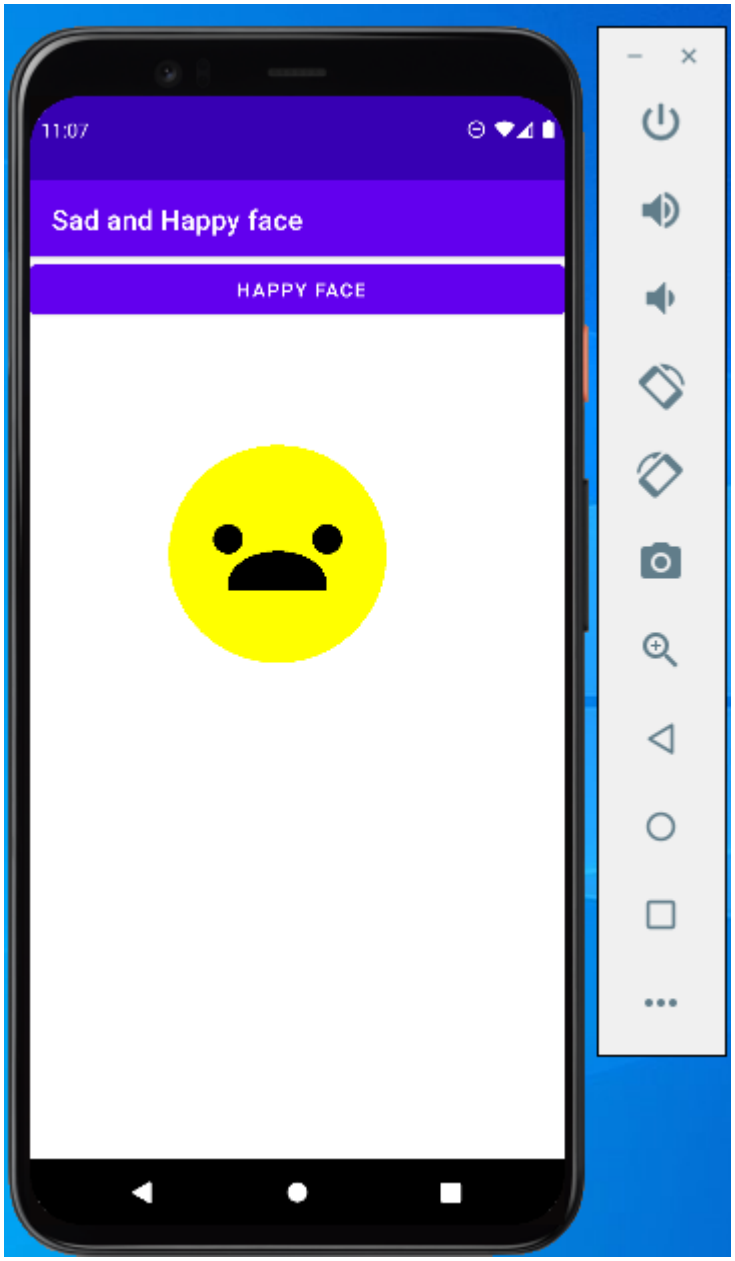
FaceView2.java

```
package com.example.smily;

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 = "Black";
    private final Paint mPaint;
    private float xPosition;
    private float yPosition;
    private float radius;
    private float strokeWidth = 10;
    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);

        // 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.
        //canvas.drawArc(oval, 10, 150, false, mPaint); // happy face.
    }
}
```

# ScreenShot


11:07
Sad and Happy face
SAD FACE


11:07
Sad and Happy face
HAPPY FACE