	Pimpri Chinchwad Education Trust's **Pimpri Chinchwad College of Engineering**

Assignment-01

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Submission Date: 24 / 08 / 24

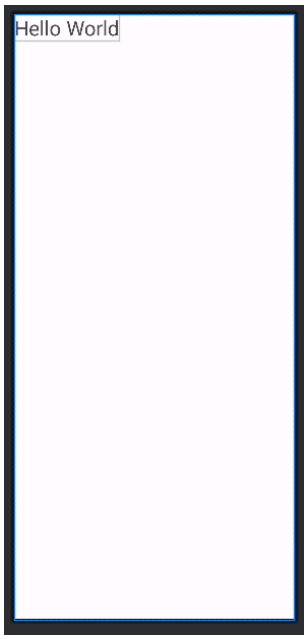
1. Write a program to print Hello World.

Solution:

```
package com.example.forpractice;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;


public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World"
        android:textSize="30sp" />
</RelativeLayout>
```

Output:



2. Write an android application that will accept two numbers from the users and will print the addition as output in TextView and Toast.

Solution:

```
package com.example.forpractice;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
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);

        EditText number1EditText = findViewById(R.id.number1);
        EditText number2EditText = findViewById(R.id.number2);
        Button addButton = findViewById(R.id.addButton);
        TextView resultTextView = findViewById(R.id.resultTextView);

        addButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String num1Str = number1EditText.getText().toString();
                String num2Str = number2EditText.getText().toString();

                if (!num1Str.isEmpty() && !num2Str.isEmpty()) {
                    double num1 = Double.parseDouble(num1Str);
                    double num2 = Double.parseDouble(num2Str);
                    double sum = num1 + num2;

                    resultTextView.setText("Sum: " + sum);
```

```
                    Toast.makeText(MainActivity.this, "Sum: " + sum,
Toast.LENGTH_LONG).show();
                } else {
                    Toast.makeText(MainActivity.this, "Please enter both
numbers", Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <EditText
        android:id="@+id/number1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter first number"
        android:inputType="number" />

    <EditText
        android:id="@+id/number2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter second number"
        android:inputType="number"
        android:layout_below="@id/number1"
        android:layout_marginTop="16dp"/>

    <Button
        android:id="@+id/addButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Add"
        android:layout_below="@id/number2"
        android:layout_marginTop="16dp"
        android:layout_centerHorizontal="true"/>

    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:layout_below="@id/addButton"
        android:layout_marginTop="16dp"
        android:layout_centerHorizontal="true"/>

</RelativeLayout>
```

Output:

3. Write an android application that will demonstrate an Android Activity Life Cycle and print output in the logcat.

Solution:

```
package com.example.forpractice;

import android.os.Bundle;
import android.util.Log;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private static final String TAG = "Lifecycle";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d(TAG, "onCreate called");
    }

    @Override
    protected void onStart() {
        super.onStart();
        Log.d(TAG, "onStart called");
    }

    @Override
    protected void onResume() {
        super.onResume();
        Log.d(TAG, "onResume called");
    }

    @Override
    protected void onPause() {
        super.onPause();
```

```
        Log.d(TAG, "onPause called");
    }

    @Override
    protected void onStop() {
        super.onStop();
        Log.d(TAG, "onStop called");
    }

    @Override
    protected void onRestart() {
        super.onRestart();
        Log.d(TAG, "onRestart called");
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.d(TAG, "onDestroy called");
    }
}
```

Output:

```
2024-08-24 18:58:55.439  7177-7177  Lifecycle           com.example.forpractice  D  onCreate called
2024-08-24 18:58:55.525  7177-7177  Lifecycle           com.example.forpractice  D  onStart called
2024-08-24 18:58:55.530  7177-7177  Lifecycle           com.example.forpractice  D  onResume called
2024-08-24 19:00:30.643  7177-7177  Lifecycle           com.example.forpractice  D  onPause called
2024-08-24 19:00:31.797  7177-7177  Lifecycle           com.example.forpractice  D  onStop called
2024-08-24 19:00:31.842  7177-7177  Lifecycle           com.example.forpractice  D  onDestroy called
```

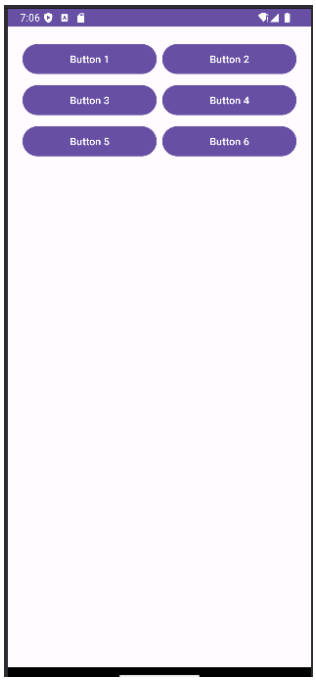
4. Write an android application that will display components in GridLayout.

Solution:

```
<?xml version="1.0" encoding="utf-8"?>
<GridLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:columnCount="2"
    android:rowCount="3"
    android:padding="16dp"
    android:alignmentMode="alignMargins"
    android:useDefaultMargins="true">

    <Button
        android:text="Button 1"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_columnWeight="1"
        android:layout_row="0"
        android:layout_column="0"/>

    <Button
        android:text="Button 2"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_columnWeight="1"
```

```
        android:layout_row="0"
        android:layout_column="1"/>

    <Button
        android:text="Button 3"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_columnWeight="1"
        android:layout_row="1"
        android:layout_column="0"/>

    <Button
        android:text="Button 4"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_columnWeight="1"
        android:layout_row="1"
        android:layout_column="1"/>

    <Button
        android:text="Button 5"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_columnWeight="1"
        android:layout_row="2"
        android:layout_column="0"/>

    <Button
        android:text="Button 6"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_columnWeight="1"
        android:layout_row="2"
        android:layout_column="1"/>

</GridLayout>
```

Output:



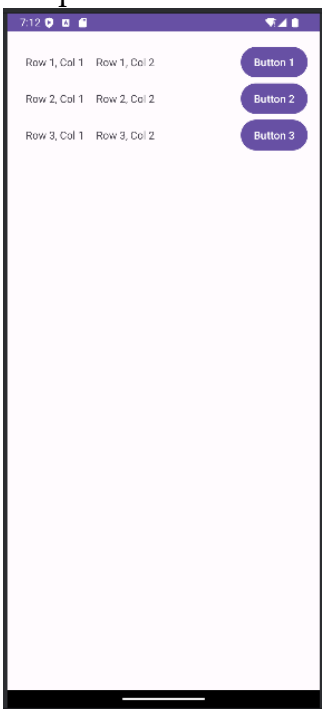
5. Write an android application that will display components in TableLayout.

Solution:

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp"
    android:stretchColumns="1">

    <TableRow>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Row 1, Col 1"
            android:padding="8dp"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Row 1, Col 2"
            android:padding="8dp"/>

        <Button
            android:id="@+id/button1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Button 1"
            android:padding="8dp"/>
    </TableRow>

    <TableRow>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Row 2, Col 1"
            android:padding="8dp"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Row 2, Col 2"
            android:padding="8dp"/>

        <Button
            android:id="@+id/button2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Button 2"
            android:padding="8dp"/>
    </TableRow>

    <TableRow>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Row 3, Col 1"
            android:padding="8dp"/>

        <TextView
            android:layout_width="wrap_content"
```

```
            android:layout_height="wrap_content"
            android:text="Row 3, Col 2"
            android:padding="8dp"/>

        <Button
            android:id="@+id/button3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Button 3"
            android:padding="8dp"/>
    </TableRow>

