

# MOBILE APPLICATIONS DEVELOPMENT LAB CSLR-34

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Lab2

Submitted By: -

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# QUESTION-1: CREATE DICE ROLL GAME

**EXPERIMENT NAME:** CREATE DICE ROLL GAME

**AIM:**

Make a dice roll game to choose the winner among two players.

**DESCRIPTION OF APP:**

Each of the two players roll dice in turns, so that the number obtained is added to the score of the corresponding player. The player whose score reaches 25 or greater first, the game is won by that player. Clear option is provided to start again and also to reset in middle of game.

**DEVICE SPECIFICATION:**

**Device Name:** - Pixel 3a XL (6 1080x2160 xxhdpi)

**Android Version:** - R (Android 10.0+ x86)

**API Level:** - 30

**Screen Size:** - 6 inch

**RAM:** - 2048 MB

**TECHNICAL CONCEPTS LEARNT:**

Learnt about the Random () function and its bound feature.

Learnt about Animation and AnimationUtils – its different functions. That is, how to add animation to a set of images.

Toast Function and its uses.

Learnt how to make a new Background by creating a new xml file in Drawables and setting gradient start-end colors in it.

Learnt how to animate a particular object (here a set of images) by creating a separate shake.xml file (In this project the dice shakes and rotates simultaneously).

Learnt to create a custom designed button by creating a separate xml file for it also.

Learnt how to handle different bugs. In this project, many errors occurred while calculating the total scores for each of the players.

## SOURCE CODE:

### activity\_main.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" android:background="@drawable/background"
    android:padding="20dp">

    <TextView
        android:id="@+id/tvVar2" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_centerHorizontal="true"
        android:layout_marginBottom="40dp" android:fontFamily="sans-serif-black"
        android:gravity="center" android:text="@string/App_Heading"
        android:textSize="40sp" android:textStyle="bold" />

    <TextView
        android:id="@+id/tvVar1" android:layout_width="match_parent"
        android:layout_height="60dp" android:layout_below="@+id/tvVar2"
        android:fontFamily="sans-serif-smallcaps" android:gravity="center"
        android:text="@string/game_status" android:textAlignment="center"
        android:textColor="@color/white" android:textSize="35sp" />

    <LinearLayout
        android:layout_width="match_parent" android:layout_height="wrap_content"
        android:layout_below="@+id/tvVar1" android:layout_marginTop="40dp"
        android:orientation="vertical">

        <LinearLayout
            android:layout_width="wrap_content" android:layout_height="50dp"
            android:layout_gravity="center" android:layout_marginBottom="40dp"
            android:orientation="horizontal">
            <TextView
                android:layout_width="140dp" android:layout_height="50dp"
                android:layout_gravity="center" android:gravity="center" android:padding="10dp"
                android:text="@string/Player_1" android:textAlignment="center"
                android:textColor="#000000" android:textSize="25sp" tools:text="Player 1" />

            <TextView
                android:layout_width="140dp" android:layout_height="50dp"
                android:layout_gravity="center" android:gravity="center" android:padding="10dp"
                android:text="@string/Player_2" android:textAlignment="center"
                android:textColor="#000000" android:textSize="25sp" tools:text="Player 2" />

        </LinearLayout>

    <LinearLayout
        android:layout_width="wrap_content" android:layout_height="30sp"
        android:layout_gravity="center" android:layout_marginBottom="40dp"
        android:orientation="horizontal">

    <TextView
        android:id="@+id/score_player_1" android:layout_width="93dp"
        android:layout_height="50dp" android:layout_gravity="center"
        android:gravity="center" android:padding="10dp"
```

```

        android:text="@string/score_player_1" android:textAlignment="center"
        android:textColor="#000000" android:textSize="25sp" />

<TextView
    android:id="@+id/score_player_2" android:layout_width="94dp"
    android:layout_height="50dp" android:layout_gravity="center"
    android:gravity="center"
    android:padding="10dp" android:text="@string/score_player_2"
    android:textAlignment="center" android:textColor="#000000"
    android:textSize="25sp"/>

    </LinearLayout>
<LinearLayout
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_gravity="center" android:orientation="horizontal">

    <ImageView
        android:id="@+id/ivVar1" android:layout_width="140dp"
        android:layout_height="140dp" android:contentDescription="@string/Dice_Face"
        android:padding="10dp" android:src="@drawable/dice6" />

    <ImageView
        android:id="@+id/ivVar2" android:layout_width="140dp"
        android:layout_height="140dp" android:contentDescription="@string/Dice_Face"
        android:padding="10dp" android:src="@drawable/dice6" />

</LinearLayout>

<Button
    android:id="@+id/custom_button" android:layout_width="126dp"
    android:layout_height="119dp" android:layout_gravity="center"
    android:layout_marginTop="60dp" android:background="@drawable/btn_bg"
    android:gravity="center" android:padding="12dp"
    android:text="@string/Button_Heading" android:textAlignment="center"
    android:textColor="#ffffff" android:textSize="30sp" />

    </LinearLayout>

</RelativeLayout>

```

## Res/strings.xml

```

<resources>
    <string name="app_name">Lab-2 Dice Game</string>
    <string name="Player_1">Player 1</string>
    <string name="Player_2">Player 2</string>
    <string name="App_Heading">Dice Game</string>
    <string name="Button_Heading">Roll</string>
    <string name="Dice_Face">" "</string>
    <string name="score_player_1">0</string>
    <string name="score_player_2">0</string>
    <string name="game_status">Start Game</string>
</resources>

```

### Res/drawable/btn\_bg.xml

```
<?xml version="1.0" encoding="utf-8"?>
<selector xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:state_pressed="true" android:drawable="@drawable/button_pressed"/>
    <item
        android:state_pressed="false"
        android:drawable="@drawable/button_default"/>
</selector>
```

### Res/drawable/background.xml

```
<?xml version="1.0" encoding="utf-8"?>
<selector xmlns:android="http://schemas.android.com/apk/res/android">
    <item>
        <shape>
            <gradient
                android:angle="90" android:startColor="#0E5158"
                android:endColor="#0F9E58" android:type="linear"/>
        </shape>
    </item>
</selector>
```

### Res/anim/shake.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate
        android:fromDegrees="0" android:toDegrees="720" android:pivotX="50%"
        android:pivotY="50%" android:duration="500"/>

    <translate
        android:duration="70" android:fromXDelta="-10"
        android:interpolator="@android:anim/linear_interpolator"
        android:repeatCount="5"
        android:repeatMode="reverse" android:toXDelta="10" />
</set>
```

### MainActivity.java

```
package com.example.lab_2dicegame;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.view.animation.Animation; import
android.view.animation.AnimationUtils; import android.widget.Button;
import android.widget.ImageView; import android.widget.TextView; import
```

```

android.widget.Toast;

import java.util.Random;

public class MainActivity extends AppCompatActivity {

    public static final Random RANDOM = new Random();
    public static Button rollDices;
    public static ImageView imageView1, imageView2; public static TextView
textView, score1, score2; public int sum1 = 0, num1 = 0, v1 = 0;
    public int sum2 = 0, num2 = 0, v2 = 0;
    public int[] sum;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);
        rollDices = (Button) findViewById(R.id.custom_button); imageView1 =
(ImageView) findViewById(R.id.ivVar1); imageView2 = (ImageView)
findViewById(R.id.ivVar2);
// array to store dice images
final int dice[] = {R.drawable.dice1, R.drawable.dice2, R.drawable.dice3,
R.drawable.dice4, R.drawable.dice5, R.drawable.dice6};

        textView = findViewById(R.id.tvVar1); score1 =
findViewById(R.id.score_player_1); score2 = findViewById(R.id.score_player_2);
// calling the on click function rollDices.setOnClickListener(new
View.OnClickListener() {
@Override

public void onClick(View view) {
final Animation anim1 = AnimationUtils.loadAnimation(MainActivity.this,

        R.anim.shake); R.anim.shake);

final Animation anim2 = AnimationUtils.loadAnimation(MainActivity.this,

final Animation.AnimationListener animationListener = new

        Animation.AnimationListener() {
@Override
public void onAnimationStart(Animation animation) {

        }

@Override
public void onAnimationEnd(Animation animation) {

        }

@Override
public void onAnimationRepeat(Animation animation) {
    if (animation == anim1) {
        v1 = randomDiceValue();

        imageView1.setImageResource(getResources().getIdentifier("dice" + v1,
"drawable", "com.ssaurel.dicer"));
    } else if (animation == anim2) {

```

```

        v2 = randomDiceValue();

        imageView2.setImageResource(getResources().getIdentifier("dice" + v2,
"drawable", "com.ssaurel.dicer"));
    }
}
};

    anim1.setAnimationListener(animationListener);
anim2.setAnimationListener(animationListener);

// generate two random numbers
// using Random function to display on dice

    Random random = new Random(); num1 = random.nextInt(6); Random random1 =
new Random(); num2 = random.nextInt(6);
sum1 = sum1 + num1 + 1;
    sum2 = sum2 + num2 + 1;
    String sum1s = String.valueOf(sum1); String sum2s = String.valueOf(sum2);
if (sum1 >= 25 && sum2 < 25) {
    textView.setText("WINNER : Player 1"); score1.setText(sum1s);
score2.setText(sum2s);
    sum1 = 10000009;
    sum2 = 10000009;
    Toast.makeText(MainActivity.this, "WINNER : Player 1",
Toast.LENGTH_SHORT).show();
    return;
} else if (sum1 < 25 && sum2 >= 25) { textView.setText("WINNER : Player
2"); score1.setText(sum1s); score2.setText(sum2s);
    sum1 = 10000009;
    sum2 = 10000009;
    Toast.makeText(MainActivity.this, "WINNER : Player 2",
Toast.LENGTH_SHORT).show();
    return;
}
    else if(sum1 == 25 && sum2 == 25){ textView.setText("DRAW");
score1.setText(sum1s); score2.setText(sum2s);
    Toast.makeText(MainActivity.this, "DRAW", Toast.LENGTH_SHORT).show();
    return;
}
    else if(sum1 > 25 || sum2 > 25){
    return;
}
    else {
        textView.setText("Keep Playing"); score1.setText(sum1s);
score2.setText(sum2s);

        imageView1.startAnimation(anim1); imageView2.startAnimation(anim2);
Toast.makeText(MainActivity.this, "Keep Playing",
    Toast.LENGTH_SHORT).show();
    }

    imageView1.setImageResource(dice[num1]);
imageView2.setImageResource(dice[num2]);
// set the images from the array by the index
// position of the numbers generated
    }
});

```

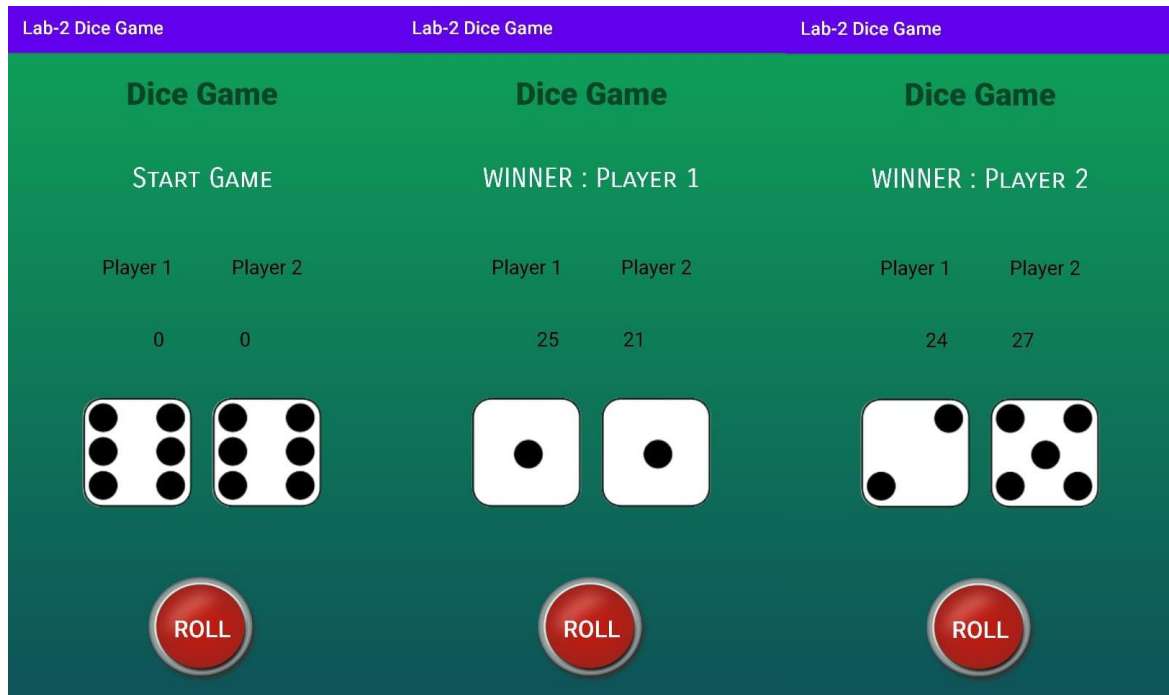
```

    }

    public static int randomDiceValue() { Random random = new Random();
    return random.nextInt(6);
    }
}

```

## Screenshot:



## Outcome:

- Dice roll game has been successfully built using ImageView, TextView, ButtonView
- All specifications are successfully executed
- I learnt AVD manager functionality, delay functionality in java using threads and learnt how to implement different options in palette.