Department of
Computer Science and Engineering

Title: Drawing Basic Graphical Primitives

Mobile Application Development

CSE 402

Green University of Bangladesh

1 Objective(s)

- To implement different types of graphical shapes like lines, squares, rectangles with the help of Canvas class in android development.

2 Problem analysis

Android has got visually appealing graphics. Android provides a huge set of 2D-drawing APIs that allows to create graphics. Android graphics provides low level graphics tools such as canvases, color, filters, points and rectangles which handle drawing to the screen directly. The Android framework provides a set of 2D-DRAWING APIs which allows user to provide own custom graphics onto a canvas or to modify existing views to customize their look and feel. The android.graphics.Canvas can be used to draw graphics in android. It provides methods to draw oval, rectangle, picture, text, line etc. Some of the important methods of Canvas Class are as follows- drawText(), drawRoundRect(), drawCircle(), drawRect() etc. These methods are used in onDraw() method to create customized user interface. The android.graphics.Paint class is used with canvas to draw objects. It holds the information of color and style. In this experiment, we are going to display 2D graphics in android.

3 Implementation of some Android Graphical Primitives in Java

```
1  package com.example.drawingprimitives;
2
3  import androidx.appcompat.app.AppCompatActivity;
4
5  import android.content.Context;
6  import android.graphics.Canvas;
7  import android.graphics.Color;
8  import android.graphics.Paint;
9  import android.os.Bundle;
10 import android.view.View;
11
12 public class MainActivity extends AppCompatActivity {
13
14     DemoView dv;
15
16     @Override
17     protected void onCreate(Bundle savedInstanceState) {
18         super.onCreate(savedInstanceState);
19         dv = new DemoView(this);
20         setContentView(dv);
21     }
22
23     private class DemoView extends View {
24
25         public DemoView(Context context) {
26             super(context);
27         }
28
29         @Override
30         protected void onDraw(Canvas canvas) {
31             super.onDraw(canvas);
32             Paint ob = new Paint();
33             ob.setStyle(Paint.Style.FILL);
34             ob.setColor(Color.WHITE); //set the background color
35             canvas.drawPaint(ob);
36             ob.setColor(Color.GRAY);
37             canvas.drawCircle(100, 100, 60, ob);
38             ob.setColor(Color.CYAN);
```

```
39              canvas.drawCircle(200, 50, 30, ob);
40              ob.setColor(Color.MAGENTA);
41              canvas.drawRect(200, 200, 400, 400, ob);
42              ob.setColor(Color.RED);
43              canvas.drawLine(250, 50, 350, 400, ob);
44              canvas.rotate(-45);
45          }
46      }
47  }
```

4 Input/Output

Run the code and observe the output in the virtual device.

5 Discussion & Conclusion

From this experiments we learn about how to draw some basic graphical shapes in android studio with the help of canvas class. This experiment is designed in a way to teach the student about drawing basic 2D graphics in android Development.

6 Lab Task (Please implement yourself and show the output to the instructor)

1. Create a Triangle with the help of android graphics.
2. Create a Circle inside a Rectangle using graphical primitives.

6.1 Problem analysis

Implement the lab tasks with the help of Canvas class as taught in the experiment. Build a function to create a triangle with help of **Path** class and use **moveTo** method to draw lines of that triangle.

7 Lab Exercise (Submit as a report)

- Create a Rhombus using android graphical primitives.

8 Policy

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