MainActivity.java

```
package com.example.a3dprimitives;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Paint;
import android.graphics.Color;
import android.widget.ImageView;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
  ImageView img;
  Bitmap bg;
 @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    bg = Bitmap.createBitmap(720, 1280, Bitmap.Config.ARGB_8888);
    img = findViewById(R.id.imageView);
    img.setImageBitmap(bg);
    Canvas canvas = new Canvas(bg);
    Paint p1 = new Paint();
    p1.setStrokeWidth(5);
    p1.setColor(Color.BLACK);
    p1.setTextSize(50);
    canvas.drawText("Cube", 300, 100, p1);
    //CUBE
    canvas.drawText("Cube", 300, 100, p1);
    canvas.drawLine(100, 200, 600, 200, p1);
    canvas.drawLine(100, 200, 100, 400, p1);
    canvas.drawLine(100, 400, 600, 400, p1);
    canvas.drawLine(600, 200, 600, 400, p1);
    // CUBOID
    canvas.drawLine(200, 300, 700, 300, p1);
    canvas.drawLine(200, 300, 200, 500, p1);
    canvas.drawLine(200, 500, 700, 500, p1);
    canvas.drawLine(700, 300, 700, 500, p1);
```

```
// SPHERE
    canvas.drawLine(100, 200, 200, 300, p1);
    canvas.drawLine(100, 400, 200, 500, p1);
    canvas.drawLine(600, 400, 700, 500, p1);
    canvas.drawLine(600, 200, 700, 300, p1);
    //PYRAMID
    canvas.drawText("Cone", 300, 800, p1);
    canvas.drawLine(400, 900, 500, 1100, p1);
    canvas.drawLine(400, 900, 300, 1100, p1);
    canvas.drawOval(300, 1050, 500, 1150, p1);
 }
}
ic_launcher_foreground.xml
<vector xmlns:android="http://schemas.android.com/apk/res/android"</pre>
    xmlns:aapt="http://schemas.android.com/aapt"
    android:width="108dp"
    android:height="108dp"
    android:viewportWidth="108"
    android:viewportHeight="108">
    <path android:pathData="M31,63.928c0,0 6.4,-11 12.1,-13.1c7.2,-2.6 26,-1.4</pre>
26,-1.4138.1,38.1L107,108.9281-32,-1L31,63.928z">
        <aapt:attr name="android:fillColor">
            <gradient</pre>
                android:endX="85.84757"
                android:endY="92.4963"
                android:startX="42.9492"
                android:startY="49.59793"
                android:type="linear">
                <item
                     android:color="#44000000"
                    android:offset="0.0" />
                <item
                     android:color="#00000000"
                    android:offset="1.0" />
            </gradient>
        </aapt:attr>
    </path>
    <path
        android:fillColor="#FFFFFF"
        android:fillType="nonZero"
```

android:pathData="M65.3,45.82813.8,-6.6c0.2,-0.4 0.1,-0.9 -0.3,-1.1c-

0.4, -0.2 -0.9, -0.1 -1.1, 0.31 -3.9, 6.7c -6.3, -2.8 -13.4, -2.8 -19.7, 01 -3.9, -6.7c -

38.9,39.22813.8,6.6C36.2,49.428 31.7,56.028 31,63.928h46C76.3,56.028

0.2,-0.4 -0.7,-0.5 -1.1,-0.3C38.8,38.328 38.7,38.828

```
71.8,49.428 65.3,45.828zM43.4,57.328c-0.8,0 -1.5,-0.5 -1.8,-1.2c-0.3,-0.7 -
0.1, -1.5 0.4, -2.1c0.5, -0.5 1.4, -0.7 2.1, -0.4c0.7, 0.3 1.2, 1 1.2, 1.8C45.3, 56.528
44.5,57.328 43.4,57.328L43.4,57.328zM64.6,57.328c-0.8,0 -1.5,-0.5 -1.8,-1.2s-
0.1, -1.5 0.4, -2.1c0.5, -0.5 1.4, -0.7 2.1, -0.4c0.7, 0.3 1.2, 1 1.2, 1.8C66.5, 56.528
65.6,57.328 64.6,57.328L64.6,57.328z"
        android:strokeWidth="1"
        android:strokeColor="#00000000" />
</vector>
activity_main.xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout</pre>
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:id="@+id/textView"
        android:layout width="wrap content"
        android:layout height="wrap content"
        android:text="2D Primitives"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout constraintBottom toBottomOf="parent"
```

app:layout constraintEnd toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout constraintTop toTopOf="parent" app:layout constraintVertical bias="0.07" /> <ImageView</pre>

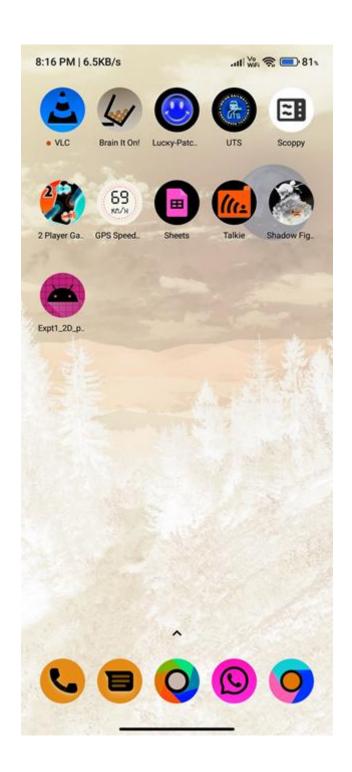
```
android:id="@+id/imageView"
android:layout width="wrap content"
android:layout height="wrap content"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout constraintHorizontal bias="0.5"
app:layout constraintStart toStartOf="parent"
app:layout constraintTop toBottomOf="@+id/textView"
app:srcCompat="@drawable/primitives_3d" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

build.gradle

```
plugins {
    id 'com.android.application'
}
android {
    compileSdk 32
    defaultConfig {
        applicationId "com.example.expt2 3d primitives"
        minSdk 21
        targetSdk 32
        versionCode 1
        versionName "1.0"
        testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"
    }
    buildTypes {
        release {
            minifyEnabled false
            proguardFiles getDefaultProguardFile('proguard-android-
optimize.txt'), 'proguard-rules.pro'
        }
    }
    compileOptions {
        sourceCompatibility JavaVersion.VERSION_1_8
        targetCompatibility JavaVersion.VERSION_1_8
    }
}
dependencies {
    implementation 'androidx.appcompat:appcompat:1.3.0'
    implementation 'com.google.android.material:material:1.4.0'
    implementation 'androidx.constraintlayout:constraintlayout:2.0.4'
    testImplementation 'junit:junit:4.13.2'
    androidTestImplementation 'androidx.test.ext:junit:1.1.3'
    androidTestImplementation 'androidx.test.espresso:espresso-core:3.4.0'
}
```

Output: (On Android device)





3D Primitives