</TableLayout>
```

Output:



6. Write an android application which will change the background color of an activity on switching the state of the ToggleButton.

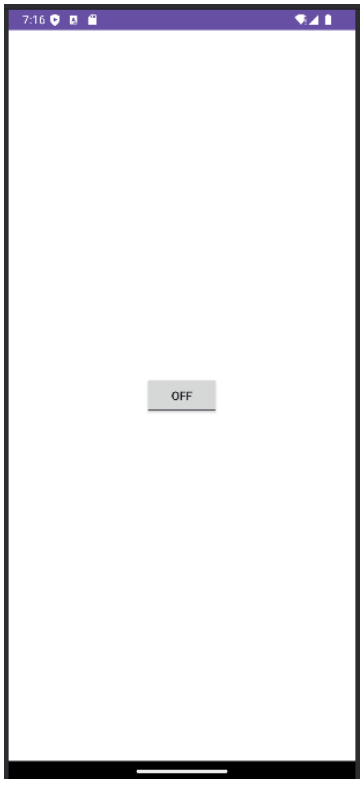
Solution:

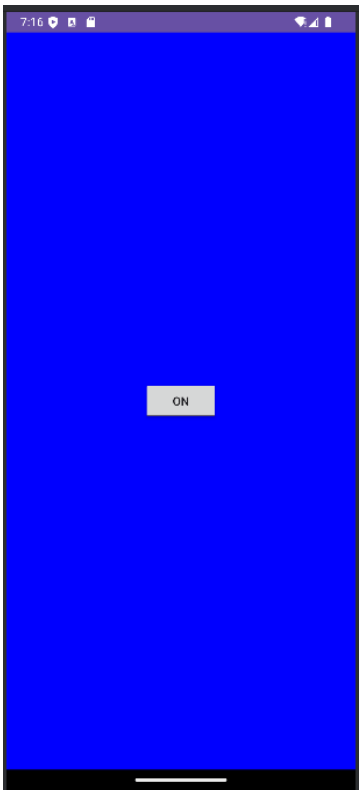
```
package com.example.forpractice;

import android.graphics.Color;
import android.os.Bundle;
import android.widget.RelativeLayout;
import android.widget.ToggleButton;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

```
        // Find the ToggleButton and RelativeLayout by their IDs
        ToggleButton toggleButton = findViewById(R.id.toggleButton);
        final RelativeLayout layout = findViewById(R.id.main_layout);  // Add
an id to RelativeLayout

        // Set an OnCheckedChangeListener on the ToggleButton
        toggleButton.setOnCheckedChangeListener((buttonView, isChecked) -> {
            if (isChecked) {
                // If ToggleButton is ON, change background color to Blue
                layout.setBackgroundColor(Color.BLUE);
            } else {
                // If ToggleButton is OFF, change background color to White
                layout.setBackgroundColor(Color.WHITE);
            }
        });
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/main_layout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textOff="OFF"
        android:textOn="ON"
        android:layout_centerInParent="true"/>

</RelativeLayout>
```

Output:





7. Write an android application which will display the menu with the price of the menu item. Once the final order is completed display the total bill amount to the user in Toast. Use CheckBox for creating the menu items.

