ATSS IICMR

Mobile App Development

Sem 3 : Lab Exercises

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Q1 Write an android code to create basic Calculator app.
#MainActivity.java

```
import androidx.appcompat.app.AppCompatActivity;

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


public class MainActivity extends AppCompatActivity {
    private EditText editTextNumber1;
    private EditText editTextNumber2;
    private TextView resultTextView;

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

        editTextNumber1 = findViewById(R.id.editTextNumber1);
        editTextNumber2 = findViewById(R.id.editTextNumber2);
        resultTextView = findViewById(R.id.resultTextView);

        /* GridLayout gridLayout = findViewById(R.id.LinearLayout); */

    }
    public void performOperation(View view) {
        Button button = (Button) view;
        String operator = button.getText().toString();

        double num1 =
Double.parseDouble(editTextNumber1.getText().toString());
        double num2 =
Double.parseDouble(editTextNumber2.getText().toString());

        double result = 0;

        switch (operator) {
            case "+":
                result = num1 + num2;
                break;
            case "-":
                result = num1 - num2;
                break;
```

```
            case "*":
                result = num1 * num2;
                break;
            case "/":
                if (num2 != 0) {
                    result = num1 / num2;
                } else {
                    resultTextView.setText("Error: Division by zero");
                    return;
                }
                break;
        }

        resultTextView.setText("Result: " + result);
    }

    public void calculateResult(View view) {
        double num1 =
Double.parseDouble(editTextNumber1.getText().toString());
        double num2 =
Double.parseDouble(editTextNumber2.getText().toString());

        // Display an error message if the second number is zero for division
        if (num2 == 0) {
            resultTextView.setText("Error: Division by zero");
            return;
        }

        double result = num1 / num2;
        resultTextView.setText("Result: " + result);
    }
}
```

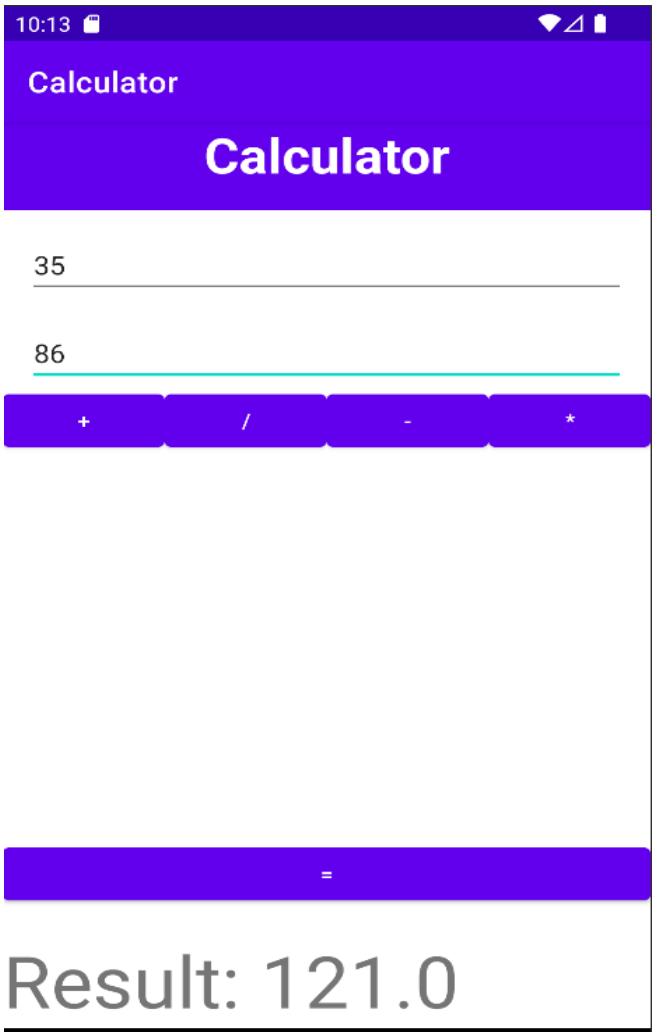
#Acticity_Main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical"
    tools:context=".MainActivity" >

    <TextView
        android:id="@+id/textView2"
        android:layout_width="match_parent"
```

```
        android:layout_height="61dp"
        android:autoText="false"
        android:background="#2196F3"
        android:backgroundTint="@color/purple_500"
        android:text="Calculator"
        android:textAlignment="center"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        android:textColor="@color/white"
        android:textStyle="bold" />

    <EditText
        android:id="@+id/editTextNumber1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:inputType="numberDecimal"
        android:hint="Enter number 1"
        android:layout_marginStart="16dp"
        android:layout_marginEnd="16dp"/>

    <EditText
        android:id="@+id/editTextNumber2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextNumber1"
        android:layout_marginTop="16dp"
        android:inputType="numberDecimal"
        android:hint="Enter number 2"
        android:layout_marginStart="16dp"
        android:layout_marginEnd="16dp"/>

    <!-- Buttons for operations -->
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:orientation="horizontal">

        <Button
            android:id="@+id/buttonAdd"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:onClick="performOperation"
            android:text="+" />

        <Button
            android:id="@+id/buttonDivide"
```

```
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:onClick="performOperation"
            android:text="/" />

        <Button
            android:id="@+id/buttonSubtract"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:onClick="performOperation"
            android:text="-" />

        <Button
            android:id="@+id/buttonMultiply"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:onClick="performOperation"
            android:text="*" />

    </LinearLayout>


    <Button
        android:id="@+id/buttonEquals"
        android:text="="
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:onClick="calculateResult"/>

    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:gravity="end"
        android:text="Result: "
        android:textAlignment="textStart"
        android:textSize="50sp"
        tools:ignore="RtlCompat" />

</LinearLayout>
```

Output:



Q2. Create a rating bar application, where user will rate a product. Display the rating using Toast.

#MainActivity.java

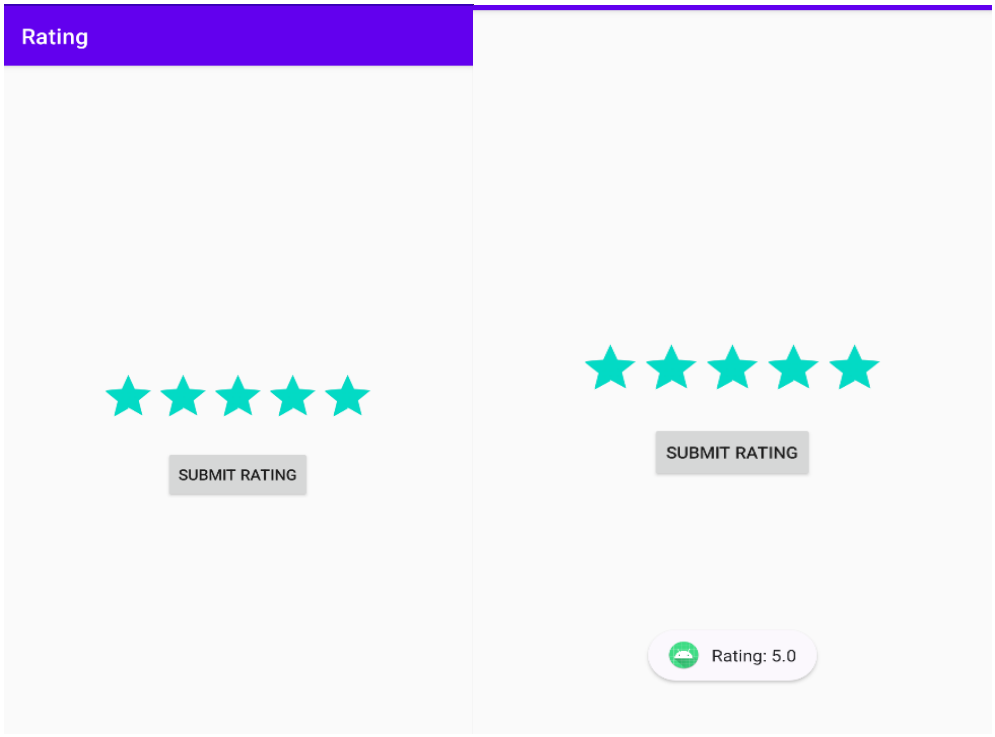
```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RatingBar;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private RatingBar ratingBar;
    private Button submitButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        ratingBar = findViewById(R.id.ratingBar);
        submitButton = findViewById(R.id.submitButton);

    }
    public void submitRating(View view) {
        float rating = ratingBar.getRating();
        String message = "Rating: " + rating;

        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

#Acticity_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"
    tools:context=".MainActivity">

    <RatingBar
        android:id="@+id/ratingBar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:numStars="5"
        android:stepSize="1.0" />
```

```
    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/ratingBar"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"
        android:text="Submit Rating"
        android:onClick="submitRating"/>
</RelativeLayout>

        android:layout_weight="1"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:onClick="performOperation"
            android:text="-" />

        <Button
            android:id="@+id/buttonMultiply"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:onClick="performOperation"
            android:text="*" />

    </LinearLayout>
```

Output:



Q3. Create an app to accept package delivery method from given radio button options Same day, Next day, Pickup. On Clicking of any of the radio button, display the selected option using Toast.

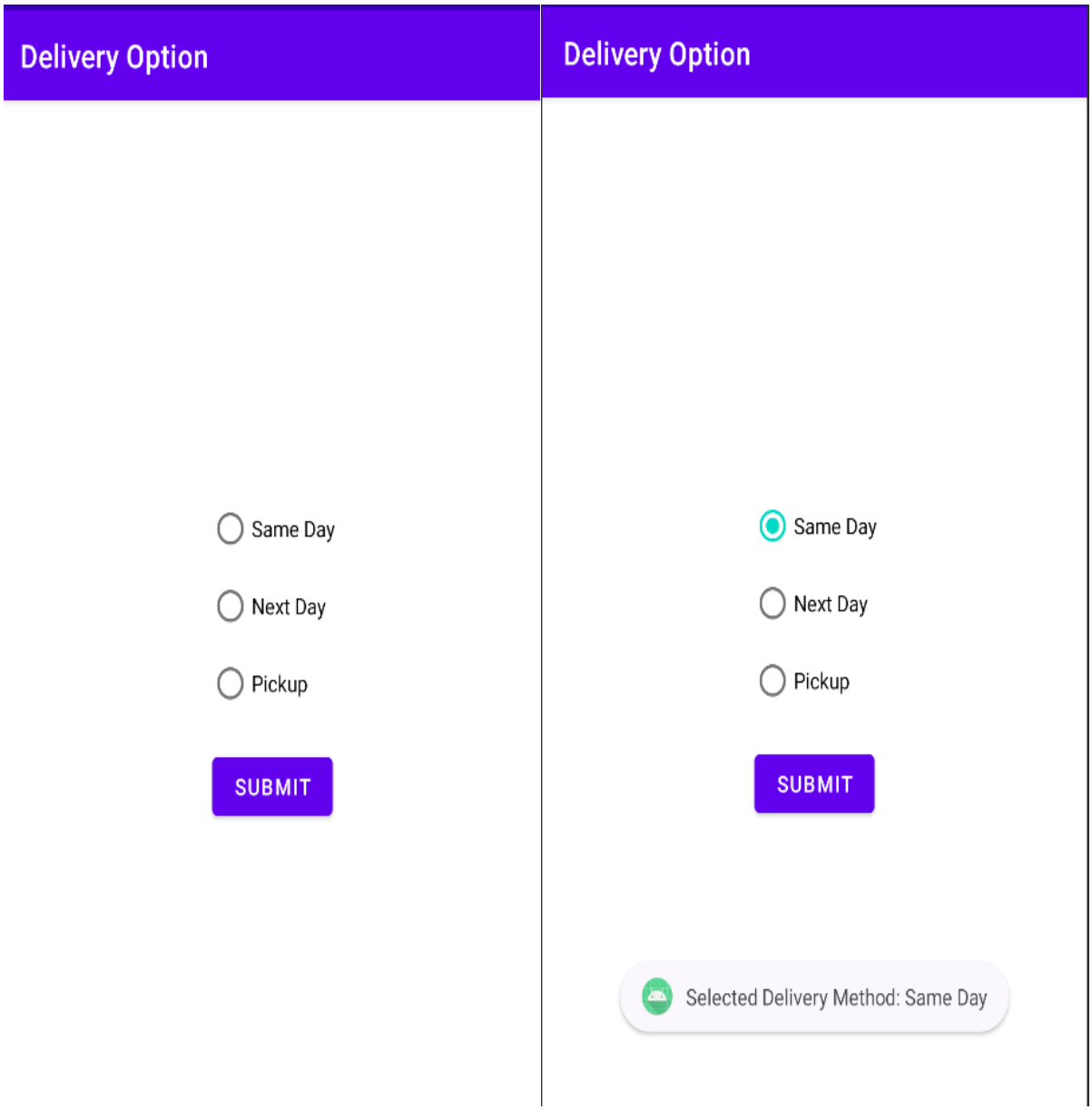
#MainActivity.java

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

public class MainActivity extends AppCompatActivity {

    private RadioGroup radioGroup;
    private Button submitButton;

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

        radioGroup = findViewById(R.id.radioGroup);
        submitButton = findViewById(R.id.submitButton);
    }
        public void submitDeliveryMethod(View view) {
            int selectedId = radioGroup.getCheckedRadioButtonId();

            if (selectedId != -1) {
                RadioButton selectedRadioButton = findViewById(selectedId);
                String selectedOption =
selectedRadioButton.getText().toString();
                String message = "Selected Delivery Method: " +
selectedOption;

                Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
            } else {
                Toast.makeText(this, "Please select a delivery method",
Toast.LENGTH_SHORT).show();
            }
    }
}
```

#Acticity_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"
    tools:context=".MainActivity">

    <RadioGroup
        android:id="@+id/radioGroup"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true">

        <RadioButton
            android:id="@+id/radioSameDay"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Same Day"/>

        <RadioButton
            android:id="@+id/radioNextDay"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Next Day"/>

        <RadioButton
            android:id="@+id/radioPickup"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Pickup"/>
    </RadioGroup>

