

# MOBILE APPLICATION DEVELOPMENT



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**SECTION: BSCS(7A)**

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## Question:

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Q1: Color Guessing Game:

This is a simple assignment that is aimed at teaching kids the colors in an interactive manner. It will show colors in the form of shapes and drawings to make it interactive learning. First, it will show the colors and their names. After that, it will ask kids what color is shown. If they answer correctly, it will play sounds of claps making kids happy. To build this application you would need to make use of Android Studio as a platform for app development. Also, you need to write the code using Java programming and for the interactive user interface, you can use XML.

Note: The users would be mainly the kids; thus, this application will be built as simple and interactive as it can.

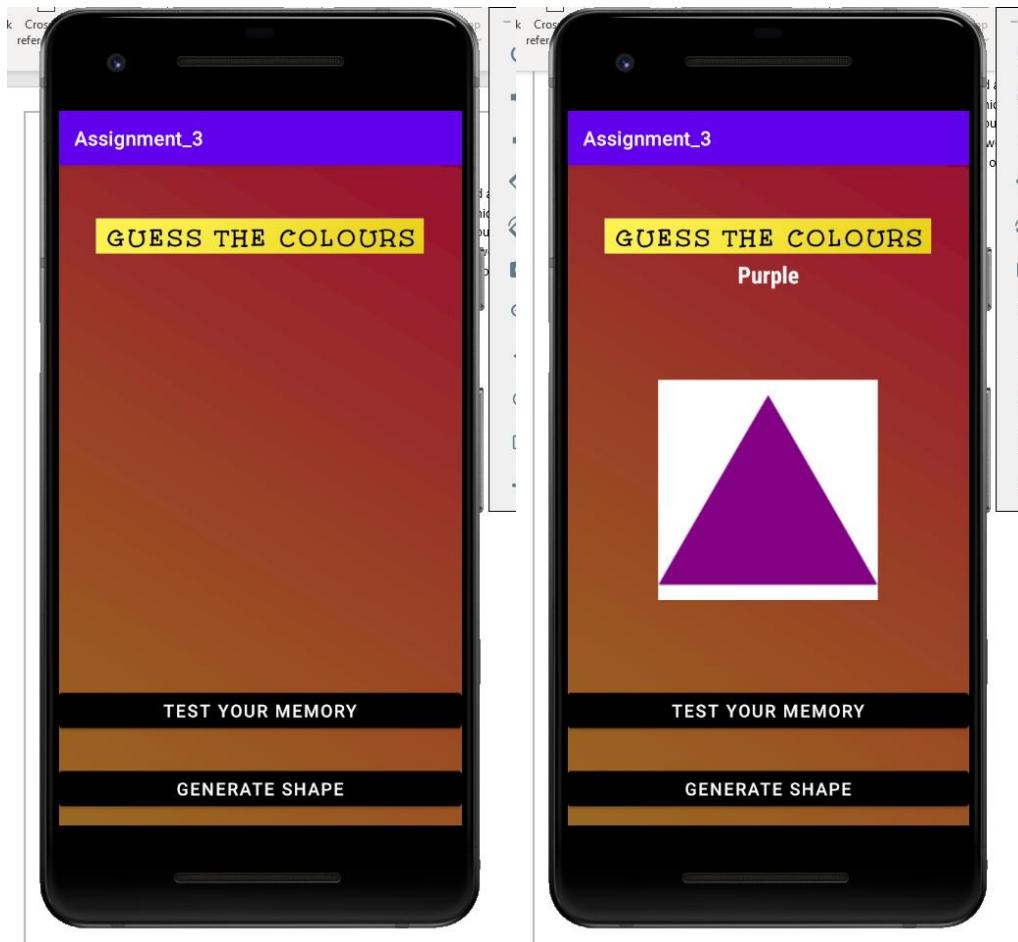
## Solution:

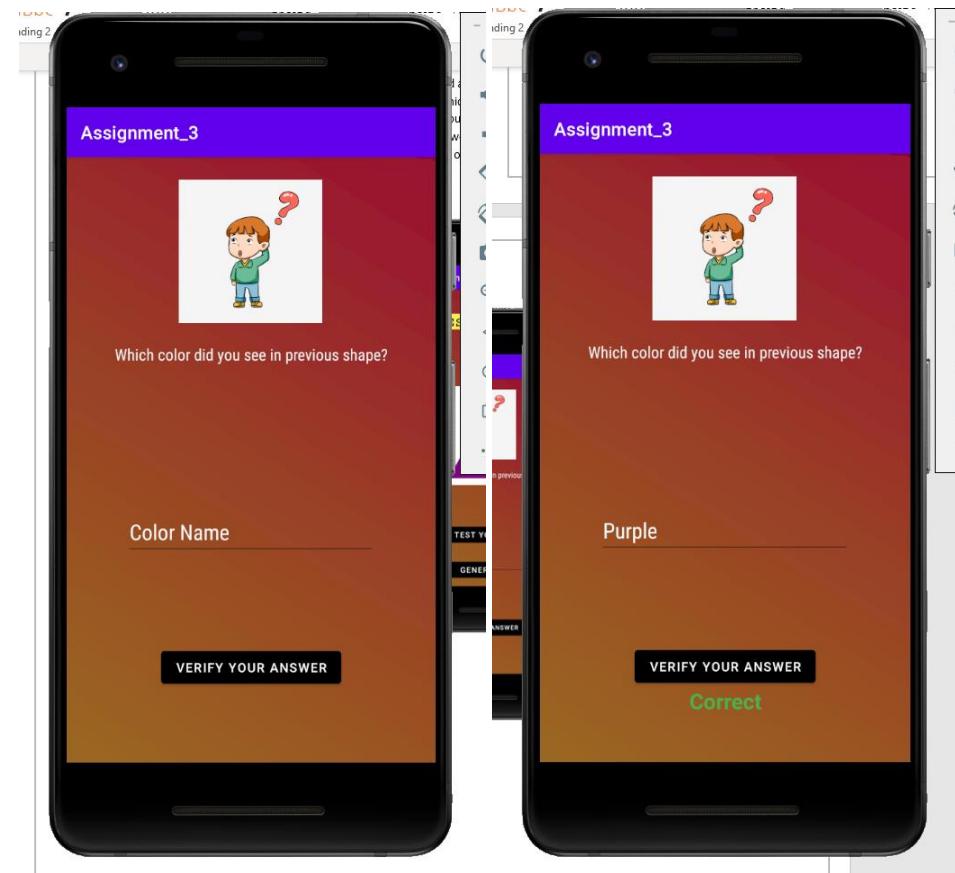
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This application is only for kids. In this application, kids can guess the color of the shapes. This application consists of two activities. In first activity, there is one imageview that contains the image of the shape, one textview which display the

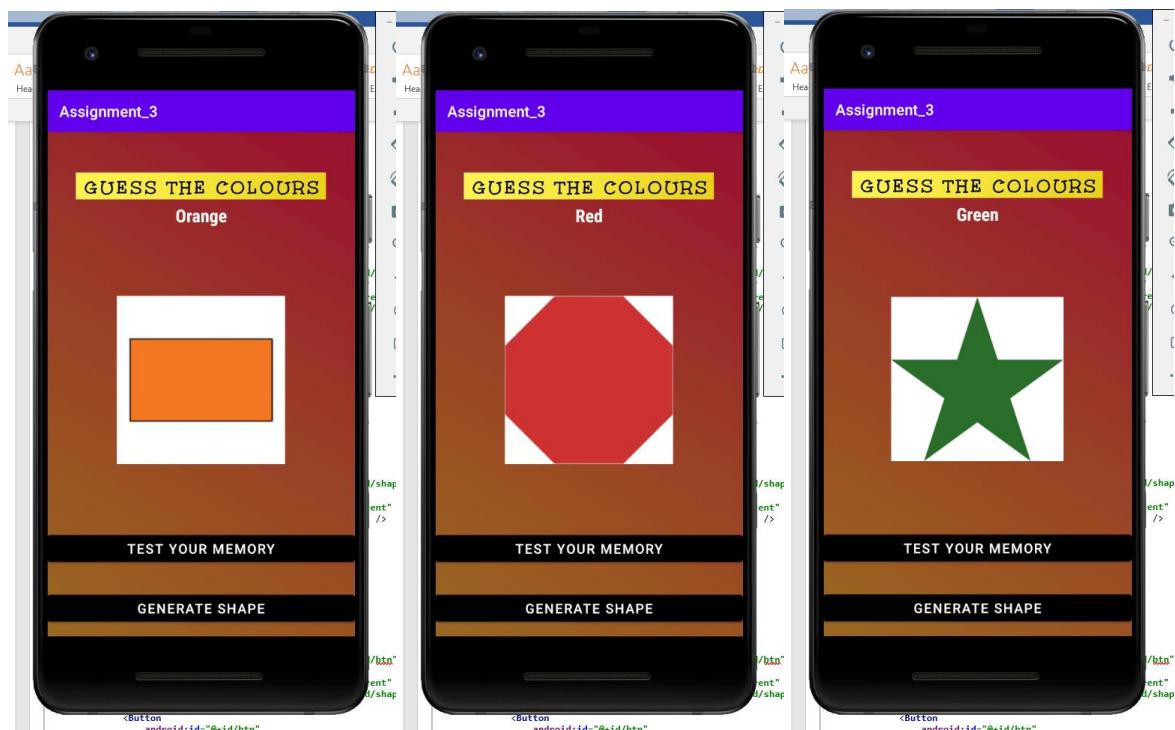
color of that shape. This activity consists of two buttons, one is for generate a random shape. When kid presses the second button which is labeled as “Test Your Memory” it will move to the second activity. The second activity consist of one imageview which is used for making our application interactive, and there is also one question that is “which color did you see in previous or shown shape?”. In second activity there is one edittextview , this view submits your answer. When you press the verify button it will verify that your answered color is matched with the shape color or not. If matches then clap sound effect will be played, and in textView “Correct” will be displayed.

- MediaPlayer class is used to control playback audio.





## Generation of shapes:



## Code for random shape generation:

```
53  Shape Circle = new Shape(R.drawable.circle, name: "Yellow");
54  Shape Octagon = new Shape(R.drawable.octagon, name: "Red");
55  Shape Oval = new Shape(R.drawable.oval, name: "Pink");
56  Shape Rectangle = new Shape(R.drawable.rectangle, name: "Orange");
57  Shape Square = new Shape(R.drawable.square, name: "Blue");
58  Shape Star = new Shape(R.drawable.star, name: "Green");
59  Shape Triangle = new Shape(R.drawable.triangle, name: "Purple");

60
61  Shape [] array = new Shape[]{
62      Circle, Octagon, Oval, Rectangle, Square, Star, Triangle
63  };
64
65  public void shuffle_shape() { Collections.shuffle(Arrays.asList(array)); }
66
67  public void showRandomShape(){
68      shuffle_shape();
69      img.setImageResource(array[0].getImage());
70      txt.setText(array[0].getName());
71  }
72
73  }
74 }
```

```
shape.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) { showRandomShape(); }
});
```

## Activity.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"
    android:background="@drawable/gradient"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/shape"
        android:layout_width="300dp"
        android:layout_height="300dp"
        android:layout_centerInParent="true"
        android:layout_marginStart="55dp"
```

```
    android:layout_marginTop="27dp"
    android:layout_marginEnd="56dp"
    android:layout_marginBottom="26dp"
    android:contentDescription="@string/todo"
    android:scaleType="centerInside"
    app:layout_constraintBottom_toTopOf="@+id/btn1"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/colorname" />

<TextView
    android:id="@+id/colorname"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_centerInParent="true"
    android:layout_marginTop="138dp"
    android:layout_marginBottom="27dp"
    android:fontFamily="sans-serif-condensed"
    android:textAlignment="center"
    android:textColor="#FDFAFA"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/shape"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<Button
    android:id="@+id/btn1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_marginTop="26dp"
    android:layout_marginBottom="21dp"
    android:backgroundTint="@color/black"
    android:text="@string/Test_your_memory"
    android:textSize="18sp"
    app:layout_constraintBottom_toTopOf="@+id/btn"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/shape" />

<Button
    android:id="@+id/btn"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="11dp"
    android:layout_marginBottom="56dp"
    android:backgroundTint="@color/black"
    android:text="@string/generate_shape"
    android:textSize="18sp"
    app:layout_constraintBottom_toBottomOf="parent"
```

[Document title]

```
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id	btn1" />

<ImageView
    android:id="@+id/imageView2"
    android:layout_width="335dp"
    android:layout_height="87dp"
    android:layout_marginStart="38dp"
    android:layout_marginTop="29dp"
    android:layout_marginEnd="38dp"
    android:layout_marginBottom="22dp"
    app:layout_constraintBottom_toTopOf="@+id/colorname"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.0"
    app:srcCompat="@drawable/label"
    android:contentDescription="@string/guess" />

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

## Second activity 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"
    android:background="@drawable/gradient"
    tools:context=".Assignment3_2">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="53dp"
        android:layout_marginTop="208dp"
        android:layout_marginEnd="53dp"
        android:layout_marginBottom="80dp"
        android:fontFamily="sans-serif-condensed"
        android:text="@string/which_color_did_you_see_in_previous_shape"
        android:textAlignment="center"
        android:textColor="#FAFAFA"
        android:textSize="18sp"
        app:layout_constraintBottom_toTopOf="@+id/ans"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="1.0"
```

```
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<EditText
    android:id="@+id/ans"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="100dp"
    android:layout_marginTop="80dp"
    android:layout_marginEnd="101dp"
    android:layout_marginBottom="99dp"
    android:autofillHints=""
    android:ems="10"
    android:fontFamily="sans-serif-condensed"
    android:hint="@string/color_name"
    android:inputType="text"
    android:textColor="#FFFFFF"
    android:textColorHint="#FDFDFD"
    android:textSize="24sp"
    app:layout_constraintBottom_toTopOf="@+id/textView2"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView" />

<Button
    android:id="@+id/verify"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="159dp"
    android:layout_marginTop="220dp"
    android:layout_marginEnd="159dp"
    android:layout_marginBottom="202dp"
    android:backgroundTint="@color/black"
    android:text="@string/verify_your_answer"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/ans" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="192dp"
    android:layout_height="29dp"
    android:layout_marginStart="190dp"
    android:layout_marginTop="129dp"
    android:layout_marginEnd="190dp"
    android:layout_marginBottom="72dp"
    android:textAlignment="textStart"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/verify"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/ans" />
```

[Document title]

```
<TextView  
    android:id="@+id/textView3"  
    android:layout_width="192dp"  
    android:layout_height="29dp"  
    android:layout_marginStart="110dp"  
    android:layout_marginTop="58dp"  
    android:layout_marginEnd="109dp"  
    android:layout_marginBottom="115dp"  
    android:textAlignment="center"  
    android:textColor="#4CAF50"  
    android:textSize="24sp"  
    android:textStyle="bold"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/verify" />  
  
<ImageView  
    android:id="@+id/imageView3"  
    android:layout_width="160dp"  
    android:layout_height="178dp"  
    android:layout_marginStart="125dp"  
    android:layout_marginTop="16dp"  
    android:layout_marginEnd="126dp"  
    android:layout_marginBottom="14dp"  
    app:layout_constraintBottom_toTopOf="@+id/textView"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:srcCompat="@drawable/question"  
    android:contentDescription="@string/think" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>
```

## Java Code (First Activity):

---

```
package com.example.assignment_3;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.TextView;  
  
import java.util.Arrays;  
import java.util.Collection;  
import java.util.Collections;  
import java.util.Random;  
  
public class MainActivity extends AppCompatActivity {
```

```
private ImageView img;
private Button shape;
private TextView txt;
private Button next;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    img = (ImageView)findViewById(R.id.shape);
    shape = (Button)findViewById(R.id.btn);
    next = (Button)findViewById(R.id.btn1);
    txt = (TextView)findViewById(R.id.colorname);

    shape.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            showRandomShape();
        }
    });

    next.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String str = txt.getText().toString();
            Intent i = new Intent(getApplicationContext(),Assignment3_2.class);
            i.putExtra("Key",str);
            startActivity(i);
        }
    });
}

Shape Circle = new Shape(R.drawable.circle,"Yellow");
Shape Octagon = new Shape(R.drawable.octagon,"Red");
Shape Oval = new Shape(R.drawable.ovl,"Pink");
Shape Rectangle = new Shape(R.drawable.rectangle,"Orange");
Shape Square = new Shape(R.drawable.square,"Blue");
Shape Star = new Shape(R.drawable.star,"Green");
Shape Triangle = new Shape(R.drawable.triangle,"Purple");

Shape [] array = new Shape[]{
    Circle, Octagon, Oval, Rectangle, Square, Star, Triangle
};

public void shuffle_shape(){
    Collections.shuffle(Arrays.asList(array));
}

public void showRandomShape(){
    shuffle_shape();
    img.setImageResource(array[0].getImage());
    txt.setText(array[0].getName());
}
```

```
    }  
}
```

## Java Code (Second Activity):

---

```
package com.example.assignment_3;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.graphics.Color;  
import android.media.AudioManager;  
import android.media.MediaPlayer;  
import android.media.SoundPool;  
import android.os.Bundle;  
import android.os.TestLooperManager;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
  
import org.w3c.dom.Text;  
  
public class Assignment3_2 extends AppCompatActivity {  
  
    private EditText jawab;  
    private Button tasdeeq;  
    private TextView txt1,txt2;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_assignment3_2);  
        jawab = (EditText)findViewById(R.id.ans);  
        tasdeeq = (Button)findViewById(R.id.verify);  
        final MediaPlayer Mp = MediaPlayer.create(this,R.raw.applause);  
  
        txt1 = (TextView)findViewById(R.id.textView2);  
        txt2 = (TextView)findViewById(R.id.textView3);  
        Intent intent = getIntent();  
        String str = intent.getStringExtra("Key");  
  
        tasdeeq.setOnClickListener(new View.OnClickListener() {  
            @Override  
            public void onClick(View v) {  
                String answer = jawab.getText().toString();  
                if(answer.equals(str))  
                {  
                    Mp.start();  
                    txt2.setText("Correct");  
                }  
                else{  
                    txt2.setText("Wrong");  
                }  
            }  
        });  
    }  
}
```

[Document title]

```
        }

    });

}

}
```

## Shape Class:

```
package com.example.assignment_3;

public class Shape {
    private int pic;
    private String name;

    public Shape(int pic, String name){
        this.pic=pic;
        this.name=name;
    }
    public int getImage(){
        return pic;
    }
    public String getName(){
        return name;
    }
}
```

## Manifest:

