PROGRAM 4

```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=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

Main Activity.java

```java
package com.example.shapes;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(new com.example.shapes.CustomView(this));
    }
}
```

CustomView.java

```java
package com.example.shapes;

import androidx.appcompat.app.AppCompatActivity;

        import android.content.Context;
        import android.graphics.Canvas;
        import android.graphics.Color;
        import android.graphics.Paint;
        import android.graphics.Rect;

        import android.view.View;

class CustomView extends View
{

    private Rect rectangle;
    private Paint paint, p2;

    public CustomView(Context context)
    {
        super(context);
```

```java
        int x = 200;
        int y = 800;
        int width = 900;
        int height = 450;
        rectangle = new Rect(x, y, width, height);       // create a rectangle that
we'll draw later
        paint = new Paint();                             // create the Paint and set its
color
        //paint.setColor(Color.GRAY);
        p2 = new Paint();
        p2.setColor(Color.BLACK);
    }

    @Override
    protected void onDraw(Canvas canvas)
    {   super.onDraw(canvas);
        int x = getWidth();
        int y = getHeight();
        int radius;
        radius = 150;
        paint.setStyle(Paint.Style.FILL);
        paint.setColor(Color.GRAY);
        canvas.drawPaint(paint);
        // Use Color.parseColor to define HTML colors
        paint.setColor(Color.parseColor("RED"));

        //int r = 100;
        //canvas.drawColor(Color.BLUE);
        canvas.drawRect(rectangle, p2);
        canvas.drawCircle(x/2 , y /3, radius, paint);
        //canvas.drawCircle(0, 0,r);
    }

}
```

Output