    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/radioGroup"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"
        android:text="Submit"
        android:onClick="submitDeliveryMethod"/>
</RelativeLayout>
```

Output:


Delivery Option
Same Day
Next Day
Pickup
SUBMIT
Delivery Option
Same Day
Next Day
Pickup
SUBMIT
Selected Delivery Method: Same Day

Q4 Write an application using Checkbox, to accept toppings on an ice-cream. Give any 5 options. After clicking on Submit button display the toppings selected.

#MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    private CheckBox checkBoxChocolate, checkBoxSprinkles, checkBoxNuts,
checkBoxCaramel, checkBoxFruits;
    private Button submitButton;

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

        checkBoxChocolate = findViewById(R.id.checkBoxChocolate);
        checkBoxSprinkles = findViewById(R.id.checkBoxSprinkles);
        checkBoxNuts = findViewById(R.id.checkBoxNuts);
        checkBoxCaramel = findViewById(R.id.checkBoxCaramel);
        checkBoxFruits = findViewById(R.id.checkBoxFruits);

        submitButton = findViewById(R.id.submitButton);
    }

    public void submitToppings(View view) {
        StringBuilder selectedToppings = new StringBuilder("Selected Toppings:
");

        if (checkBoxChocolate.isChecked()) {
            selectedToppings.append("Chocolate, ");
        }

        if (checkBoxSprinkles.isChecked()) {
            selectedToppings.append("Sprinkles, ");
        }

        if (checkBoxNuts.isChecked()) {
            selectedToppings.append("Nuts, ");
        }
```

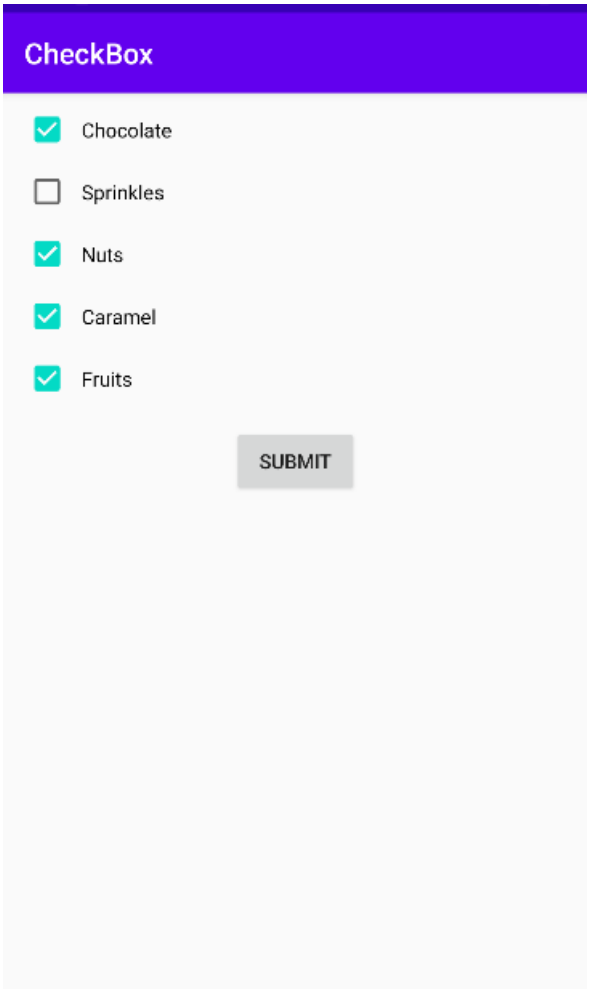
```
        if (checkBoxCaramel.isChecked()) {
            selectedToppings.append("Caramel, ");
        }

        if (checkBoxFruits.isChecked()) {
            selectedToppings.append("Fruits, ");
        }

        String message = selectedToppings.toString().trim();
        if (message.endsWith(",")) {
            // Remove the trailing comma
            message = message.substring(0, message.length() - 1);
        }

        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

#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"
    tools:context=".MainActivity">

    <CheckBox
        android:id="@+id/checkBoxChocolate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Chocolate"
        android:layout_marginTop="8dp"
        android:layout_marginStart="16dp"
        android:padding="8dp"/>

    <CheckBox
        android:id="@+id/checkBoxSprinkles"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Sprinkles"
        android:layout_below="@id/checkBoxChocolate"
        android:layout_marginTop="8dp"
        android:layout_marginStart="16dp"
        android:padding="8dp"/>

    <CheckBox
        android:id="@+id/checkBoxNuts"
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:text="Nuts"
        android:layout_below="@id/checkBoxSprinkles"
        android:layout_marginTop="8dp"
        android:layout_marginStart="16dp"
        android:padding="8dp"/>

    <CheckBox
        android:id="@+id/checkBoxCaramel"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Caramel"
        android:layout_below="@id/checkBoxNuts"
        android:layout_marginTop="8dp"
        android:layout_marginStart="16dp"
        android:padding="8dp"/>

    <CheckBox
        android:id="@+id/checkBoxFruits"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fruits"
        android:layout_below="@id/checkBoxCaramel"
        android:layout_marginTop="8dp"
        android:layout_marginStart="16dp"
        android:padding="8dp"/>

    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/checkBoxFruits"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"
        android:text="Submit"
        android:onClick="submitToppings"/>

</RelativeLayout>
```

Output:



Q5 Create different applications for checking properties of Toggle Button, Switch Buttons & Seek Bar. Handle proper event listeners, and display proper message as per the change in component state.

#MainActivity.java

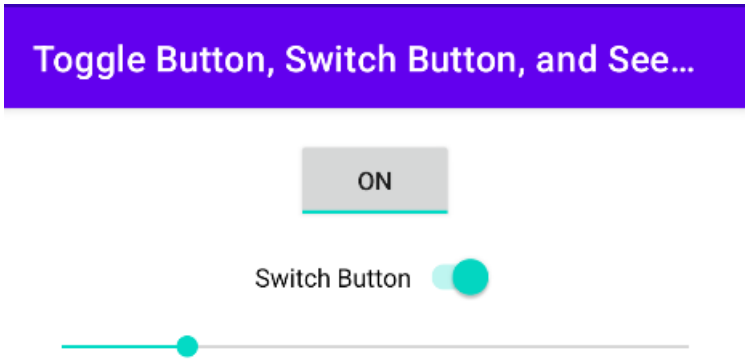
```
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.CompoundButton;
import android.widget.Switch;
import android.widget.Toast;

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

        switchButton = findViewById(R.id.switchButton);

        switchButton.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton buttonView, boolean
isChecked) {
                // isChecked is true when the switch is ON, false when it's
OFF
                if (isChecked) {
                    showToast("Switch is ON");
                } else {
                    showToast("Switch is OFF");
                }
            }
        });
    }

    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

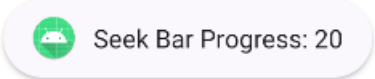
#Activity_Main.xml

```
<?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"
    tools:context=".MainActivity">

    <Switch
        android:id="@+id/switchButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:text="Toggle Switch" />

</RelativeLayout>
```

Output:





Q.6 Create an application to accept email address of user. To accept more about email, display a spinner with Home, Work, Other, Custom options. Create a spinner using array adapter

#MainActivity.java

```
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.EditText;
import android.widget.RelativeLayout;
import android.widget.Spinner;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText editTextEmail;
    private Spinner spinnerEmailType;

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

        editTextEmail = findViewById(R.id.editTextEmail);
        spinnerEmailType = findViewById(R.id.spinnerEmailType);

        setupSpinner();
    }

    private void setupSpinner() {
        // Define an array of email types
        String[] emailTypes = {"Home", "Work", "Other", "Custom"};

        // Create an ArrayAdapter using the string array and a default spinner
layout
        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_spinner_item, emailTypes);

        // Specify the layout to use when the list of choices appears
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdo
wn_item);

        // Apply the adapter to the spinner
        spinnerEmailType.setAdapter(adapter);
```

```
        // Set a listener for item selections
        spinnerEmailType.setOnItemSelectedListener(new
AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> parentView, View
selectedItemView, int position, long id) {
                // Display a toast message with the selected email type
                String selectedEmailType = (String)
parentView.getItemAtPosition(position);
                showToast("Selected Email Type: " + selectedEmailType);
            }

            @Override
            public void onNothingSelected(AdapterView<?> parentView) {
                // Do nothing
            }
        });
    }

    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

#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"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextEmail"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:hint="Enter Email Address"
        android:inputType="textEmailAddress"
        android:layout_centerHorizontal="true" />

    <Spinner
        android:id="@+id/spinnerEmailType"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```
        android:layout_below="@id/editTextEmail"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp" />
</RelativeLayout>
```

Output:

Q7.Design android application for login activity. Write android code to check login credentials with username = "mca" and password = "android". Display appropriate toast message to the user.

#MainActivity.java

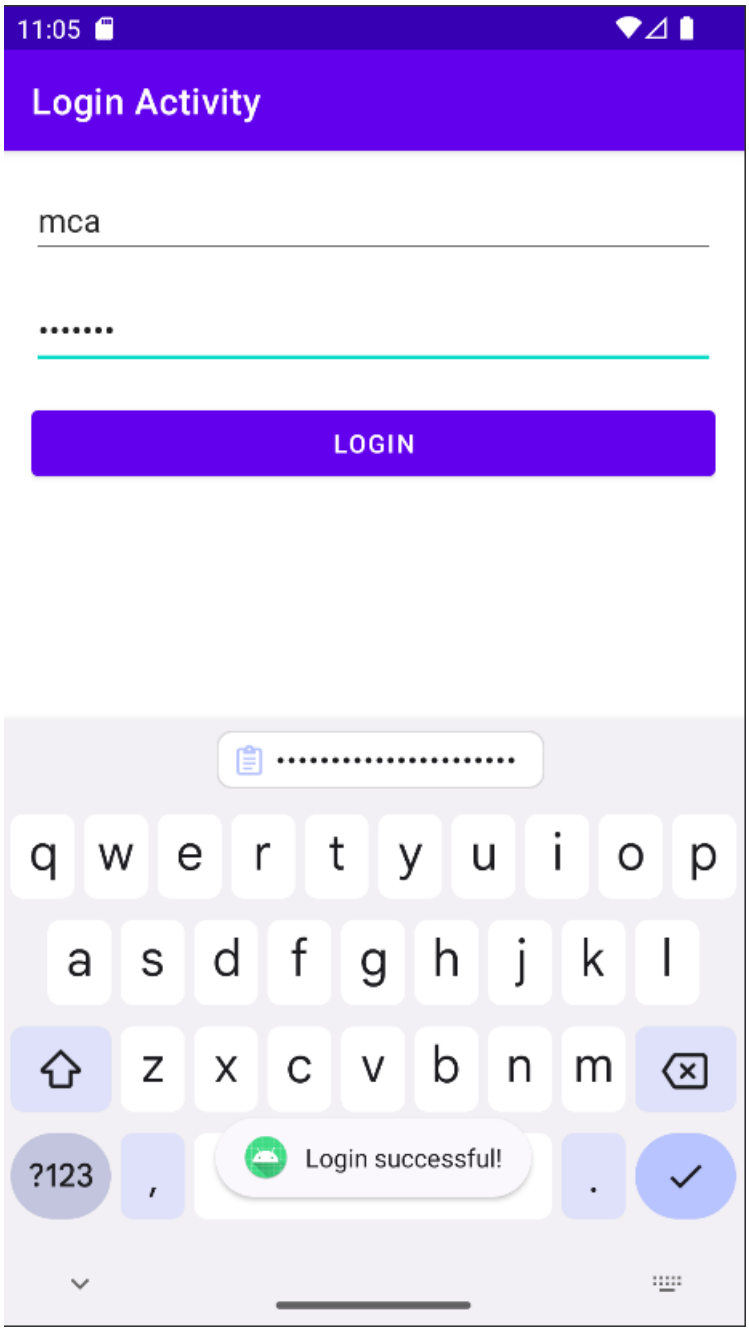
```
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText editTextUsername, editTextPassword;
    private Button btnLogin;

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

        editTextUsername = findViewById(R.id.editTextUsername);
        editTextPassword = findViewById(R.id.editTextPassword);
        btnLogin = findViewById(R.id.btnLogin);

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

    private void checkLoginCredentials() {
        String username = editTextUsername.getText().toString().trim();
        String password = editTextPassword.getText().toString().trim();

        // Check if the entered credentials match the hardcoded values
        if (username.equals("mca") && password.equals("android")) {
            showToast("Login successful!");
        } else {
            showToast("Invalid credentials. Please try again.");
        }
    }

    private void showToast(String message) {
```

```
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

#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:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextUsername"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"
        android:inputType="text" />

    <EditText
        android:id="@+id/editTextPassword"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextUsername"
        android:layout_marginTop="16dp"
        android:hint="Password"
        android:inputType="textPassword" />

    <Button
        android:id="@+id/btnLogin"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextPassword"
        android:layout_marginTop="16dp"
        android:text="Login" />

</RelativeLayout>
```

Output:



Q8 Write an android code to turn ON /OFF the Wi-Fi#MainActivity.java

```
// MainActivity.java
import android.content.Context;
import android.content.pm.PackageManager;
import android.net.wifi.WifiManager;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;

public class MainActivity extends AppCompatActivity {

    private static final int PERMISSIONS_REQUEST_CODE = 100;
    private Button btnToggleWifi;
    private WifiManager wifiManager;

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

        btnToggleWifi = findViewById(R.id.btnToggleWifi);
        wifiManager = (WifiManager) getSystemService(Context.WIFI_SERVICE);

        checkAndRequestPermissions();

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

    private void checkAndRequestPermissions() {
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
            if (ContextCompat.checkSelfPermission(this,
android.Manifest.permission.CHANGE_WIFI_STATE) !=
PackageManager.PERMISSION_GRANTED ||
                    ContextCompat.checkSelfPermission(this,
android.Manifest.permission.ACCESS_WIFI_STATE) !=
PackageManager.PERMISSION_GRANTED) {
```

```
                ActivityCompat.requestPermissions(this,
                        new String[]{
                                android.Manifest.permission.CHANGE_WIFI_STATE,
                                android.Manifest.permission.ACCESS_WIFI_STATE
                        },
                        PERMISSIONS_REQUEST_CODE);
            }
        }
    }

    private void toggleWifi() {
        if (wifiManager != null) {
            if (wifiManager.isWifiEnabled()) {
                wifiManager.setWifiEnabled(false);
                showToast("Wi-Fi turned OFF");
            } else {
                wifiManager.setWifiEnabled(true);
                showToast("Wi-Fi turned ON");
            }
        }
    }

    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }

    @Override
    public void onRequestPermissionsResult(int requestCode, @NonNull String[]
permissions, @NonNull int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions,
grantResults);
        if (requestCode == PERMISSIONS_REQUEST_CODE) {
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
                // Permissions granted, you can proceed with your actions
            } else {
                // Permissions not granted, inform the user or handle it
gracefully
                showToast("Permissions required to toggle Wi-Fi.");
            }
        }
    }
}
```

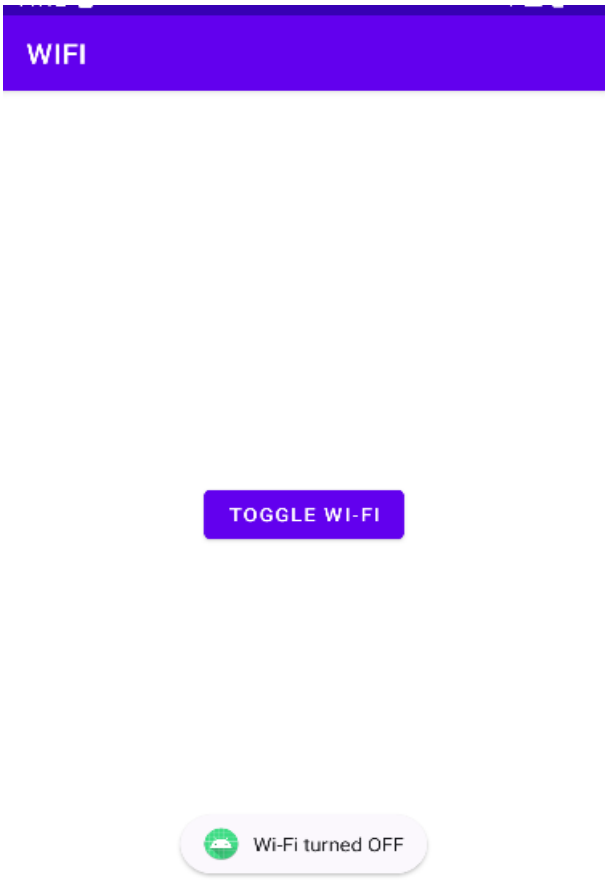
#Activity_Main.xml

```
<?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">

    <Button
        android:id="@+id/btnToggleWifi"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Toggle Wi-Fi"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

#Android_Manifest

```
<uses-permission android:name="android.permission.CHANGE_WIFI_STATE" />
<uses-permission android:name="android.permission.ACCESS_WIFI_STATE" />
```

Output:



Q9 Create a fragment that has its own UI and enable your activities to communicate with fragments.