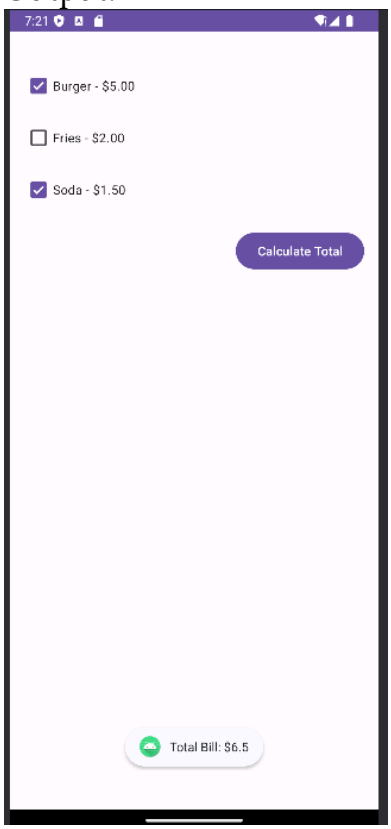
Solution:

```
package com.example.forpractice;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private final double BURGER_PRICE = 5.00;
    private final double FRIES_PRICE = 2.00;
    private final double SODA_PRICE = 1.50;

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

        // Find CheckBox and Button by their IDs
        CheckBox checkboxItem1 = findViewById(R.id.checkbox_item1);
        CheckBox checkboxItem2 = findViewById(R.id.checkbox_item2);
        CheckBox checkboxItem3 = findViewById(R.id.checkbox_item3);
        Button buttonCalculate = findViewById(R.id.button_calculate);

        // Set an OnClickListener on the Calculate Button
        buttonCalculate.setOnClickListener(v -> {
            double total = 0.0;

            // Check which CheckBoxes are selected and calculate total
            if (checkboxItem1.isChecked()) {
                total += BURGER_PRICE;
            }
            if (checkboxItem2.isChecked()) {
                total += FRIES_PRICE;
            }
            if (checkboxItem3.isChecked()) {
                total += SODA_PRICE;
            }

            // Display the total bill in a Toast
            Toast.makeText(MainActivity.this, "Total Bill: $" + total,
Toast.LENGTH_SHORT).show();
        });
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">
```

```
    <CheckBox
        android:id="@+id/checkbox_item1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Burger - $5.00"
        android:layout_alignParentStart="true"
        android:layout_marginTop="20dp"/>

    <CheckBox
        android:id="@+id/checkbox_item2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fries - $2.00"
        android:layout_below="@+id/checkbox_item1"
        android:layout_marginTop="10dp"/>

    <CheckBox
        android:id="@+id/checkbox_item3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Soda - $1.50"
        android:layout_below="@+id/checkbox_item2"
        android:layout_marginTop="10dp"/>

    <Button
        android:id="@+id/button_calculate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate Total"
        android:layout_below="@+id/checkbox_item3"
        android:layout_marginTop="20dp"
        android:layout_alignParentEnd="true"/>

</RelativeLayout>
```

Output:



8. Write an android application for rating a movie on the scale of 1 to 5. Display the result in TextView.

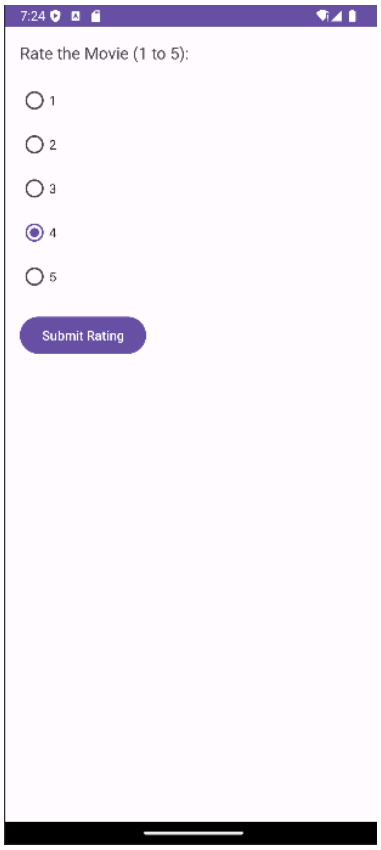
Solution:

```
package com.example.forpractice;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

        // Find the RadioGroup, Button, and TextView by their IDs
        RadioGroup radioGroupRating = findViewById(R.id.radioGroup_rating);
        Button buttonSubmit = findViewById(R.id.button_submit);
        TextView textViewResult = findViewById(R.id.textView_result);

        // Set an OnClickListener on the Submit Button
        buttonSubmit.setOnClickListener(v -> {
            // Get the selected RadioButton ID
            int selectedId = radioGroupRating.getCheckedRadioButtonId();

            // Find the RadioButton by ID
            RadioButton selectedRadioButton = findViewById(selectedId);

            // Get the text from the selected RadioButton
            String rating = selectedRadioButton != null ?
selectedRadioButton.getText().toString() : "No rating selected";

            // Display the selected rating in the TextView
            textViewResult.setText("You rated the movie: " + rating);
        });
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <TextView
        android:id="@+id/textView_rating"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Rate the Movie (1 to 5):"
        android:textSize="18sp"
        android:layout_marginBottom="16dp"/>

    <RadioGroup
        android:id="@+id/radioGroup_rating"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView_rating">

        <RadioButton
            android:id="@+id/radioButton1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="1"/>

        <RadioButton
            android:id="@+id/radioButton2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="2"/>

        <RadioButton
            android:id="@+id/radioButton3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="3"/>

        <RadioButton
            android:id="@+id/radioButton4"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="4"/>

        <RadioButton
            android:id="@+id/radioButton5"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="5"/>

    </RadioGroup>

    <Button
        android:id="@+id/button_submit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit Rating"
        android:layout_below="@+id/radioGroup_rating"
        android:layout_marginTop="16dp"/>

    <TextView
        android:id="@+id/textView_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=""
        android:textSize="18sp"
        android:layout_below="@+id/button_submit"
        android:layout_marginTop="16dp"/>
</RelativeLayout>
```

Output:



9. Write an android application using Spinner for selecting the Cricket Team Players from the given list. Display the name of the Cricketer in Toast.

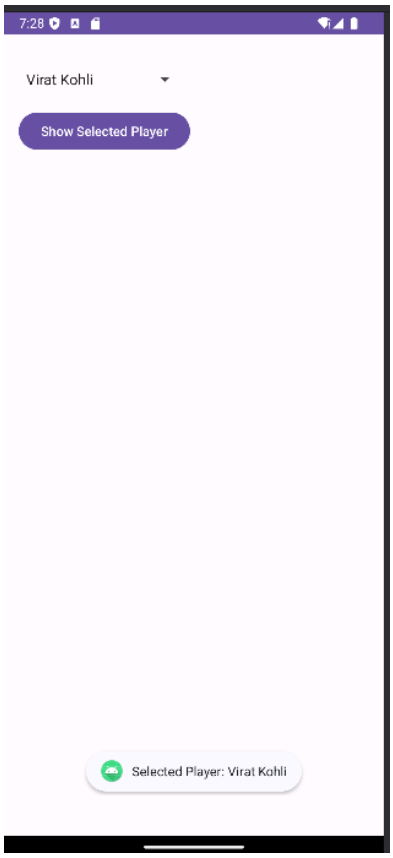
Solution:

```
package com.example.forpractice;

import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.Spinner;
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);

        // Find the Spinner and Button by their IDs
        Spinner spinnerPlayers = findViewById(R.id.spinner_players);
        Button buttonShow = findViewById(R.id.button_show);

        // Array of players
        String[] players = {"Virat Kohli", "Rohit Sharma", "Steve Smith", "Kane
Williamson", "Joe Root"};

        // Create an ArrayAdapter using the string array and a default spinner
```

```
layout
        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
                android.R.layout.simple_spinner_item, players);

        // Specify the layout to use when the list of choices appears

adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);

        // Apply the adapter to the spinner
        spinnerPlayers.setAdapter(adapter);

        // Set an OnClickListener on the Show Button
        buttonShow.setOnClickListener(v -> {
            // Get the selected item from the Spinner
            String selectedPlayer =
spinnerPlayers.getSelectedItem().toString();

            // Display the selected player in a Toast
            Toast.makeText(MainActivity.this, "Selected Player: " +
selectedPlayer, Toast.LENGTH_SHORT).show();
        });
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <Spinner
        android:id="@+id/spinner_players"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"/>

    <Button
        android:id="@+id/button_show"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Selected Player"
        android:layout_below="@+id/spinner_players"
        android:layout_marginTop="20dp"/>
</RelativeLayout>
```

Output:



10. Write an android application which will demonstrate the use of ImageButton.

Solution:

```
package com.example.forpractice;

import android.os.Bundle;
import android.view.View;
import android.widget.ImageButton;
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);

        // Find the ImageButton by its ID
        ImageButton imageButton = findViewById(R.id.imageButton);

        // Set an OnClickListener on the ImageButton
        imageButton.setOnClickListener(v -> {
            // Display a Toast message when the ImageButton is clicked
            Toast.makeText(MainActivity.this, "ImageButton clicked!",
Toast.LENGTH_SHORT).show();
        });
    }
}
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <ImageButton
        android:id="@+id/imageButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:src="@drawable/viratkohli"
    android:contentDescription="ImageButton"
    android:background="?attr/selectableItemBackgroundBorderless"
    android:layout_marginTop="20dp"/>

</RelativeLayout>
```

Output: