**SHAPES:**

**Xml:**
```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=".ShapesActivity">-->

<!--</androidx.constraintlayout.widget.ConstraintLayout>-->
<RelativeLayout 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=".MainActivity">
    <ImageView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/imageView"/>
</RelativeLayout>
```

**Java:**
```java
package com.example.graphics;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.drawable.BitmapDrawable;
import android.os.Bundle;
import android.widget.ImageView;

public class ShapesActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_shapes);

        Intent intent = getIntent();

        Bitmap bg = Bitmap.createBitmap(720, 1280,
Bitmap.Config.ARGB_8888);
        ImageView i = (ImageView) findViewById(R.id.imageView);

        i.setBackgroundDrawable(new BitmapDrawable(bg));
        Canvas canvas = new Canvas(bg);
        Paint paint = new Paint();
        paint.setColor(Color.CYAN);
        paint.setTextSize(50);

        //To draw a Rectangle
        canvas.drawText("Rectangle", 420, 150, paint);
```

```
        canvas.drawRect(400, 200, 650, 700, paint);

        //To draw a Circle
        canvas.drawText("Circle", 120, 150, paint);
        canvas.drawCircle(200, 350, 150, paint);

        //To draw an arc
        canvas.drawText("Arc", 120, 800, paint);
        canvas.drawArc(50, 850, 350, 1150, 135, 120, true, paint);

        //To draw a Line
        canvas.drawText("Line", 480, 800, paint);
        canvas.drawLine(520, 850, 520, 1150, paint);




    }
}
```

**ANIMATION:**

**Xml:**
```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="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">



    <Button
        android:id="@+id/bt_rotate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="278dp"
        android:layout_marginLeft="278dp"
        android:layout_marginTop="195dp"
        android:text="ROTATE" />


    <Button
        android:id="@+id/bt_forward"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/bt_up"
        android:layout_alignParentStart="true"
        android:layout_marginStart="216dp"
        android:layout_marginTop="4dp"
        android:text="RIGHT" />

    <Button
        android:id="@+id/bt_backward"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```xml
        android:layout_below="@+id/bt_forward"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_marginStart="74dp"
        android:layout_marginLeft="74dp"
        android:layout_marginTop="-46dp"
        android:text="LEFT" />

    <ImageView
        android:id="@+id/iv_animate"
        android:layout_width="match_parent"
        android:layout_height="200dp"
        android:layout_below="@+id/bt_backward"
        android:layout_centerInParent="true"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="214dp"
        android:layout_marginRight="30dp"
        android:background="@drawable/smiley" />
</RelativeLayout>
```

**Rotate:**

```xml
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate
        android:fromDegrees="0"
        android:toDegrees="360"
        android:pivotX="50%"
        android:pivotY="50%"
        android:duration="1000" />
</set>
```

**Java:**

```java
package com.example.graphics;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity{

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

        Button bt_zoom=findViewById(R.id.bt_zoom);
        Button bt_fade=findViewById(R.id.bt_fade);
        Button bt_rotate=findViewById(R.id.bt_rotate);
        Button bt_down=findViewById(R.id.bt_down);
        Button bt_up=findViewById(R.id.bt_up);
        Button bt_forward=findViewById(R.id.bt_forward);
        Button bt_backward=findViewById(R.id.bt_backward);
        final ImageView iv_animate=findViewById(R.id.iv_animate);

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

```
        @Override
        public void onClick(View v) {


iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContex
t(),R.anim.zoom_in));
        }
    });
    bt_fade.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {


iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContex
t(),R.anim.fade_in));
        }
    });
    bt_rotate.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {


iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContex
t(),R.anim.rotate_in));
        }
    });
    bt_up.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            iv_animate.animate().translationYBy(-
300f).setDuration(600);
        }
    });
    bt_down.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            iv_animate.animate().translationYBy(300f).setDuration(600);
        }
    });
    bt_forward.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            iv_animate.animate().translationXBy(300f).setDuration(600);
        }
    });
    bt_backward.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            iv_animate.animate().translationXBy(-
300f).setDuration(600);
        }
    });

}
public void nextPage(View view) {
    Intent intent = new Intent(this, ShapesActivity.class);
    startActivity(intent);

}
}
```

**OUTPUT**