#FirstFragment.java

```
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import com.abhishek.fragmentactivity.R;

public class FirstFragment extends Fragment {
    @Nullable @Override
public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
    //return super.onCreateView(inflater, container, savedInstanceState);
    return inflater.inflate(R.layout.first_fragment,container,false);
    }
}
```

#SecondFragment.java

```
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import com.abhishek.fragmentactivity.R;
public class SecondFragment extends Fragment {
    @Nullable @Override
public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
//return super.onCreateView(inflater, container, savedInstanceState);
    return inflater.inflate(R.layout.second_fragment,container,false);
}
}
```

#MainActivity.java

```
import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.graphics.Color;
import android.net.wifi.WifiManager;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;
```

```
import android.widget.CompoundButton;
import android.widget.TextView;
import android.widget.ToggleButton;
import androidx.fragment.app.Fragment;
 import android.view.View;
public class MainActivity extends AppCompatActivity {
    Fragment selectedFragment;
    @Override
protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
}
    public void selectFragment(View view) {
        if (view == findViewById(R.id.button1)) {
        selectedFragment = new FirstFragment();
    } else if (view == findViewById(R.id.button2)) {
            selectedFragment = new SecondFragment();
    }
        getSupportFragmentManager().beginTransaction().replace(R.id.fragment_c
ontainer, selectedFragment).commit();
    }
}
```

#firstFragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <TextView
        android:id="@+id/first"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Hello, First Fragment "
        android:textSize="30sp"
        android:gravity="center"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

#SecondFragment.xml

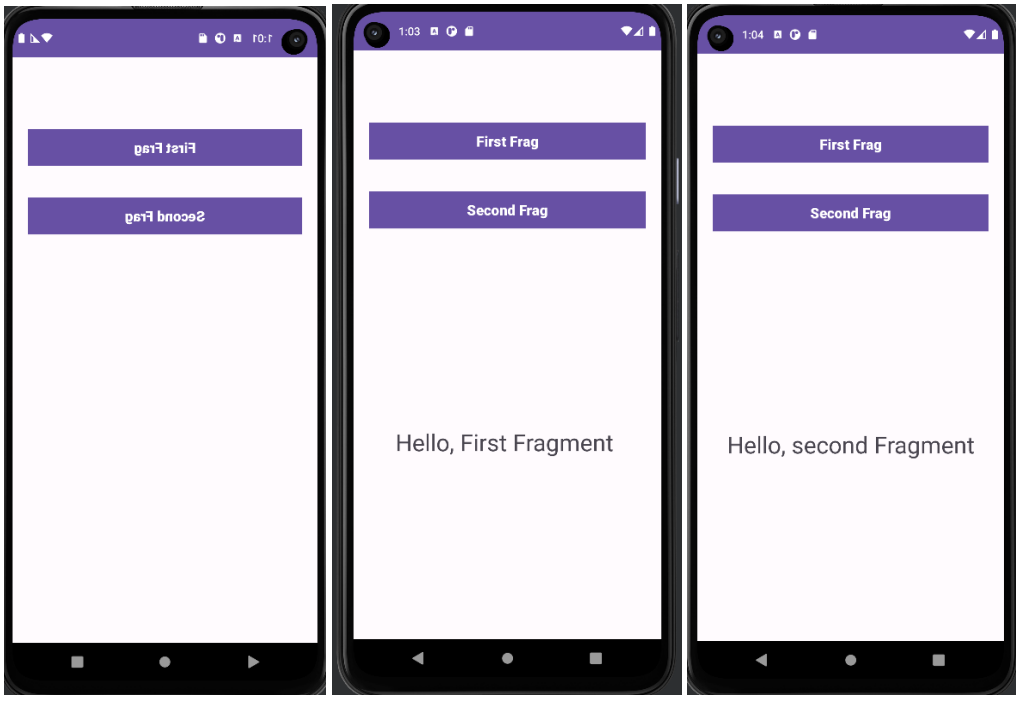
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <TextView
        android:id="@+id/first"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Hello, second Fragment"
        android:textSize="30sp"
        android:gravity="center"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

#activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical"
    tools:context=".MainActivity">
    <!-- Heading of the activity -->
    <TextView android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:layout_marginBottom="20dp"
        android:text="@string/heading"
        android:textAlignment="center"
        android:textColor="@android:color/holo_green_light"
        android:textSize="24sp"
        android:textStyle="bold" />
    <!-- Button to display first fragment -->
    <Button android:id="@+id/button1"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
```

```
        android:layout_margin="20dp"
        android:background="#4CAF50"
        android:onClick="selectFragment"
        android:text="@string/fragment1_button"
        android:textColor="@android:color/background_light"
        android:textSize="18sp"
        android:textStyle="bold" />
    <!-- Button to display second fragment -->
    <Button android:id="@+id/button2"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:background="#4CAF50"
        android:onClick="selectFragment"
        android:text="@string/fragment2_button"
        android:textColor="@android:color/background_light"
        android:textSize="18sp"
        android:textStyle="bold" />
    <!-- Adding Fragment element in the activity -->
    <FrameLayout
        android:id="@+id/fragment_container"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        />
</LinearLayout>
```

Output:



Q.10. Create an application using two activities. In first activity- accept user name, pass the same to next activity & display a "Hello & Welcome <username>" using Intent. Design proper UI.

#MainActivity.java

```
package com.abhishek.twoactivities;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
    EditText uname;
    @Override
protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
}
    public void callSecondActivity(View view) {
        uname =(EditText) findViewById(R.id.editText1);
        Intent intent=new Intent(this, SecondActivity.class);
        intent.putExtra ("Value1", "Hello");
        intent.putExtra ("Value2", uname.getText().toString());
        startActivity(intent);
    }
}
```

#SecondActivity.java

```
package com.abhishek.twoactivities;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;
public class SecondActivity extends AppCompatActivity {
    TextView t1;
    @Override
protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);
        t1 = findViewById(R.id.textView2);
    Bundle extras = getIntent().getExtras();
    String value1 = extras.getString("Value1");
    String value2 = extras.getString("Value2");
    t1.setText(value1+ " "+value2);
    Toast.makeText (getApplicationContext(), value1+ " "+value2,
Toast.LENGTH_LONG).show();
}
    public void goBack(View view) {
        Intent bintent=new Intent(this, MainActivity.class);
        startActivity(bintent);
    }
}
```

#MainActivity.xml

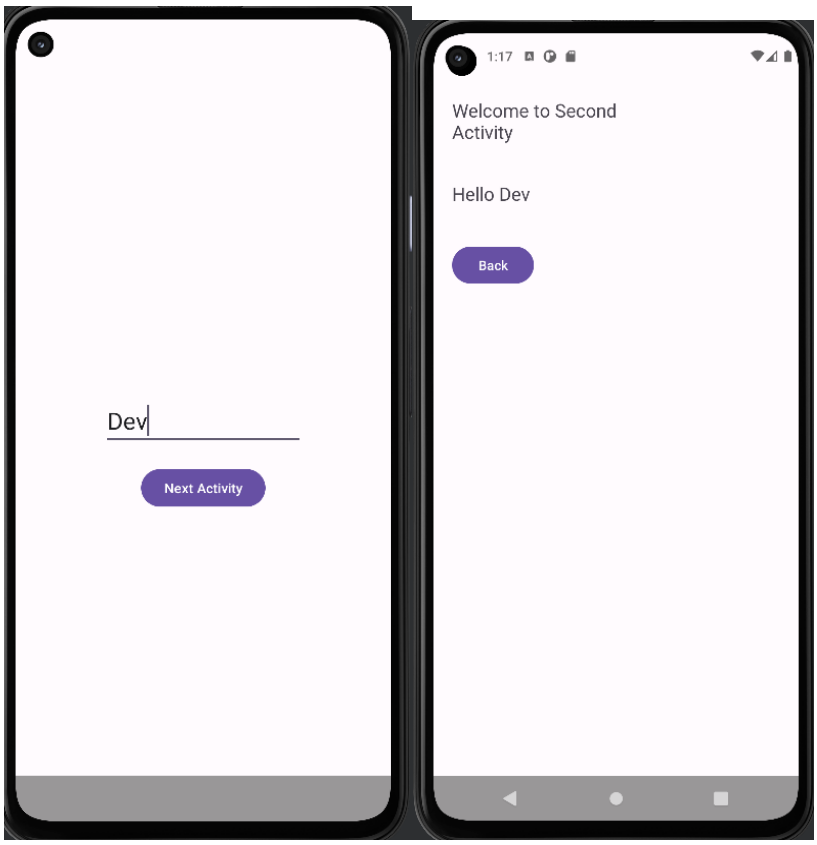
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity" >

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint=" Enter Your Name "
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:layout_marginBottom="20dp"
        android:textSize="25sp"/>

    <Button android:id="@+id/buttonNext"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Next Activity"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:onClick="callSecondActivity"
        android:layout_below="@id/editText1"/>
</RelativeLayout>
```

#SecondActivity.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"
    tools:context=".SecondActivity">

    <TextView
        android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:ems="10"
        android:text="Welcome to Second Activity"
        android:textSize="20sp"/>

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:ems="10"
        android:text=""
        android:textSize="20sp"
        android:layout_below="@id/editText"/>

    <Button
```

```
        android:id="@+id/buttonBack"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/textView2"
        android:layout_margin="20dp"
        android:onClick="goBack"
        android:text="Back"
        />
</RelativeLayout>
```

Output



Q11 Write an application in android to calculate percentage of marks in Main Activity & display it in second activity. Design proper UI.

#MainActivity.java

```
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText editTextSubject1, editTextSubject2, editTextSubject3;
    private Button calculateButton;

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

        editTextSubject1 = findViewById(R.id.editTextSubject1);
        editTextSubject2 = findViewById(R.id.editTextSubject2);
        editTextSubject3 = findViewById(R.id.editTextSubject3);
        calculateButton = findViewById(R.id.calculateButton);
        calculateButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int subject1Marks =
Integer.parseInt(editTextSubject1.getText().toString());
                int subject2Marks =
Integer.parseInt(editTextSubject2.getText().toString());
                int subject3Marks =
Integer.parseInt(editTextSubject3.getText().toString());
                int totalMarks = subject1Marks + subject2Marks +
subject3Marks;
                double percentage = (totalMarks / 3.0);
                Intent intent = new Intent(MainActivity.this,
SecondActivity.class);
                intent.putExtra("PERCENTAGE", percentage);
                startActivity(intent);
            }
        });
    }
}
```

#SecondActivity.java

```
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class SecondActivity extends AppCompatActivity {
    private TextView textViewPercentage;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);
        textViewPercentage = findViewById(R.id.textViewPercentage);
        double percentage = getIntent().getDoubleExtra("PERCENTAGE", 0);
        textViewPercentage.setText(percentage + "%");
    }
}
```

#MainActivity.xml

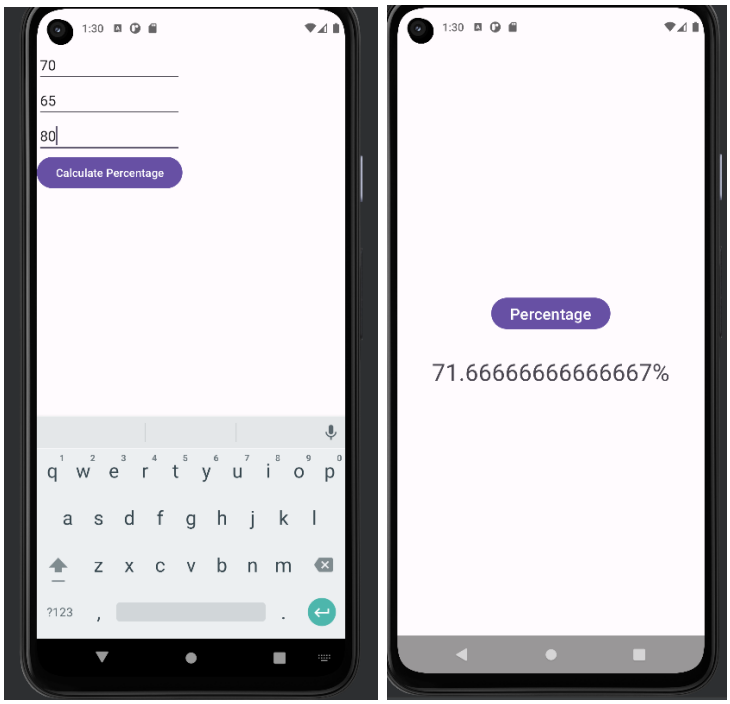
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Percentage"
        android:textSize="20dp">
    </Button>
    <TextView
        android:id="@+id/textViewPercentage"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:paddingTop="30dp"
        android:textSize="30dp"
        android:text="0%"/>
</LinearLayout>
```

