Experiment No: 2

Aim: WAA to draw basic graphical 3D primitives.

Theory:

- **Parameters used in the Program**

1) **cubeSize**
⇒ Represents the size of the cube. It is used to specify the dimensions when drawing a cube.

2) **cuboidWidth**
⇒ Represents the width of the cuboid. It is used to specify the width when drawing a cuboid.

3) **cubeHeight**
⇒ Represents the height of the cuboid. It is used to specify the height when drawing a cuboid.

- **3D primitives**

1) **Cube**
⇒ Drawn using 'canvas.drawRect()' in a loop. The loop iterates 100 times, drawing multiple rectangles with increasing positions to simulate a 3D effect.

THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

2) Cuboid

⇒ Draw using combinations of 'canvas.drawLines()' to create a rectangular prism.

- Lines are drawn to represent the edges of cuboid forming a 3-D shape.

- Layout in XML

⇒ We have used the relative layout in xml file.

- Relative layout defines positions child views relative to each other or the parent.

- Conclusion :

Thus a simple Android application that draws basic Graphical Primitives on the screen is developed and executed successfully.

Sign (AT)

Code:

```
package com.example.mccexp2;

import android.app.Activity;
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 MainActivity extends Activity
{
	@Override
	public void onCreate(Bundle savedInstanceState)
	{
	super.onCreate(savedInstanceState);
	setContentView(R.layout.activity_main);

	int cubeSize = 200;
	int cuboidWidth = 300;
	int cuboidHeight = 150;

	//Creating a Bitmap
	Bitmap bg = Bitmap.createBitmap(720, 1280, Bitmap.Config.ARGB_8888);

	//Setting the Bitmap as background for the ImageView
	ImageView i = findViewById(R.id.imageView);
	i.setBackgroundDrawable(new BitmapDrawable(bg));

	//Creating the Canvas Object
	Canvas canvas = new Canvas(bg);

	//Creating the Paint Object and set its color & TextSize
	Paint paint = new Paint();
	paint.setColor(Color.BLUE);
	paint.setTextSize(50);

	Paint paint1 = new Paint();
	paint1.setColor(Color.RED);
	paint1.setTextSize(50);

	canvas.drawText("CUBE", 120, 150, paint);
	for(int it=0; it<100; it++){
		canvas.drawRect(50+it, 200+it, 350+it, 400+it, paint);
		paint1.setColor(Color.RED);
	}

	canvas.drawText("CUBOID", 120, 800, paint);
```

```
        canvas.drawLine(120,850,120,1050, paint1);
        canvas.drawLine(460,850,460,1050, paint1);
        canvas.drawLine(120,850,460,850, paint1);
        canvas.drawLine(120,1050,460,1050, paint1);

        canvas.drawLine(200,950,200,1150, paint1);
        canvas.drawLine(540,950,540,1150, paint1);
        canvas.drawLine(200,950,540,950, paint1);
        canvas.drawLine(200,1150,540,1150, paint1);

        canvas.drawLine(120,850,200,950, paint1);
        canvas.drawLine(460,850,540,950, paint1);
        canvas.drawLine(120,1050,200,1150, paint1);
        canvas.drawLine(460,1050,540,1150, paint1);


        }
}
```

Output: