Project-7: Palindrome Check:

Xml code:

```
<?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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#BBF4ED"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="164dp"
        android:text="Enter First number or String:"
        android:textSize="25dp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.494"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/firsttext"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="40dp"
        android:ems="10"
        android:inputType="text"
        android:text=""
        android:textSize="25dp"
        android:textColor="#5907B6"
        app:layout_constraintEnd_toEndOf="@+id/textView"
        app:layout_constraintHorizontal_bias="0.526"
        app:layout_constraintStart_toStartOf="@+id/textView"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="80dp"
        android:text="Enter Second number or String:"
```

```
        android:textSize="25dp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="@+id/firsttext"
        app:layout_constraintHorizontal_bias="0.509"
        app:layout_constraintStart_toStartOf="@+id/firsttext"
        app:layout_constraintTop_toBottomOf="@+id/firsttext" />

    <EditText
        android:id="@+id/secondtext"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="36dp"
        android:ems="10"
        android:inputType="text"
        android:text=""
        android:textSize="25dp"
        android:textColor="#5907B6"
        app:layout_constraintEnd_toEndOf="@+id/textView2"
        app:layout_constraintHorizontal_bias="0.509"
        app:layout_constraintStart_toStartOf="@+id/textView2"
        app:layout_constraintTop_toBottomOf="@+id/textView2" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="56dp"
        android:text="Check Palindrome"
        android:textSize="27dp"
        android:onClick="check_palindrome"
        app:layout_constraintEnd_toEndOf="@+id/secondtext"
        app:layout_constraintHorizontal_bias="0.495"
        app:layout_constraintStart_toStartOf="@+id/secondtext"
        app:layout_constraintTop_toBottomOf="@+id/secondtext" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
package com.example.palindrome_check;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
public class MainActivity extends AppCompatActivity {
```

```
@Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
    }
    public void check_palindrome(View view) {
        EditText text1, text2;
        // Get references to the EditText views
        text1 = findViewById(R.id.firsttext);
        text2 = findViewById(R.id.secondtext);
        // Get input strings from the EditText views
        String first = text1.getText().toString().trim();
        String second = text2.getText().toString().trim();
        String first_palindrome = "";
        String second_palindrome = "";
        // Reverse the first string
        for (int i = first.length() - 1; i >= 0; i--) {
            first_palindrome += first.charAt(i);
        }
        // Reverse the second string
        for (int i = second.length() - 1; i >= 0; i--) {
            second_palindrome += second.charAt(i);
        }
        // Check if the first string is a palindrome
        if (first.equalsIgnoreCase(first_palindrome)) {
            text1.setText(first + " is a palindrome");
        } else {
            text1.setText(first + " is not a palindrome");
        }
        // Check if the second string is a palindrome
        if (second.equalsIgnoreCase(second_palindrome)) {
            text2.setText(second + " is a palindrome");
        } else {
            text2.setText(second + " is not a palindrome");
        }
    }
}
```

project-8: Prime Check:

Xml code:

```
<?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:id="@+id/main"
    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:layout_marginTop="108dp"
        android:text="Enter First number:"
        android:textSize="25dp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/firsttext"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:ems="10"
        android:inputType="text"
        android:text=""
        android:textColor="#5907B6"
        android:textSize="25dp"
        app:layout_constraintEnd_toEndOf="@+id/textView"
        app:layout_constraintHorizontal_bias="0.493"
        app:layout_constraintStart_toStartOf="@+id/textView"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="60dp"
        android:text="Enter Second number:"
        android:textSize="25dp"
```

```
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="@+id/firsttext"
    app:layout_constraintHorizontal_bias="0.534"
    app:layout_constraintStart_toStartOf="@+id/firsttext"
    app:layout_constraintTop_toBottomOf="@+id/firsttext" />

  <EditText
    android:id="@+id/secondtext"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:ems="10"
    android:inputType="text"
    android:text=""
    android:textColor="#5907B6"
    android:textSize="25dp"
    app:layout_constraintEnd_toEndOf="@+id/textView2"
    app:layout_constraintHorizontal_bias="0.488"
    app:layout_constraintStart_toStartOf="@+id/textView2"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />

  <Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="24dp"
    android:onClick="check_prime"
    android:text="Check Prime"
    android:textSize="27dp"
    app:layout_constraintEnd_toEndOf="@+id/secondtext"
    app:layout_constraintHorizontal_bias="0.454"
    app:layout_constraintStart_toStartOf="@+id/secondtext"
    app:layout_constraintTop_toBottomOf="@+id/secondtext" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
package com.example.prime_check;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
  }
```

```
    public void check_prime(View view) {
        EditText firstText = findViewById(R.id.firsttext);
        EditText secondText = findViewById(R.id.secondtext);
        // Get inputs from EditText
        String firstInput = firstText.getText().toString().trim();
        String secondInput = secondText.getText().toString().trim();
        // Validate input
        if (firstInput.isEmpty() || secondInput.isEmpty()) {
            Toast.makeText(this, "Please enter both numbers", Toast.LENGTH_SHORT).show();
            return;
        }
        // Convert inputs to integers
        int firstNumber = Integer.parseInt(firstInput);
        int secondNumber = Integer.parseInt(secondInput);
        // Check if the numbers are prime and update EditText
        firstText.setText(firstNumber + (isPrime(firstNumber) ? " is a prime number" : " is not a prime
number"));
        secondText.setText(secondNumber + (isPrime(secondNumber) ? " is a prime number" : " is not a
prime number"));
    }
    // Check if a number is prime
    private boolean isPrime(int num) {
        if (num <= 1) return false; // Numbers less than or equal to 1 are not prime
        for (int i = 2; i <= num / 2; i++) {
            if (num % i == 0) return false; // Divisible by another number
        }
        return true; // It's a prime number
    }
}
```

Project-9: Toast and Intent:

Xml Code:

```
<?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:id="@+id/main"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:background="#3F49FA"
   tools:context=".MainActivity">


   <TextView
      android:id="@+id/textview"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:background="@drawable/textbutton"
      android:onClick="change_activity"
      android:text="Let's Start"
      android:textColor="@color/black"
      android:textSize="40sp"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintVertical_bias="0.499" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
package com.example.digit_sum;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      EdgeToEdge.enable(this);
```

```
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
    }
    public void change_activity(View view) {
        // Show a toast message before transitioning to the new activity.
        Toast.makeText(this, "WellCome into Digit Sum Activity", Toast.LENGTH_SHORT).show();
        Intent intent = new Intent(MainActivity.this, digitSumActivity.class);
        startActivity(intent);
    }
}
```

Project-10: Sum of All Digits:

Xml Code:

```
<?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:id="@+id/main"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:background="@color/white"
   tools:context=".digitSumActivity">

   <TextView
      android:id="@+id/textView"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginTop="200dp"
      android:text="Enter a number:"
      android:textColor="@color/black"
      android:textSize="30sp"
      android:textStyle="bold"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintHorizontal_bias="0.497"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />

   <EditText
      android:id="@+id/input"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginTop="16dp"
      android:ems="10"
      android:inputType="text"
      android:text=""
      android:textColor="@color/black"
      android:textSize="25sp"
      app:layout_constraintEnd_toEndOf="@+id/textView"
      app:layout_constraintHorizontal_bias="0.506"
      app:layout_constraintStart_toStartOf="@+id/textView"
      app:layout_constraintTop_toBottomOf="@+id/textView" />

   <EditText
      android:id="@+id/output"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginTop="76dp"
```

```
        android:ems="10"
        android:inputType="text"
        android:text=""
        android:textSize="25sp"
        android:visibility="invisible"
        app:layout_constraintEnd_toEndOf="@+id/input"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="@+id/input"
        app:layout_constraintTop_toBottomOf="@+id/input" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="48dp"
        android:textSize="30sp"
        android:text="Add all Digits"
        app:layout_constraintEnd_toEndOf="@+id/output"
        app:layout_constraintStart_toStartOf="@+id/output"
        app:layout_constraintTop_toBottomOf="@+id/output" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
package com.example.digit_sum;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class digitSumActivity extends AppCompatActivity {

    private EditText input;
    private EditText output;
    private Button button;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_digit_sum);
        // Initialize the views
        input = findViewById(R.id.input);
        output = findViewById(R.id.output);
        button = findViewById(R.id.button);
        // Set onClickListener for the button
        button.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
        public void onClick(View v) {
            calculateDigitSum();
        }
    });
  }
  private void calculateDigitSum() {
    try {
        // Get the input number as a string
        String inputText = input.getText().toString().trim();
        // Check if the input is empty
        if (inputText.isEmpty()) {
            Toast.makeText(this, "Please enter a number", Toast.LENGTH_SHORT).show();
            return;
        }
        // Parse the input as an integer
        int number = Integer.parseInt(inputText);

        // Calculate the sum of digits
        int sum = 0;
        while (number != 0) {
            sum += number % 10;
            number /= 10;
        }
        // Display the result
        output.setText(String.valueOf(sum));
        output.setVisibility(View.VISIBLE);
    } catch (NumberFormatException e) {
        Toast.makeText(this, "Invalid input. Please enter a valid number.",
Toast.LENGTH_SHORT).show();
    }
  }
}
```

Project-6: Camera App:

Xml Code:

```
<?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:id="@+id/main"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">

   <ImageView
      android:id="@+id/photo"
      android:layout_width="366dp"
      android:layout_height="467dp"
      android:layout_marginStart="22dp"
      android:layout_marginTop="40dp"
      android:layout_marginEnd="23dp"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:srcCompat="@drawable/ic_launcher_background" />

   <Button
      android:id="@+id/button"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginTop="100dp"
      android:text="Click and Save"
      android:textSize="24sp"
      android:onClick="showMyCamera"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toBottomOf="@+id/photo"
      app:layout_constraintVertical_bias="0.013" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java Code:

```
package com.example.my_camera;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.graphics.Bitmap;
import android.media.MediaScannerConnection;
import android.net.Uri;
```

```
import android.os.Bundle;
import android.Manifest;
import android.os.Environment;
import android.provider.MediaStore;
import android.util.Log;
import android.view.View;
import android.widget.ImageView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;
import java.io.File;
import java.io.FileOutputStream;
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.Locale;
public class MainActivity extends AppCompatActivity {
   ImageView imageView;
   Bitmap bitmap;
   public static final int CAMERA_REQUEST = 9999;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      imageView = findViewById(R.id.photo);
      // Request Camera Permissions
      if (ContextCompat.checkSelfPermission(this, Manifest.permission.CAMERA) ==
PackageManager.PERMISSION_DENIED ||
            ContextCompat.checkSelfPermission(this,
Manifest.permission.WRITE_EXTERNAL_STORAGE) == PackageManager.PERMISSION_DENIED) {
         ActivityCompat.requestPermissions(MainActivity.this, new String[]{
               Manifest.permission.CAMERA, Manifest.permission.WRITE_EXTERNAL_STORAGE
         }, CAMERA_REQUEST);
      }
   }
   @Override
   protected void onActivityResult(int requestCode, int resultCode, Intent data) {
      super.onActivityResult(requestCode, resultCode, data);
      if (requestCode == CAMERA_REQUEST && resultCode == RESULT_OK) {
         if (data != null && data.getExtras() != null) {
            bitmap = (Bitmap) data.getExtras().get("data");
            imageView.setImageBitmap(bitmap);
            Toast.makeText(this, "Captured image successfully", Toast.LENGTH_SHORT).show();
            saveImageToGallery(bitmap);
         } else {
            Toast.makeText(this, "Failed to capture image", Toast.LENGTH_SHORT).show();
         }
      }
```

```
    }

    public void showMyCamera(View v) {
        Intent intent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);
        startActivityForResult(intent, CAMERA_REQUEST);
    }
    public void saveImageToGallery(Bitmap imageBitmap) {
        // Save image to external files directory
        File storageDir = getExternalFilesDir(Environment.DIRECTORY_PICTURES);
        String timeStamp = new SimpleDateFormat("yyyyMMdd_HHmmss",
Locale.getDefault()).format(new Date());
        String fileName = "MyImg_" + timeStamp + ".jpg";
        File imageFile = new File(storageDir, fileName);
        try {
            FileOutputStream outputStream = new FileOutputStream(imageFile);
            imageBitmap.compress(Bitmap.CompressFormat.JPEG, 100, outputStream);
            outputStream.flush();
            outputStream.close();
            // Notify Media Scanner
            MediaScannerConnection.scanFile(this, new String[]{imageFile.getAbsolutePath()}, null, null);
            Toast.makeText(this, "Image saved to gallery", Toast.LENGTH_LONG).show();
        } catch (Exception e) {
            Log.e("Image Save Error", e.getMessage());
            Toast.makeText(this, "Failed to save image", Toast.LENGTH_LONG).show();
        }
    }
}
```