#SecondActivity.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">
    <EditText
        android:id="@+id/editTextSubject1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter Subject 1 Marks"/>
    <EditText
        android:id="@+id/editTextSubject2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextSubject1"
        android:hint="Enter Subject 2 Marks"/>
    <EditText
        android:id="@+id/editTextSubject3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextSubject2"
        android:hint="Enter Subject 3 Marks"/>
    <Button
        android:id="@+id/calculateButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextSubject3"
        android:text="Calculate Percentage"/>
</RelativeLayout>
```

Output



Q.12. Write android code to make a phone call using intent design proper UI.

Activity_main.xml

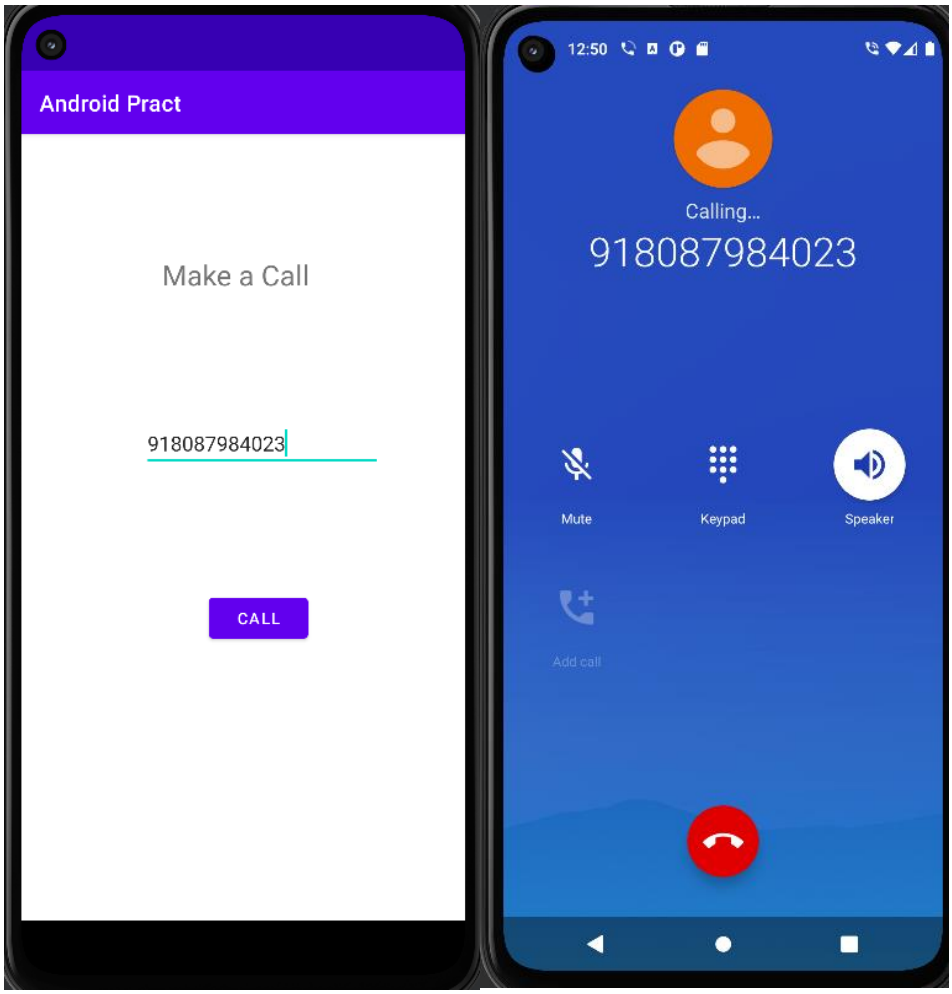
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="164dp"
        android:layout_height="60dp"
        android:layout_marginTop="108dp"
        android:text="Make a Call"
        android:textSize="25sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.546"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="84dp"
        android:ems="10"
        android:hint="Type number with +91"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.592"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="108dp"
        android:text="Call"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.544"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextNumber" />

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

MainActivity.java

```
package com.example.phonecallintent;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
```

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

        btn= findViewById(R.id.button);
        Phno = findViewById(R.id.editTextNumber);

        btn.setOnClickListener(arg -> {

 String phone_number = Phno.getText().toString();

Intent phone_intent = new Intent(Intent.ACTION_CALL);

phone_intent.setData(Uri.parse("tel:" + phone_number));

startActivity(phone_intent);
        });
    }
}
```

Output:



Q.13. Write an android code to accept fav programming language from user. Autocomplete the answer by using autocomplete textview and arrayAdapter

Activity_main.xml

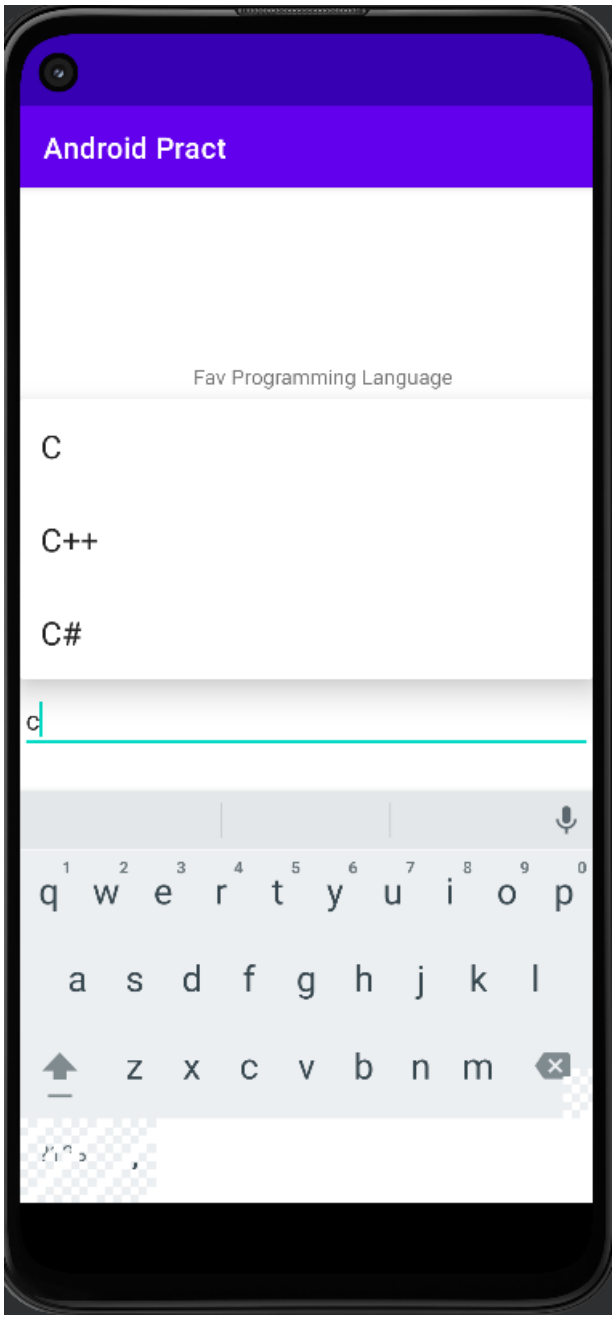
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="120dp"
        android:text="Fav Programming Language"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.553"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <AutoCompleteTextView
        android:id="@+id/autoCompleteTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="204dp"
        android:hint="Type fav language"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.599"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.favprogramming;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;

public class MainActivity extends AppCompatActivity {
    String[]
language={"C","C++","Java",".NET","JavaScript","Android","ASP.NET","PHP","C
#"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        ArrayAdapter<String> adapter = new ArrayAdapter<String>
(this,android.R.layout.select_dialog_item,language);
        AutoCompleteTextView actv =
(AutoCompleteTextView)findViewById(R.id.autoCompleteTextView);
```

```
actv.setThreshold(1);
        actv.setAdapter(adapter);

    }
}
```

Output:



Q.14. Write an android code to accept fav Fruit from user. Autocomplete the answer by using autocomplete textview and arrayAdapter

Activity_main.xml

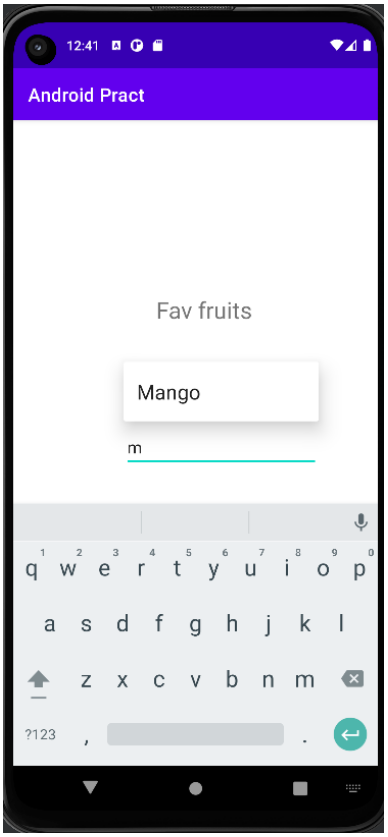
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="128dp"
        android:layout_height="51dp"
        android:layout_marginTop="188dp"
        android:text=" Fav fruits"
        android:textSize="25sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.558"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <AutoCompleteTextView
        android:id="@+id/autoCompleteTextView"
        android:layout_width="210dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="92dp"
        android:hint="Type fav Fruit name"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.651"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

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

MainActivity.java

```
package com.example.favfruite;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;

public class MainActivity extends AppCompatActivity {
    String[]
language={"Strawberry","Banana","Pineapple","Orange","Grapes","Apple","Chic
koo","Kiwi","Mango"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ArrayAdapter<String> adapter = new
ArrayAdapter<String>(this,android.R.layout.select_dialog_item,language);
        AutoCompleteTextView actv =
(AutoCompleteTextView)findViewById(R.id.autoCompleteTextView);
```

```
actv.setThreshold(1);
        actv.setAdapter(adapter);
    }
}
```

Output:



Q.15. Write an Application to display list of city names in a spinner (use arrayAdpter)

Activity_main.xml

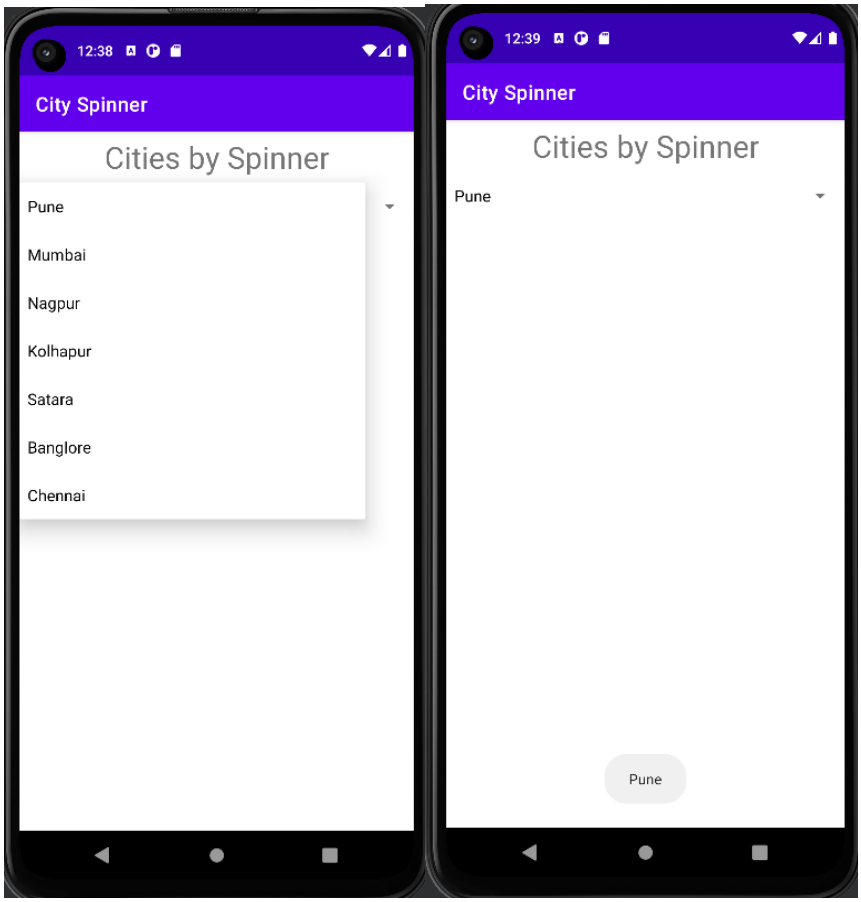
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">


    <Spinner
        android:id="@+id/spinner"
        android:layout_width="409dp"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

MainActivity.java

```
package com.example.cityspinner;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
     Spinner citySpinner;

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

        citySpinner = findViewById(R.id.spinner);

        String[] cityNames =
getResources().getStringArray(R.array.city_names);

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

adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_it
em);
        citySpinner.setAdapter(adapter);

        citySpinner.setOnItemSelectedListener(new
AdapterView.OnItemSelectedListener() {
```

```
            @Override
            public void onItemSelected(AdapterView<?> parent, View view,
int position, long id) {
                // Get the selected city name
                String selectedCity = cityNames[position];


                String toastMessage = "You have selected: " + selectedCity;
                Toast.makeText(getApplicationContext(), toastMessage,
Toast.LENGTH_SHORT).show();
            }

            @Override
            public void onNothingSelected(AdapterView<?> parent) {

            }
        });
    }
}
```

Output:



Q.16.Write an android code to send a sms using Implicit Intent

//activity_main.xml

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

    <EditText
        android:id="@+id/phone_number_edit_text"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Phone number" />

    <EditText
        android:id="@+id/message_edit_text"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Message" />

    <Button
        android:id="@+id/send_sms_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send SMS" />

</LinearLayout>
```

// MainActivity.java

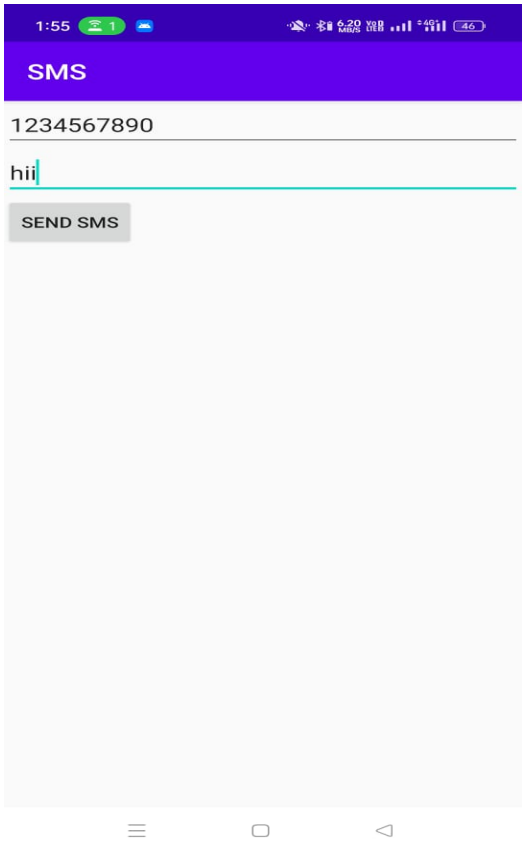
```
package com.example.sms;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    private Button sendSMSButton;

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

        sendSMSButton = findViewById(R.id.send_sms_button);

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

```
    }

    private void sendSMS() {
        // Get the phone number and message from the edit texts.
        EditText phoneNumberEditText =
findViewById(R.id.phone_number_edit_text);
        String phoneNumber = phoneNumberEditText.getText().toString();

        EditText messageEditText = findViewById(R.id.message_edit_text);
        String message = messageEditText.getText().toString();

        // Create an intent to send an SMS message.
        Intent intent = new Intent(Intent.ACTION_SENDTO);

        // Set the data URI to the SMS recipient's phone number.
        intent.setData(Uri.parse("smsto:" + phoneNumber));

        // Set the SMS message body.
        intent.putExtra("sms_body", message);

        // Start the activity to send the SMS message.
        startActivity(intent);
    }
}
```

//AndroidManifest.xml

<uses-permission android:name="android.permission.SEND_SMS" />

Output:



Q.17. Write a code to display a simple AlertDialog box with three options Ok, Cancel, Remind me later options. On clicking of any of the option, display a toast message.

//MainActivity.java

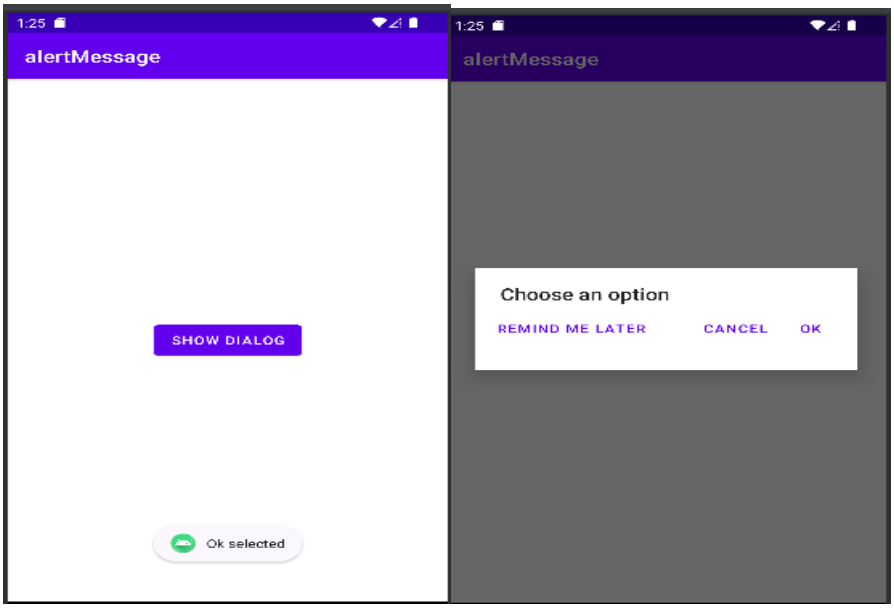
```
package com.example.alertmessage;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        // Replace with the ID of your button in activity_main.xml
        Button showDialogButton = findViewById(R.id.showDialogButton);
        // Set a click listener for the button
        showDialogButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                showAlertDialog();
            }
        });
    }
    private void showAlertDialog() {
        AlertDialog.Builder builder = new AlertDialog.Builder(this);
        builder.setTitle("Choose an option")
                .setPositiveButton("Ok", new DialogInterface.OnClickListener()
{
                    @Override
                    public void onClick(DialogInterface dialogInterface, int
i) {                        showToast("Ok selected");
                    }
                })
                .setNegativeButton("Cancel", new
DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialogInterface, int
i) {                        showToast("Cancel selected");
                    }
                })
                .setNeutralButton("Remind me later", new
DialogInterface.OnClickListener() {
                    @Override
```

```
                    public void onClick(DialogInterface dialogInterface, int
i) {                        showToast("Remind me later selected");
                    }
                });
        // Create and show the AlertDialog
        AlertDialog alertDialog = builder.create();
        alertDialog.show();
    }
    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

//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:paddingLeft="16dp"
    android:paddingTop="16dp"
    android:paddingRight="16dp"
    android:paddingBottom="16dp"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/showDialogButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Dialog"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

Output:



Q.18. Write a code to display "Do you want to close this application? "AlertDialog box. If user clicks on Yes, close the application and if clicks No, display "you choose no action for alertbox" message.

//MainActivity.java

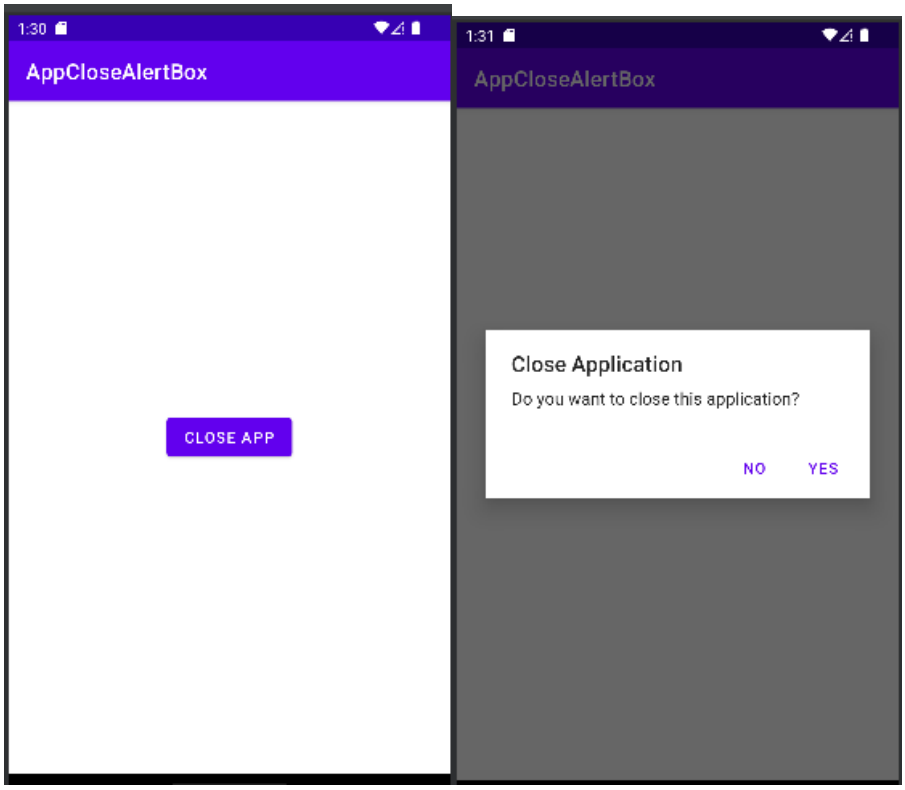
```
package com.example.appclosealertbox;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

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

        // Replace with the ID of your button in activity_main.xml
        Button closeAppButton = findViewById(R.id.closeAppButton);

        // Set a click listener for the button
        closeAppButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                showCloseAlertDialog();
            }
        });
    }

    private void showCloseAlertDialog() {
        AlertDialog.Builder builder = new AlertDialog.Builder(this);
        builder.setTitle("Close Application")
                .setMessage("Do you want to close this application?")
                .setPositiveButton("Yes", new
DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialogInterface, int
i) {
                        closeApplication();
                    }
                })
                .setNegativeButton("No", new DialogInterface.OnClickListener()
{
                    @Override
```

```
                    public void onClick(DialogInterface dialogInterface, int
i) {
                        displayNoActionMessage();
                    }
                })
                .show();
    }
    private void closeApplication() {
        // Close the application
        finish();
    }
    private void displayNoActionMessage() {
        // Display a message when the user chooses "No"
        // You can replace this with any action you want to perform
        // when the user decides not to close the application
        showToast("You chose no action for alert box");
    }

    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

//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:paddingLeft="16dp"
    android:paddingTop="16dp"
    android:paddingRight="16dp"
    android:paddingBottom="16dp"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/closeAppButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Close App"
        android:layout_centerInParent="true"/>

</RelativeLayout>
```

Output:


1:30
AppCloseAlertBox
CLOSE APP
1:31
AppCloseAlertBox
Close Application
Do you want to close this application?
NO
YES

Q. Create following application using ContextMenu. When user long clicks on name, display menu options as Call, SMS. As per the option selected, display proper message.
//MainActivity.java

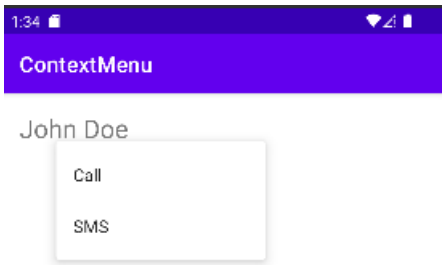
```
package com.example.contextmenu;

import android.os.Bundle;
import android.view.ContextMenu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private TextView nameTextView;

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

        nameTextView = findViewById(R.id.nameTextView);

        // Register the view for context menu
        registerForContextMenu(nameTextView);
    }

    @Override
    public void onCreateContextMenu(ContextMenu menu, View v,
ContextMenu.ContextMenuInfo menuInfo) {
        super.onCreateContextMenu(menu, v, menuInfo);

        // Inflate the menu from the XML resource
        MenuInflater inflater = getMenuInflater();
        inflater.inflate(R.menu.context_menu, menu);
    }

    @Override
    public boolean onContextItemSelected(MenuItem item) {
        switch (item.getItemId()) {
            case R.id.menu_call:
                displayMessage("Calling " +
nameTextView.getText().toString());
```

```
                return true;
            case R.id.menu_sms:
                displayMessage("Sending SMS to " +
nameTextView.getText().toString());
                return true;
            default:
                return super.onContextItemSelected(item);
        }
    }

    private void displayMessage(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

//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:padding="16dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/nameTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="John Doe"
        android:textSize="24sp"
        android:longClickable="true"/>

</RelativeLayout>

//context_menu.xml
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/menu_call"
        android:title="Call" />
    <item
        android:id="@+id/menu_sms"
        android:title="SMS" />
</menu>
```

Output:



Q 20. Create an option menu with Icons. On selecting any option from menu, display a proper toast message.
//MainActivity.java

```
package com.example.menu_with_icons;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

        // Other initialization code goes here
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        switch (item.getItemId()) {
            case R.id.menu_call:
                showToast(getString(R.string.menu_call) + " option selected");
                return true;
            case R.id.menu_sms:
                showToast(getString(R.string.menu_sms) + " option selected");
                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }

    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

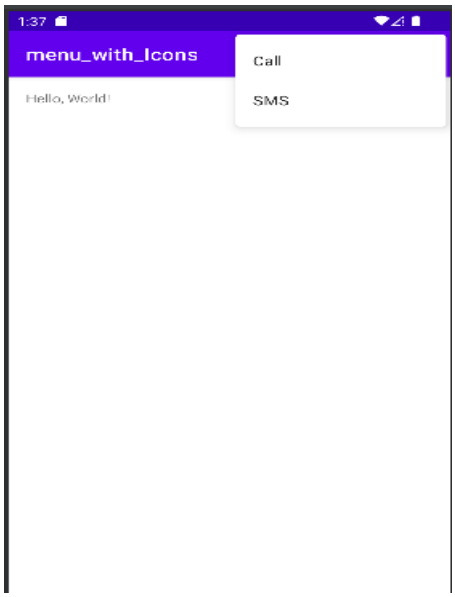
//activity_main.xml

```
<?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:padding="16dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello, World!" />

    <!-- Other UI elements can be added here -->

</RelativeLayout>
```

//menu_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/menu_call"
        android:icon="@drawable/ic_call"
        android:title="@string/menu_call" />
    <item
        android:id="@+id/menu_sms"
        android:icon="@drawable/ic_sms"
        android:title="@string/menu_sms" />
</menu>
```

Output:



Q.21.Write an application to create a popup menu :

Ans:

//MainActivity.java

```
package com.example.popup_menu;

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.widget.PopupMenu;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

        Button btnShowPopup = findViewById(R.id.btnShowPopup);
        btnShowPopup.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                showPopupMenu(view);
            }
        });
    }

    private void showPopupMenu(View view) {
        PopupMenu popupMenu = new PopupMenu(this, view);
        popupMenu.getMenuInflater().inflate(R.menu.popup_menu,
popupMenu.getMenu());

        popupMenu.setOnMenuItemClickListener(new
PopupMenu.OnMenuItemClickListener() {
            @Override
            public boolean onMenuItemClick(MenuItem menuItem) {
                switch (menuItem.getItemId()) {
                    case R.id.menu_item_1:
                        showToast("Option 1 selected");
                        return true;
                    case R.id.menu_item_2:
                        showToast("Option 2 selected");
                        return true;
                    case R.id.menu_item_3:
```

```
                        showToast("Option 3 selected");
                        return true;
                    default:
                        return false;
                }
            }
        });

        popupMenu.show();
    }

    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

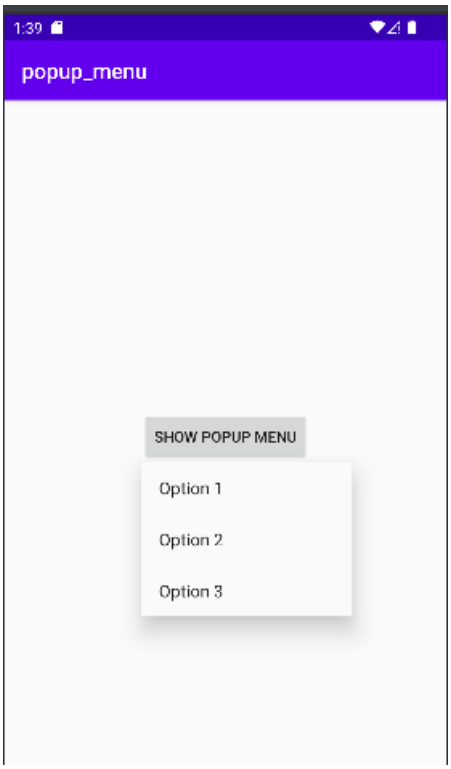
//activity_main.xml

```
<?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:padding="16dp"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btnShowPopup"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Popup Menu"
        android:layout_centerInParent="true"/>

</RelativeLayout>
```

//popup_menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/menu_item_1"
        android:title="Option 1"/>
    <item
        android:id="@+id/menu_item_2"
        android:title="Option 2"/>
    <item
        android:id="@+id/menu_item_3"
        android:title="Option 3"/>
</menu>
```

Output:



Q.22.Write an application to produce a Notification with an icon. Open relevant activity, when user will click on the notification.
//MainActivity.java

```
package com.example.notifiaction_with_icon;

import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.os.Build;
import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;
import androidx.core.app.NotificationManagerCompat;

public class MainActivity extends AppCompatActivity {

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

        // Step 1: Create a Notification Channel (For Android 8.0 and above)
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            CharSequence name = "My Notification Channel";
            String description = "Channel description";
            int importance = NotificationManager.IMPORTANCE_DEFAULT;
            NotificationChannel channel = new
NotificationChannel("channel_id", name, importance);
            channel.setDescription(description);

            NotificationManager notificationManager =
getSystemService(NotificationManager.class);
            notificationManager.createNotificationChannel(channel);
        }

        // Step 2: Create a Notification Builder
        Intent intent = new Intent(this, RelevantActivity.class);
        PendingIntent pendingIntent = PendingIntent.getActivity(
                this,
                0,
                intent,
                PendingIntent.FLAG_IMMUTABLE // or use
PendingIntent.FLAG_MUTABLE if needed
        );
```

```
        NotificationCompat.Builder builder = new
NotificationCompat.Builder(this, "channel_id")
                .setSmallIcon(R.drawable.ic_notification_icon)
                .setContentTitle("Notification Title")
                .setContentText("Notification Text")
                .setPriority(NotificationCompat.PRIORITY_DEFAULT)
                .setContentIntent(pendingIntent)
                .setAutoCancel(true);

        // Step 3: Show the Notification
        NotificationManagerCompat notificationManager =
NotificationManagerCompat.from(this);
        notificationManager.notify(1, builder.build());
    }
}
```

//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:padding="16dp"
    tools:context=".MainActivity">

    <!-- Your main activity layout content goes here -->

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Main Activity"
        android:textSize="24sp"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

//AndroidManifest.xml

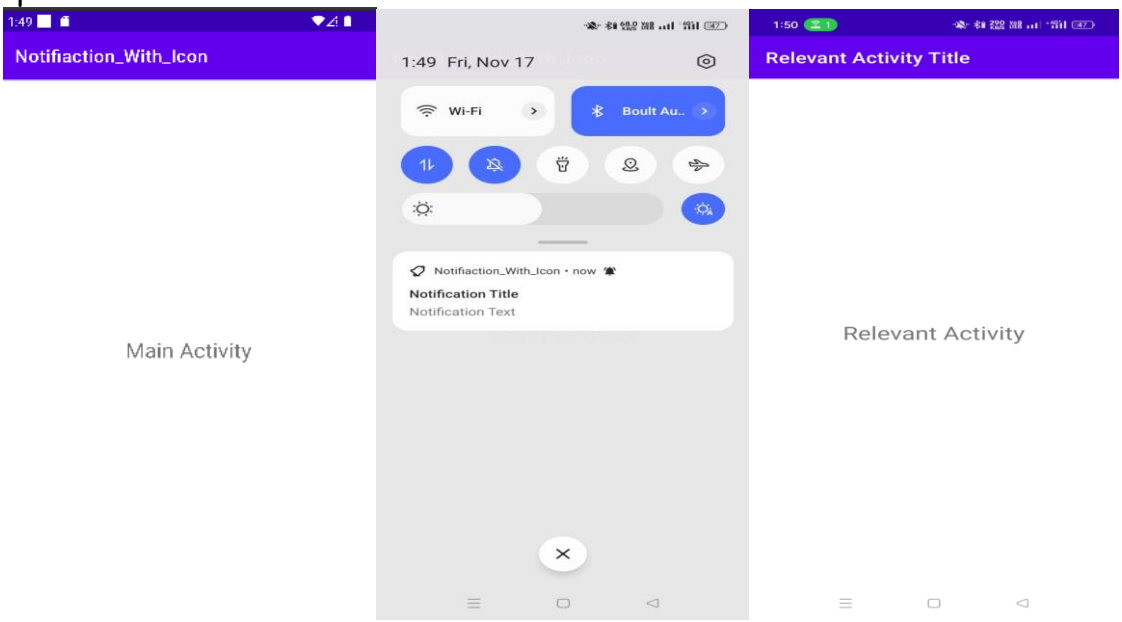
```
<uses-permission android:name="android.permission.POST_NOTIFICATIONS" />
```

//activity_relevant.xml

```
<?xml version="1.0" encoding="utf-8"?>
<!-- res/layout/activity_relevant.xml -->
<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:padding="16dp"
```

```
    tools:context=".RelevantActivity">

    <!-- Your relevant activity layout content goes here -->

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Relevant Activity"
        android:textSize="24sp"
        android:layout_centerInParent="true"/>
</RelativeLayout>

//RevelentActivity.java
package com.example.notifiaction_with_icon;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

public class RelevantActivity extends AppCompatActivity {

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

        // Set the title at the top of the activity
        setTitle("Relevant Activity Title");
    }
}
```

Output:



23. Write an android application using SQLite to create table and perform CRUD operations (Example. COURSE table (ID, Name, Duration, Description), perform ADD, UPDATE, DELETE and READ operations)
#Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/c_id"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Course ID"
        android:inputType="number" />

    <EditText
        android:id="@+id/c_name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Course Name"
        android:inputType="textPersonName" />

    <EditText
        android:id="@+id/c_duration"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Course Duration"
        android:inputType="number" />

    <EditText
        android:id="@+id/c_description"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="0.1"
        android:hint="Course Description"
        android:inputType="textLongMessage" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="loadCourse"
        android:layout_gravity="center"
```

```
        android:text="Load All Course" />

    <TextView
        android:id="@+id/result"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
        android:hint="Result"
        android:textSize="30dp" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:onClick="addCourse"
        android:text="ADD" />

    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:onClick="updateCourse"
        android:text="UPDATE" />

    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:onClick="deleteCourse"
        android:text="DELETE By Id" />
    </LinearLayout>
</LinearLayout>
```

MainActivity.java

```
package com.abhi.practsql;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.text.method.ScrollingMovementMethod;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;
```

```
public class MainActivity extends AppCompatActivity {
    TextView resultText;
    EditText courseId;
    EditText courseDuration;
    EditText courseDescription;
    EditText courseName;
    MyDBHandler dbHandler;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        resultText = (TextView) findViewById(R.id.result);
        courseId = (EditText) findViewById(R.id.c_id);
        courseName = (EditText) findViewById(R.id.c_name);
        courseDuration = (EditText) findViewById(R.id.c_duration);
        courseDescription = (EditText) findViewById(R.id.c_description);
        resultText.setMovementMethod(new ScrollingMovementMethod());
        dbHandler = new MyDBHandler(this);
    }

    public void loadCourse(View view) {
        resultText.setText(dbHandler.loadHandler());
        courseId.setText("");
        courseName.setText("");
        courseDuration.setText("");
        courseDescription.setText("");
    }

    public void addCourse(View view) {
        if (!courseId.getText().toString().isEmpty() &&
                !courseName.getText().toString().isEmpty() &&
                    !courseDuration.getText().toString().isEmpty() &&
                !courseDescription.getText().toString().isEmpty())
        {
            int id = Integer.parseInt(courseId.getText().toString());
            int duration =
Integer.parseInt(courseDuration.getText().toString());
            String name = courseName.getText().toString();
            String desc = courseDescription.getText().toString();
            Course course = new Course(id, name, duration, desc);
            long insertId = dbHandler.addHandler(course);
            if (insertId == -1) {
                resultText.setText("Record already exists");
            } else {
                courseId.setText("");
                courseName.setText("");
```

```
                courseDuration.setText("");
                courseDescription.setText("");
                resultText.setText("Record added");
            }
        } else {
            resultText.setText("Please fill correct details");
        }
    }

    public void updateCourse(View view) {
        if (!courseId.getText().toString().isEmpty() &&
                !courseName.getText().toString().isEmpty() &&
                !courseDuration.getText().toString().isEmpty() &&
                !courseDescription.getText().toString().isEmpty())
        {
            boolean result =
dbHandler.updateHandler(Integer.parseInt(courseId.getText().toString()),
courseName.getText().toString(),
Integer.parseInt(courseDuration.getText().toString()),
courseDescription.getText().toString());
            if (result) {
                courseId.setText("");
                courseName.setText("");
                courseDuration.setText("");
                courseDescription.setText("");
                resultText.setText("Record Updated");
            } else {
                resultText.setText("No Record Found");
            }
        } else {
            resultText.setText("Please fill correct id and name");
        }
    }
    public void deleteCourse(View view) {
        if (!courseId.getText().toString().isEmpty()) {
            boolean result =
dbHandler.deleteHandler(Integer.parseInt(courseId.getText().toString()));
            if (result) {
                courseId.setText("");
                courseName.setText("");
                courseDuration.setText("");
                courseDescription.setText("");
                resultText.setText("Record Deleted");
            } else {
                resultText.setText("No Record Found");
            }
        } else {
            resultText.setText("Please fill correct id");
```

```
        }
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        dbHandler.close();
    }
}
```

MyDBHandler.java

```
package com.abhi.practsql;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class MyDBHandler extends SQLiteOpenHelper {
    private static final int DATABASE_VERSION = 1;
    private static final String DATABASE_NAME = "courseDB.db";
    private static final String TABLE_COURSE = "course";
    private static final String COLUMN_ID = "CourseID";
    private static final String COLUMN_NAME = "CourseName";
    private static final String COLUMN_DUR = "CourseDuration";
    private static final String COLUMN_DESC = "CourseDescription";

    MyDBHandler(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        String CREATE_COURSE_TABLE = "CREATE TABLE " + TABLE_COURSE + "(" +
                COLUMN_ID + " INTEGER PRIMARY KEY," +
                COLUMN_NAME + " TEXT," +
                COLUMN_DUR + " TEXT," +
                COLUMN_DESC + " TEXT" +
                ")";
        db.execSQL(CREATE_COURSE_TABLE);
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_COURSE);
        onCreate(db);
    }
```

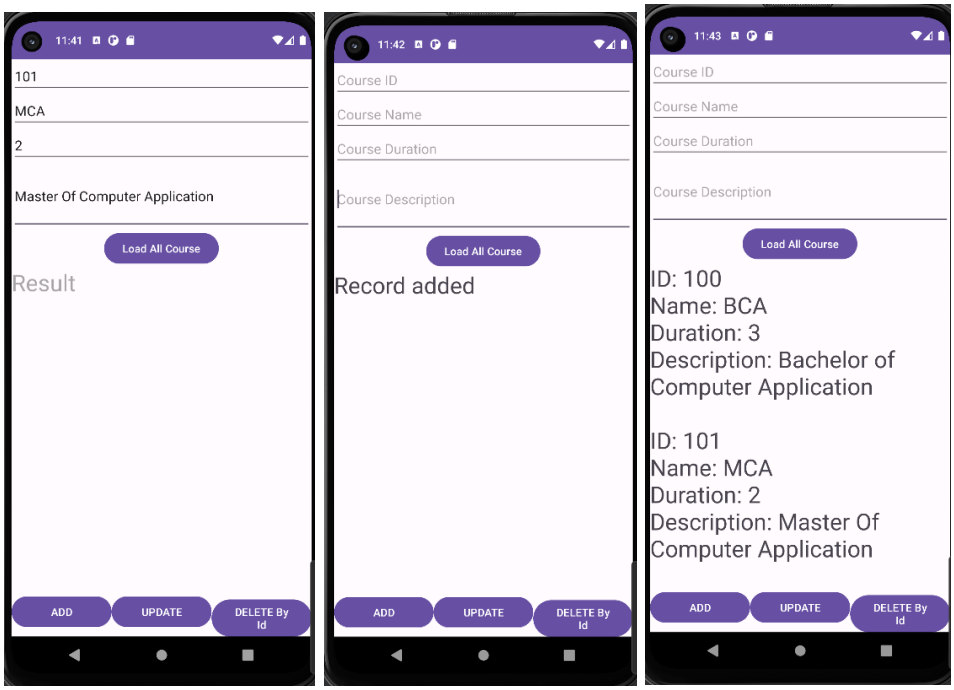
```
    String loadHandler() {
        String result = "";
        String query = "SELECT * FROM " + TABLE_COURSE;
        SQLiteDatabase db = this.getReadableDatabase();
        Cursor cursor = db.rawQuery(query, null);

        while (cursor.moveToNext()) {
            int result_0 = cursor.getInt(cursor.getColumnIndex(COLUMN_ID));
            String result_1 =
cursor.getString(cursor.getColumnIndex(COLUMN_NAME));
            String result_2 =
cursor.getString(cursor.getColumnIndex(COLUMN_DUR));
            String result_3 =
cursor.getString(cursor.getColumnIndex(COLUMN_DESC));

            result += "ID: " + result_0 + "\nName: " + result_1 + "\nDuration:
" + result_2 + "\nDescription: " + result_3 + "\n\n";
        }

        cursor.close();
        db.close();

        if (result.isEmpty()) {
            result = "No Records Found";
        }

        return result;
    }
    long addHandler(Course course) {
        long id;
        ContentValues values = new ContentValues();
        values.put(COLUMN_ID, course.getID());
        values.put(COLUMN_NAME, course.getCourseName());
        values.put(COLUMN_DUR, course.getDur());
        values.put(COLUMN_DESC, course.getDesc());
        SQLiteDatabase db = this.getWritableDatabase();
        id = db.insert(TABLE_COURSE, null, values);
        db.close();
        return id;
    }

    boolean updateHandler(int ID, String name, int dur, String desc) {
        SQLiteDatabase db = this.getWritableDatabase();
        ContentValues args = new ContentValues();

        args.put(COLUMN_ID, ID);
        args.put(COLUMN_NAME, name);
```

```
        args.put(COLUMN_DUR, dur);
        args.put(COLUMN_DESC, desc);
        return db.update(TABLE_COURSE, args, COLUMN_ID + "=" + ID, null) > 0;
    }
    boolean deleteHandler(int ID) {
        boolean result = false;
        String query = "Select*FROM " + TABLE_COURSE + " WHERE " + COLUMN_ID +
" = '" + ID + "'";
        SQLiteDatabase db = this.getWritableDatabase();
        Cursor cursor = db.rawQuery(query, null);
        Course course = new Course();
        if (cursor.moveToFirst()) {
            course.setID(Integer.parseInt(cursor.getString(0)));
            db.delete(TABLE_COURSE, COLUMN_ID + "=?", new
String[]{String.valueOf(course.getID())
            });
            cursor.close();
            result = true;
        }
        db.close();
        return result;
    }
}
Course.java
package com.abhi.practsql;

public class Course {

    private int id;
    private String courseName;

    private int dur;
    private String desc;

    Course() {
    }
    Course(int id, String courseName, int dur, String desc) {
        this.id = id;
        this.dur = dur;
        this.courseName = courseName;
        this.desc = desc;
    }
    void setID(int id) {
        this.id = id;
    }
    int getID() {
        return this.id;
    }
```

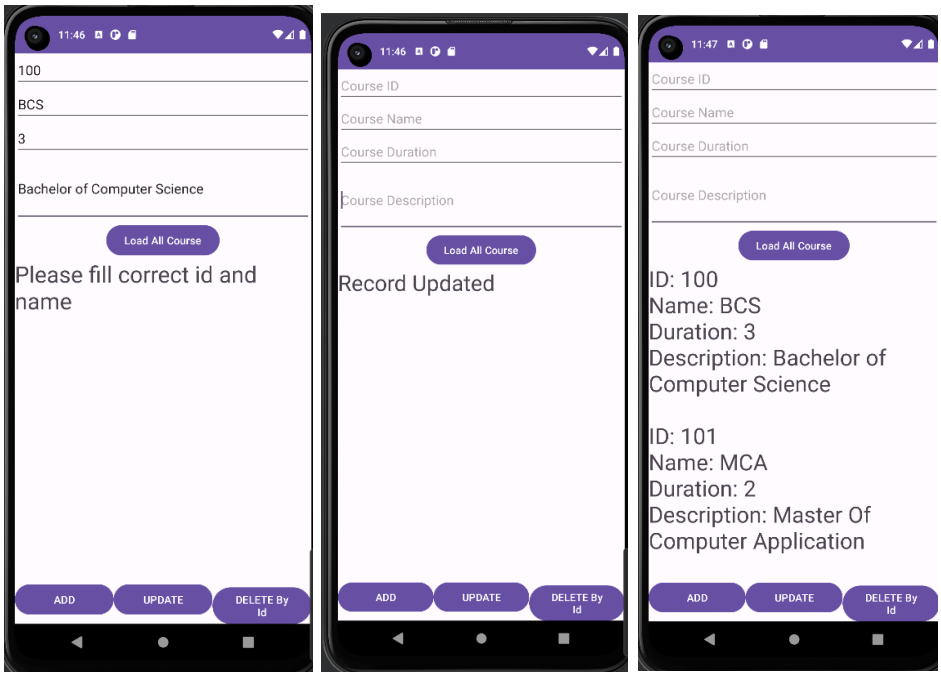
```
    void setCourseName(String coursename) {
        this.courseName = coursename;

    }
    String getCourseName() { return
            this.courseName;
    }

    public int getDur() {
        return dur;
    }

    public void setDur(int dur) {
        this.dur = dur;
    }

    public String getDesc() {
        return desc;
    }

    public void setDesc(String desc) {
        this.desc = desc;
    }
}
```

Output:

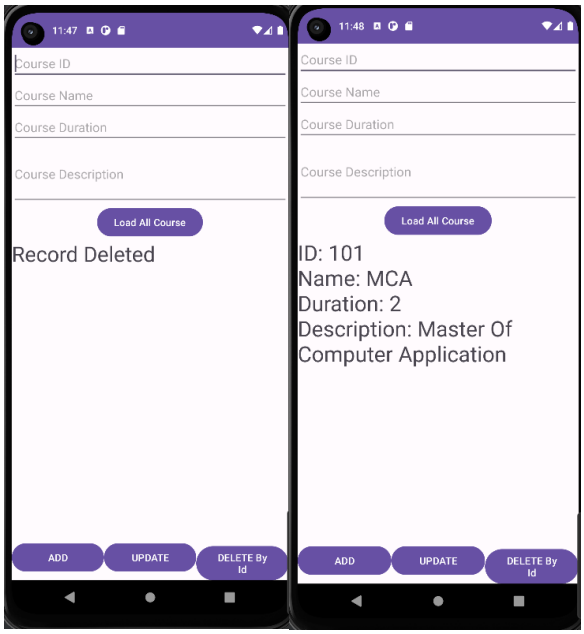
ADD and READ



UPDATE and READ



DELETE and READ



Q.24. Demonstrate WebView to display the web pages in an android application.

#Activity_main.xml

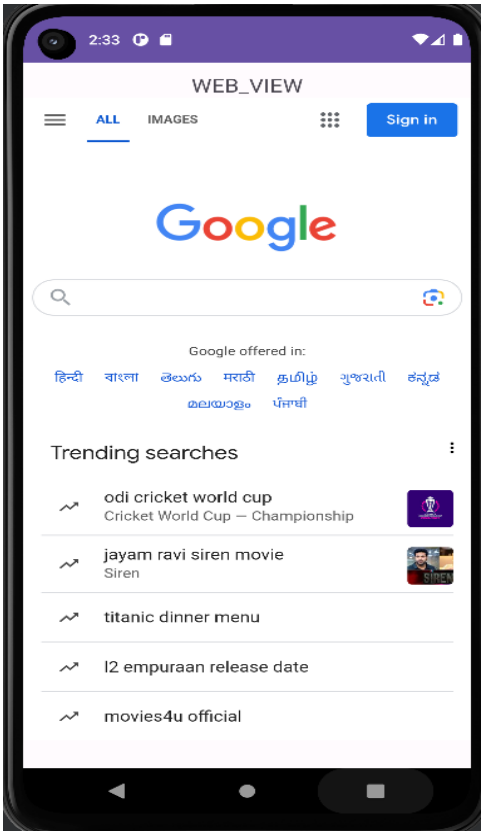
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingTop="10dp"
    android:paddingBottom="30dp"
    tools:context=".MainActivity">

<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="WEB_VIEW"
    android:textSize="20sp"
    android:textAlignment="center"
    />

    <WebView
        android:id="@+id/webView"
        android:layout_below="@id/textView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_centerInParent="true" />
</RelativeLayout>
```

MainActivity.java

```
package com.abhi.webview;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.webkit.WebChromeClient;
import android.webkit.WebSettings;
import android.webkit.WebView;
import android.webkit.WebViewClient;

public class MainActivity extends AppCompatActivity {
    private WebView webView;

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

```
        webView = findViewById(R.id.webView);

        WebSettings webSettings = webView.getSettings();
        webSettings.setJavaScriptEnabled(true);

        webView.setWebViewClient(new WebViewClient());
        webView.setWebChromeClient(new WebChromeClient());

        webView.loadUrl("https://www.google.com");
    }

    // Override onBackPressed to handle navigation within the WebView
    @Override
    public void onBackPressed() {
        if (webView.canGoBack()) {
            webView.goBack();
        } else {
            super.onBackPressed();
        }
    }
}
```

Output:



Q.25. Write an android app to write JSON data into a file and read JSON data from created file.

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:layout_margin="10dp"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center_horizontal"
        android:text="Employee Details"
        android:textSize="20sp" />

    <EditText
        android:id="@+id/empId"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Employee ID" />

    <EditText
        android:id="@+id/empName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Employee Name" />

    <EditText
        android:id="@+id/empAdd"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Employee Address" />

    <EditText
        android:id="@+id/empPhno"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Employee Phonenumber" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
```

```
        <Button
            android:id="@+id/btnSave"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="save"
            android:text="Save" />

        <Button
            android:id="@+id/btnShow"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="3dp"
            android:onClick="show"
            android:text="Show" />
    </LinearLayout>
    <TextView
        android:id="@+id/details"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="" />
</LinearLayout>
```

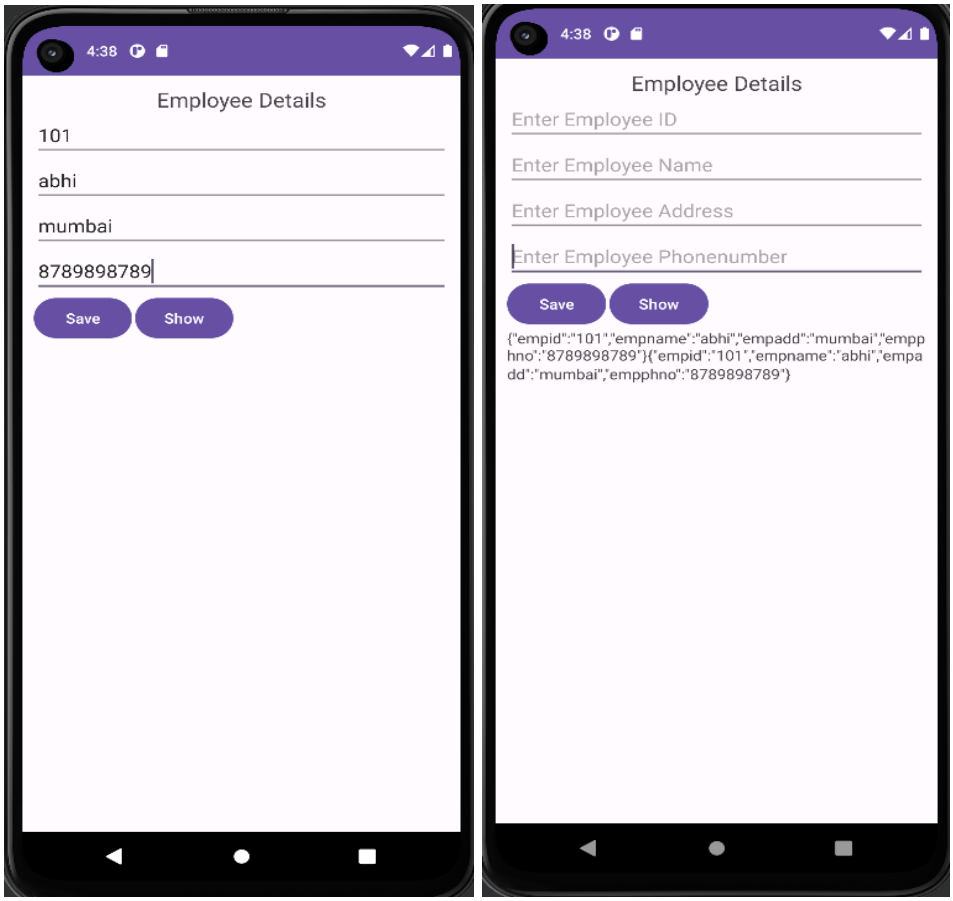
MainActivity.java

```
package com.abhi.jsondata;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
import org.json.JSONException;
import org.json.JSONObject;
import java.io.BufferedReader;
import java.io.BufferedWriter;
import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;

public class MainActivity extends AppCompatActivity {

    EditText txtId, txtName, txtAdd, txtphno;
    String id, name, add, phno;
    String FILE_NAME = "Employee_data";
    File file;
```

```
    FileWriter fileWriter;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtId = findViewById(R.id.empId);
        txtName = findViewById(R.id.empName);
        txtAdd = findViewById(R.id.empAdd);
        txtphno = findViewById(R.id.empPhno);
        // Define the File Path and its Name
        file = new File(getApplicationContext().getFilesDir(), FILE_NAME);
        try {
            fileWriter = new FileWriter(file, true);
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
    public void save(View view) {
        id = txtId.getText().toString();
        name = txtName.getText().toString();
        add = txtAdd.getText().toString();
        phno = txtphno.getText().toString();
        JSONObject jsonObject = new JSONObject();
        try {
            jsonObject.put("empid", id);
            jsonObject.put("empname", name);
            jsonObject.put("empadd", add);
            jsonObject.put("empphno", phno);
        } catch (JSONException e) {
            e.printStackTrace();
        }
        String userString = jsonObject.toString();
        try {
            BufferedWriter bufferedWriter = new BufferedWriter(fileWriter);
            bufferedWriter.write(userString);
            bufferedWriter.close();
        } catch (IOException e) {
            e.printStackTrace();
        }
        txtId.setText("");
        txtName.setText("");
        txtAdd.setText("");
        txtphno.setText("");
    }
    public void show(View view) {
        TextView showdetails = findViewById(R.id.details);
        StringBuilder stringBuilder;
        FileReader fileReader = null;
```

```
        try {
            fileReader = new FileReader(file);
            BufferedReader bufferedReader = new BufferedReader(fileReader);
            stringBuilder = new StringBuilder();
            String line = bufferedReader.readLine();
            while (line != null) {
                stringBuilder.append(line).append("\n");
                line = bufferedReader.readLine();
            }
            bufferedReader.close();
            String response = stringBuilder.toString();
            showdetails.setText(response);
        } catch (FileNotFoundException e) {
            e.printStackTrace();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

Output



Q.26. Create an Android app to manage STUDENT data, powered by Firebase Realtime database that supports: Adding Data to Firebase Realtime database, Retrieving Data from Firebase, Update a record and Deleting data from firebase data.

#Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:layout_margin="10dp"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center_horizontal"
        android:text="Student Details"
        android:textSize="20sp" />

    <EditText
        android:id="@+id/stdId"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Student ID" />

    <EditText
        android:id="@+id/stdName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Student Name" />

    <EditText
        android:id="@+id/stdAdd"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Student Address" />

    <EditText
        android:id="@+id/stdPhno"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Student Phone number" />
```

```
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <Button
            android:id="@+id/btnSave"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="save"
            android:text="Save" />

        <Button
            android:id="@+id/btnShow"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="3dp"
            android:onClick="show"
            android:text="Show" />

        <Button
            android:id="@+id/btnUpdate"

            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="3dp"
            android:onClick="update"
            android:text="Update" />

        <Button
            android:id="@+id/btnDelete"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="3dp"
            android:onClick="delete"
            android:text="Delete" />
    </LinearLayout>
</LinearLayout>
```

MainActivity.java

```
package com.abhi.firebasecurd;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.text.TextUtils;
```

```
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

import com.google.firebase.database.DataSnapshot;
import com.google.firebase.database.DatabaseError;
import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;
import com.google.firebase.database.ValueEventListener;

public class MainActivity extends AppCompatActivity {
    EditText txtId, txtName, txtAdd, txtphno;
    DatabaseReference dbref;
    Student std;
    String id, name, add, phno;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtId = findViewById(R.id.stdId);
        txtName = findViewById(R.id.stdName);
        txtAdd = findViewById(R.id.stdAdd);
        txtphno = findViewById(R.id.stdPhno);
        std = new Student();
    }

    public void save(View view) {
        id = txtId.getText().toString();
        name = txtName.getText().toString();
        add = txtAdd.getText().toString();
        phno = txtphno.getText().toString();
//Code to Save the employee details
        dbref =
FirebaseDatabase.getInstance().getReference().child("Student");
        try {
            if (TextUtils.isEmpty(txtId.getText().toString()))
                Toast.makeText(getApplicationContext(), "Please enter ID",
Toast.LENGTH_LONG).show();
            else if (TextUtils.isEmpty(txtName.getText().toString()))
                Toast.makeText(getApplicationContext(), "Please enter Name",
Toast.LENGTH_LONG).show();
            else if (TextUtils.isEmpty(txtphno.getText().toString()))
                Toast.makeText(getApplicationContext(), "Please enter Phone
Number",
                        Toast.LENGTH_LONG).show();
            else {
                std.setID(id);
```

```
                std.setName(name);
                std.setAddress(add);
                std.setPhno(phno);
//insert details in db.
                dbref.child(id).setValue(std);
                Toast.makeText(getApplicationContext(), "Record Added",
Toast.LENGTH_LONG).show();
                txtId.setText("");
                txtName.setText("");
                txtAdd.setText("");
                txtphno.setText("");
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
    //Code to Display a Record
    public void show(View view) {
        id = txtId.getText().toString();
        dbref =
FirebaseDatabase.getInstance().getReference().child("Student").child(id);
        dbref.addListenerForSingleValueEvent(new ValueEventListener() {
            @Override
            public void onDataChange(@NonNull DataSnapshot snapshot) {
                if (snapshot.hasChildren()) {
                    txtId.setEnabled(false);

txtName.setText(snapshot.child("name").getValue().toString());

txtAdd.setText(snapshot.child("address").getValue().toString());

txtphno.setText(snapshot.child("phno").getValue().toString());
                } else {
                    Toast.makeText(getApplicationContext(), "No data to
display", Toast.LENGTH_LONG).show();
                }
            }

            @Override
            public void onCancelled(@NonNull DatabaseError error) {
            }
        });
    }
    //Code to update a Record
    public void update(View view) {
        id = txtId.getText().toString();
        dbref =
FirebaseDatabase.getInstance().getReference().child("Student").child(id);
```

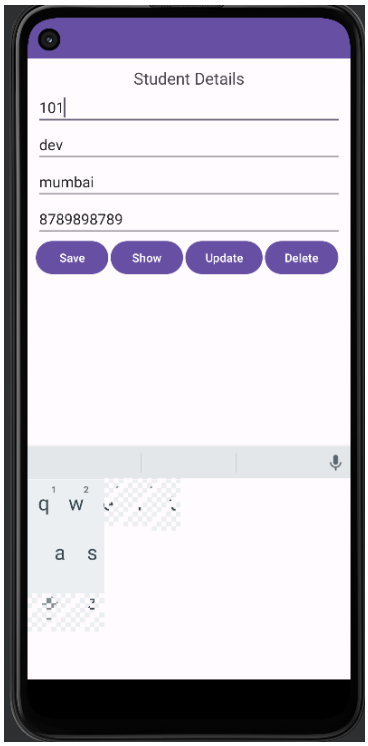
```
        dbref.addListenerForSingleValueEvent(new ValueEventListener() {
            @Override
            public void onDataChange(@NonNull DataSnapshot snapshot) {
                if (snapshot.hasChildren()) {
                    std.setName(txtName.getText().toString().trim());

                    std.setAddress(txtAdd.getText().toString().trim());
                    std.setPhno(txtphno.getText().toString().trim());
                    dbref.setValue(std);
                    Toast.makeText(getApplicationContext(), "Data Updated",
Toast.LENGTH_LONG).show();
                } else {
                    Toast.makeText(getApplicationContext(), "No data to
update", Toast.LENGTH_LONG).show();
                }
            }

            @Override
            public void onCancelled(@NonNull DatabaseError error) {
            }
        });
    }
    //Code to delete a Record
    public void delete(View view) {
        id = txtId.getText().toString();
        dbref =
FirebaseDatabase.getInstance().getReference().child("Student").child(id);
        dbref.addListenerForSingleValueEvent(new ValueEventListener() {
            @Override
            public void onDataChange(@NonNull DataSnapshot snapshot) {
                if (snapshot.hasChildren()) {
                    dbref.removeValue();
                    Toast.makeText(getApplicationContext(), "Record Deleted",
Toast.LENGTH_LONG).show();
                } else {
                    Toast.makeText(getApplicationContext(), "No such record",
Toast.LENGTH_LONG).show();
                }
            }
            @Override
            public void onCancelled(@NonNull DatabaseError error) {
            }
        });

    }
}
```

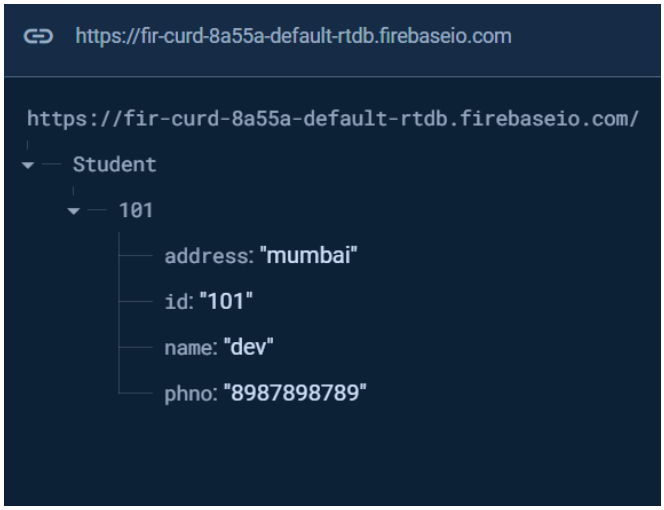
Student.java

```
package com.abhi.firebasecurd;

public class Student {
    private String ID;
    private String name;
    private String address;
    private String phno;

    public String getID() {
        return ID;
    }

    public void setID(String ID) {
        this.ID = ID;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getAddress() {
        return address;
    }

    public void setAddress(String address) {
        this.address = address;
    }

    public String getPhno() {
        return phno;
    }

    public void setPhno(String phno) {
        this.phno = phno;
    }

}
```

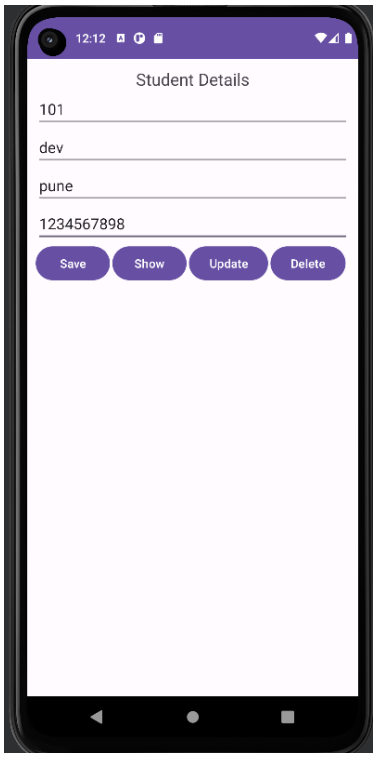
Output

ADD

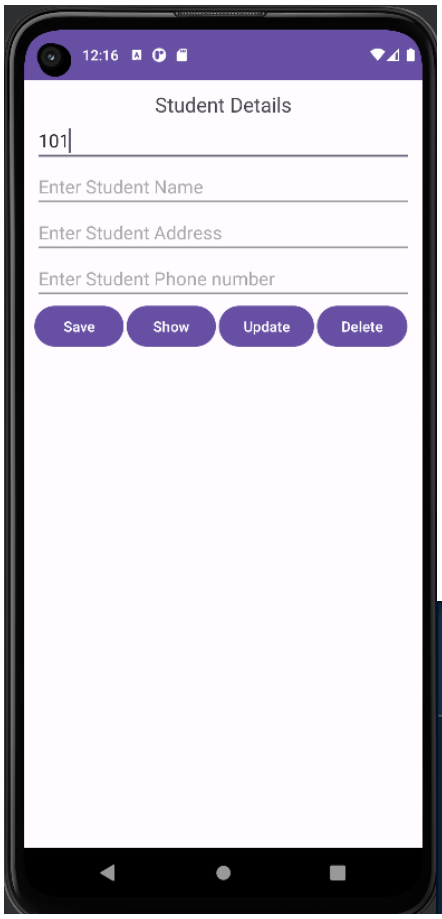




UPDATE

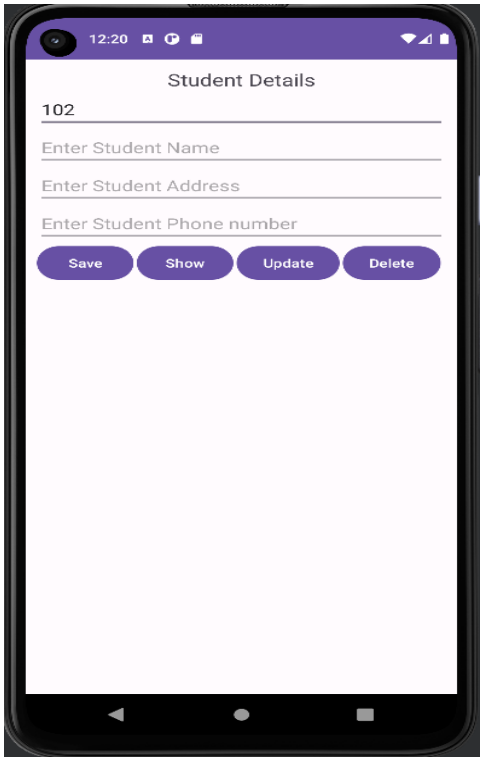


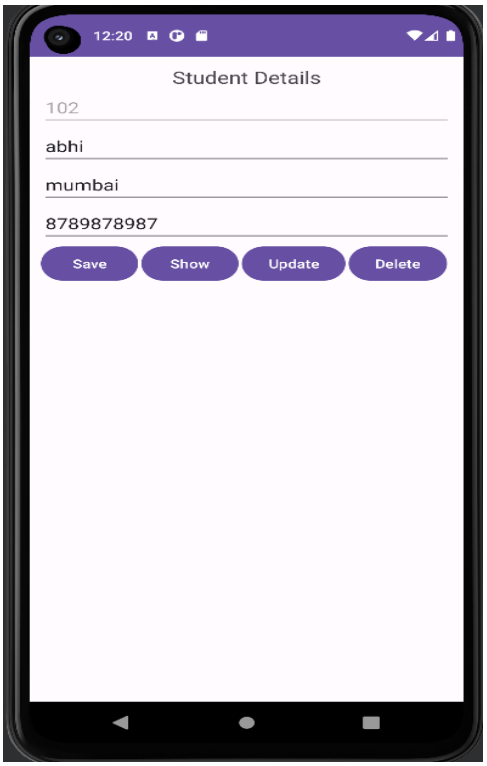
DELETE


12:16
Student Details
101
Enter Student Name
Enter Student Address
Enter Student Phone number
Save
Show
Update
Delete


https://fir-curd-8a55a-default-rtdb.firebaseio.com
https://fir-curd-8a55a-default-rtdb.firebaseio.com/: null

READ


12:20
Student Details
102
Enter Student Name
Enter Student Address
Enter Student Phone number
Save
Show
Update
Delete


12:20
Student Details
102
abhi
mumbai
8789878987
Save
Show
Update
Delete

Q.27. Write a React Native application, to display a welcome screen with 'Welcome to React Native' message.

App.js

```
import React from 'react';
import { View, Text, StyleSheet } from 'react-native';
export default function App() {
  return (
    <View style={styles.container}>
      <Text style={styles.welcomeText}>Welcome to React Native</Text>
    </View>
  );
}
const styles = StyleSheet.create({
  container: {
    flex: 1,
    justifyContent: 'center',
    alignItems: 'center',
    backgroundColor: '#fff',
  },
  welcomeText: {
    fontSize: 20,
    textAlign: 'center',
    margin: 10,
  },
});
```

Output:

Q.28. Using Geolocation API in React Native, display the Latitude & Longitude of current location.

App.js

```
import React, { useEffect, useState } from 'react';
import { View, Text, StyleSheet } from 'react-native';
import Geolocation from '@react-native-community/geolocation';
const App = () => {
  const [location, setLocation] = useState({ latitude: null, longitude: null
});
  useEffect(() => {
    // Request permission to access the device's location
    Geolocation.requestAuthorization();

    // Get the current location
    Geolocation.getCurrentPosition(
      (position) => {
        setLocation({
          latitude: position.coords.latitude,
          longitude: position.coords.longitude,
        });
      },
      (error) => console.log(error),
      { enableHighAccuracy: true, timeout: 20000, maximumAge: 1000 },
    );
    // Watch for changes in the device's location
    const watchId = Geolocation.watchPosition(
      (position) => {
        setLocation({
          latitude: position.coords.latitude,
          longitude: position.coords.longitude,
        });
      },
      (error) => console.log(error),
      { enableHighAccuracy: true, timeout: 20000, maximumAge: 1000,
distanceFilter: 10 },
    );

    // Clean up the watchId when the component is unmounted
    return () => Geolocation.clearWatch(watchId);
  }, []);

  return (
    <View style={styles.container}>
      <Text style={styles.locationText}>
        Latitude: {location.latitude !== null ? location.latitude.toFixed(6) :
'Loading...'}
```

```
      </Text>
      <Text style={styles.locationText}>
        Longitude: {location.longitude !== null ?
location.longitude.toFixed(6) : 'Loading...'}
      </Text>
    </View>
  );
};

const styles = StyleSheet.create({
  container: {
    flex: 1,
    justifyContent: 'center',
    alignItems: 'center',
    backgroundColor: '#fff',
  },
  locationText: {
    fontSize: 18,
    marginVertical: 10,
  },
});

export default App;
```

Output:

Q.29. Write a Flutter application, to display a 'Hello World' message.

Main.dart

```
import 'package:flutter/material.dart';

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: Scaffold(
        appBar: AppBar(
          title: Text('Hello World App'),
        ),
        body: Center(
          child: Text(
            'Hello World!',
            style: TextStyle(fontSize: 24),
          ),
        ),
      ),
    );
  }
}
```

Output: