Android Lab

LAB_J1

Manifest.xml

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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">

    <CheckBox
        android:id="@+id/red"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerVertical="true"
        android:text="Red" />

    <CheckBox
        android:id="@+id/white"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:layout_toRightOf="@+id/red"
        android:text="White" />

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

```
        android:layout_centerInParent="true"
        android:layout_toRightOf="@+id/white"
        android:text="Green" />

    <CheckBox
        android:id="@+id/yellow"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:layout_toRightOf="@+id/green"
        android:text="Yellow" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/displayBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/colorTxt"
        android:layout_alignParentEnd="true"
        android:layout_marginEnd="168dp"
        android:layout_marginBottom="39dp"
        android:text="Display" />

    <TextView
        android:id="@+id/colorTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBottom="@+id/yellow"
        android:layout_alignParentEnd="true"
        android:layout_centerVertical="true"
        android:layout_marginEnd="180dp"
        android:layout_marginBottom="-150dp" />
</RelativeLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j1;
```

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

import android.os.Bundle;
import android.view.View;
import android.widget.CheckBox;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    CheckBox red,white,green,yellow;
    TextView colorTxt;
    AppCompatButton displayBtn;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        red = findViewById(R.id.red);
        white = findViewById(R.id.white);
        green = findViewById(R.id.green);
        yellow = findViewById(R.id.yellow);
        colorTxt = findViewById(R.id.colorTxt);
        displayBtn = findViewById(R.id.displayBtn);

        displayBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
```

```
            String txt="";
            if (red.isChecked()){
               txt+="\n"+red.getText().toString();
            }
            if (white.isChecked()){
               txt+="\n"+white.getText().toString();
            }
            if (green.isChecked()){
               txt+="\n"+green.getText().toString();
            }
            if (yellow.isChecked()){
               txt+="\n"+yellow.getText().toString();
            }

            colorTxt.setText(txt);
         }
      });
   }
}
```

LAB_J2

Manifest.xml

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <RadioGroup
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">

        <RadioButton
            android:id="@+id/mca"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:onClick="radioBtnClick"
            android:text="MCA"
            android:textSize="18sp" />

        <RadioButton
            android:id="@+id/mba"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```
        android:onClick="radioBtnClick"
        android:text="MBA"
        android:textSize="18sp" />

    <RadioButton
        android:id="@+id/mteck"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="radioBtnClick"
        android:text="MTech"
        android:textSize="18sp" />

    <RadioButton
        android:id="@+id/mcom"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="radioBtnClick"
        android:text="MCom"
        android:textSize="18sp" />
  </RadioGroup>

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j2;
```

```
//2. Design an android application by using RadioGroup and RadioButton to
display list of PG
//        courses names. Display selected PG course name by the user using Toast



import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

    public void radioBtnClick(View view) {

        int id = view.getId();

        switch (id) {
            case R.id.mca:
                Toast.makeText(this, "MCA Selected",
Toast.LENGTH_SHORT).show();
                break;
```

```
        case R.id.mba:
            Toast.makeText(this, "MBA Selected",
Toast.LENGTH_SHORT).show();
            break;

        case R.id.mteck:
            Toast.makeText(this, "MTech Selected",
Toast.LENGTH_SHORT).show();
            break;

        case R.id.mcom:
            Toast.makeText(this, "MCom Selected",
Toast.LENGTH_SHORT).show();
            break;
    }

  }
}
```

LAB_J3

Manifest.xml

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <RatingBar
        android:id="@+id/ratingBar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:numStars="5"
        android:rating="3.5" />

    <SeekBar
        android:id="@+id/seekBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp" />

    <TextView
        android:id="@+id/ratingBarValue"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```
        android:layout_marginTop="50dp"
        android:textSize="18sp" />

    <TextView
        android:id="@+id/seekBarValue"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:textSize="18sp" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j3;

//3. Write an android code by using LinearLayout to accept rating value of a seminar by using
//        RatingBar and SeekBar. Display provided rating values using TextView components

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.RatingBar;
import android.widget.SeekBar;
import android.widget.TextView;
```

```
public class MainActivity extends AppCompatActivity {

    RatingBar ratingBar;
    SeekBar seekBar;
    TextView ratingBarValue, seekBarValue;



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

        ratingBar = findViewById(R.id.ratingBar);
        seekBar = findViewById(R.id.seekBar);
        ratingBarValue = findViewById(R.id.ratingBarValue);
        seekBarValue = findViewById(R.id.seekBarValue);

        ratingBar.setOnRatingBarChangeListener(new
RatingBar.OnRatingBarChangeListener() {
            @Override
            public void onRatingChanged(RatingBar ratingBar, float v, boolean b) {
                ratingBarValue.setText("Rating bar value : " + v);
            }
        });

        seekBar.setOnSeekBarChangeListener(new
SeekBar.OnSeekBarChangeListener() {
            @Override
```

```
        public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
            seekBarValue.setText("SeekBar value : " + i);
        }

        @Override
        public void onStartTrackingTouch(SeekBar seekBar) {

        }

        @Override
        public void onStopTrackingTouch(SeekBar seekBar) {

        }
    });
  }
}
```

LAB_J4

Manifest.xml

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<GridLayout 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:columnCount="2"
tools:context=".MainActivity">

<androidx.appcompat.widget.AppCompatImageButton
    android:id="@+id/first"
    android:layout_width="150dp"
    android:layout_height="150dp"
    android:layout_margin="11dp"
    android:src="@drawable/screenshot1" />

<androidx.appcompat.widget.AppCompatImageButton
    android:id="@+id/second"
    android:layout_width="150dp"
    android:layout_height="150dp"
    android:layout_margin="11dp"
    android:src="@drawable/screenshot2" />

<androidx.appcompat.widget.AppCompatImageButton
    android:id="@+id/third"
    android:layout_width="150dp"
    android:layout_height="150dp"
    android:layout_margin="11dp"
    android:src="@drawable/screenshot3" />

<androidx.appcompat.widget.AppCompatImageButton
```

```
        android:id="@+id/forth"
        android:layout_width="150dp"
        android:layout_height="150dp"
        android:layout_margin="11dp"
        android:src="@drawable/screenshot4" />
</GridLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j4;


//4. Design an android application to design image gallery by using ImageButton and GridLayout.
//        As per the ImageButton click, display the image properties using Toast definition.


import androidx.appcompat.app.AppCompatActivity;


import android.os.Bundle;
import android.widget.ImageButton;
import android.widget.Toast;


public class MainActivity extends AppCompatActivity {


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ImageButton first, second, third, forth, fifth, sixth;
```

```
first = findViewById(R.id.first);
second = findViewById(R.id.second);
third = findViewById(R.id.third);
forth = findViewById(R.id.forth);

first.setOnClickListener(V -> {

    Toast.makeText(this, "first Image clicked \n" + "image id:" +
first.getId(), Toast.LENGTH_SHORT).show();

});
second.setOnClickListener(V -> {

    Toast.makeText(this, "second Image clicked \n" + "image id:" +
second.getId(), Toast.LENGTH_SHORT).show();

});
third.setOnClickListener(V -> {

    Toast.makeText(this, "third Image clicked \n" + "image id:" +
third.getId(), Toast.LENGTH_SHORT).show();

});
forth.setOnClickListener(V -> {

    Toast.makeText(this, "fourth Image clicked \n" + "image id:" +
forth.getId(),
            Toast.LENGTH_SHORT).show();
```

```
        });

    }
}
```

LAB_J5

Manifest.xml

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:gravity="center"
    android:id="@+id/ll"
    tools:context=".MainActivity">

   <Spinner
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:padding="11dp"
      android:id="@+id/spinner"/>
```

</LinearLayout>

MainActivity.java

```
package com.subhdroid.lab_j5;

//5. Design an android application by using Spinner component to display secondary colors names.
//	As per user selected a color from Spinner component, change the activity background color.

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

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

```
        Spinner spinner = findViewById(R.id.spinner);
        LinearLayout ll = findViewById(R.id.ll);

        String color[] = {"Purple", "Teal", "Black", "White"};

        ArrayAdapter adapter = new ArrayAdapter(this,
                android.R.layout.simple_spinner_item, color);


adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdow
n_item);

        spinner.setAdapter(adapter);

        spinner.setOnItemSelectedListener(new
AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> adapterView, View view,
int i, long l) {
                int id = view.getId();

                if (color[i] == "Purple") {

ll.setBackgroundColor(getResources().getColor(R.color.purple_200));
                }
                if (color[i] == "Teal") {
                    ll.setBackgroundColor(getResources().getColor(R.color.teal_200));
                }
                if (color[i] == "Black") {
```

```
                ll.setBackgroundColor(getResources().getColor(R.color.black));
            }
            if (color[i] == "White") {
                ll.setBackgroundColor(getResources().getColor(R.color.white));
            }
        }

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

        }
    });
  }
}
```

LAB_J6

Manifest.xml

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

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/mobNo"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter mobile no"
        android:inputType="number"
        android:maxEms="10"
        android:padding="11dp" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/callBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Call" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j6;

//6. Write an android code to make phone call using Intent
```

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

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

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

        EditText mobNo = findViewById(R.id.mobNo);
        AppCompatButton callBtn = findViewById(R.id.callBtn);

        callBtn.setOnClickListener(view -> {
            Intent intent = new Intent(Intent.ACTION_CALL);
            intent.setData(Uri.parse("tel:" + mobNo.getText().toString()));
            startActivity(intent);
        });
    }
}
```

LAB_J7

Manifest.xml

```
<uses-permission android:name="android.permission.BLUETOOTH"/>
   <uses-permission
android:name="android.permission.BLUETOOTH_ADMIN"/>
   <uses-permission
android:name="android.permission.BLUETOOTH_CONNECT" />
```

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:gravity="center"
   android:orientation="vertical"
   tools:context=".MainActivity">

   <androidx.appcompat.widget.AppCompatButton
      android:id="@+id/onBtn"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Turn On Bluetooth" />
```

```
    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/offBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Turn Off Bluetooth" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j7;

//7. Write an android code to turn ON/OFF Bluetooth

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.AppCompatButton;
import androidx.core.app.ActivityCompat;

import android.Manifest;
import android.bluetooth.BluetoothAdapter;
import android.content.pm.PackageManager;
import android.os.Bundle;



public class MainActivity extends AppCompatActivity {
```

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

        AppCompatButton onBtn, offBtn;

        onBtn = findViewById(R.id.onBtn);
        offBtn = findViewById(R.id.offBtn);

        final BluetoothAdapter bluetAdapter =
BluetoothAdapter.getDefaultAdapter();

        onBtn.setOnClickListener(view -> {
            if (!bluetAdapter.isEnabled()) {
                if (ActivityCompat.checkSelfPermission(MainActivity.this,
                        Manifest.permission.BLUETOOTH_CONNECT) !=
PackageManager.PERMISSION_GRANTED) {
                    bluetAdapter.enable();
                }
            }
        });

        offBtn.setOnClickListener(view -> {
            if (bluetAdapter.isEnabled()) {
                if (ActivityCompat.checkSelfPermission(MainActivity.this,
                        Manifest.permission.BLUETOOTH_CONNECT) !=
PackageManager.PERMISSION_GRANTED) {
```

```
                bluetAdapter.disable();
            }
        }
    });
  }
}
```

LAB_J8

Manifest.xml

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

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:gravity="center"
  android:orientation="vertical"
  tools:context=".MainActivity">
```

```
    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/onBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Turn On Wi-Fi" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/offBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Turn Off Wi-Fi" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j8;

//8. Write an android code to turn ON /OFF the Wi-Fi

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.AppCompatButton;

import android.content.Context;
import android.net.wifi.WifiManager;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {
```

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



        AppCompatButton onBtn, offBtn;

        onBtn = findViewById(R.id.onBtn);
        offBtn = findViewById(R.id.offBtn);

        WifiManager wifiManager =
                (WifiManager)
getApplicationContext().getSystemService(Context.WIFI_SERVICE);



        onBtn.setOnClickListener(view -> {
            if (!wifiManager.isWifiEnabled()) {
                wifiManager.setWifiEnabled(true);
            }
        });

        offBtn.setOnClickListener(view -> {
            if (wifiManager.isWifiEnabled()) {
                wifiManager.setWifiEnabled(false);
            }
        });
```

```
    }
}
```

LAB_J9

Manifest.xml

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout 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:gravity="center"
    tools:context=".MainActivity">

    <TableRow>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1"
            android:text="Username : "
            android:textSize="18sp" />
```

```
    <EditText
        android:id="@+id/username"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_column="2"
        android:hint="Enter username"
        android:inputType="text" />
</TableRow>

<TableRow>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_column="1"
        android:text="Password : "
        android:textSize="18sp" />

    <EditText
        android:id="@+id/password"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_column="2"
        android:hint="Enter password"
        android:inputType="textPassword" />
</TableRow>
```

```
    <TableRow>

        <androidx.appcompat.widget.AppCompatButton
            android:id="@+id/loginBtn"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="2"
            android:text="Login" />
    </TableRow>


</TableLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j9;

//9. Design android application for login activity by using TableLayout. Write android code to
//        check login credentials with username = "mca" and password = "android". Display appropriate
//        toast message to the user


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

```
import android.os.Bundle;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

        EditText username, password;
        AppCompatButton loginBtn;

        username = findViewById(R.id.username);
        password = findViewById(R.id.password);
        loginBtn = findViewById(R.id.loginBtn);

        loginBtn.setOnClickListener(view -> {
            if (username.getText().toString().equals("mca") &&
password.getText().toString().equals("android")) {
                Toast.makeText(MainActivity.this, "Login Successfully",
Toast.LENGTH_SHORT).show();
            } else {
                Toast.makeText(MainActivity.this, "Login failed",
Toast.LENGTH_SHORT).show();
            }
```

```
        });
    }
}
```

LAB_J10

Manifest.xml

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"
    tools:context=".MainActivity"
    android:orientation="vertical"
    android:weightSum="10">

    <FrameLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/containerFrame"
        android:layout_weight="0.7"/>
```

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="bottom"
    android:layout_weight="9.3">

    <ImageButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:src="@drawable/ic_baseline_home_24"
        android:layout_weight="1"
        android:id="@+id/homeBtn"/>

    <ImageButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:src="@drawable/ic_baseline_ondemand_video_24"
        android:layout_weight="1"
        android:id="@+id/reelsBtn"/>

    <ImageButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:src="@drawable/ic_baseline_notifications_24"
        android:layout_weight="1"
        android:id="@+id/notificationBtn"/>
```

```
        <ImageButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:src="@drawable/ic_baseline_person_24"
            android:layout_weight="1"
            android:id="@+id/profileBtn"/>

    </LinearLayout>

</LinearLayout>
```

home_fragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    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=".HomeFragment"
    android:background="#9CCC65">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Home Page"
        android:gravity="center"
```

```
        android:textStyle="bold"
        android:textSize="25sp"/>

</LinearLayout>
```

profile_fragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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=".ProfileFragment"
    android:background="#FF7043">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Profile Page"
        android:textSize="25sp"
        android:textStyle="bold"
        android:gravity="center"/>

</LinearLayout>
```

reels_fragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    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=".ReelsFragment"
    android:background="#29B6F6">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Reels Page"
        android:textStyle="bold"
        android:textSize="25sp"
        android:gravity="center"/>

</LinearLayout>
```

notification_fragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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=".NotificationsFragment"
```

```
    android:background="#FFEE58">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Notification Page"
        android:gravity="center"
        android:textStyle="bold"
        android:textSize="25sp"/>

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.LAB_J10;

//10. Create a fragment that has its own UI and enable your activities to communicate with
//        fragments.

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

import android.os.Bundle;
import android.widget.ImageButton;

public class MainActivity extends AppCompatActivity {
```

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

        ImageButton homeBtn, reelsBtn, notificationBtn, profileBtn;
        homeBtn = findViewById(R.id.homeBtn);
        reelsBtn = findViewById(R.id.reelsBtn);
        notificationBtn = findViewById(R.id.notificationBtn);
        profileBtn = findViewById(R.id.profileBtn);

        loadFragment(new NotificationsFragment(), 0);

        homeBtn.setOnClickListener(view -> loadFragment(new
HomeFragment(), 1));

        reelsBtn.setOnClickListener(view -> loadFragment(new ReelsFragment(),
1));

        notificationBtn.setOnClickListener(view -> loadFragment(new
NotificationsFragment(), 1));

        profileBtn.setOnClickListener(view -> loadFragment(new
ProfileFragment(), 1));
    }

    public void loadFragment(Fragment fragment, int flag) {
        FragmentManager fm = getSupportFragmentManager();
```

```
        FragmentTransaction ft = fm.beginTransaction();

        if (flag == 0)
            ft.add(R.id.containerFrame, fragment);
        else
            ft.replace(R.id.containerFrame, fragment);

        ft.commit();
    }
}
```

HomeFragment.java

```
package com.subhdroid.LAB_J10;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class HomeFragment extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
```

```
                    Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_home, container, false);
    }
}
```

ProfileFragment.java

```
package com.subhdroid.LAB_J10;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class ProfileFragment extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                    Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_profile, container, false);
    }
}
```

ReelsFragment.java

```
package com.subhdroid.LAB_J10;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;


public class ReelsFragment extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_reels, container, false);
    }
}
```

NotificationFragment.java

```
package com.subhdroid.LAB_J10;

import android.os.Bundle;
```

```
import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;


public class NotificationsFragment extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_notifications, container, false);
    }
}
```

LAB_J11

Manifest.xml

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"
    android:gravity="center"
    tools:context=".MainActivity">

    <ListView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/lstView"/>

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j11;

//11. Demonstrate Array Adapter using List View to display list of fruits.

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;
```

```
public class MainActivity extends AppCompatActivity {

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

        ListView lstView = findViewById(R.id.lstView);

        String fruits[] = {"Apple","Banana","Orange","Mango","Dragan"};

        ArrayAdapter adapter = new ArrayAdapter(MainActivity.this,
                android.R.layout.simple_list_item_1,fruits);

        lstView.setAdapter(adapter);


    }
}
```

LAB_J12

Manifest.xml

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Alert Dialog Box" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j12;

//12. Write an application to demonstrate Alert Dialog Box in android

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
```

```
public class MainActivity extends AppCompatActivity {


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


    }


    @Override
    public void onBackPressed() {
        AlertDialog.Builder alertBox = new
AlertDialog.Builder(MainActivity.this);
        alertBox.setTitle("Exit");
        alertBox.setMessage("Are you sure want to exit?");
        alertBox.setPositiveButton("Yes", (dialogInterface, i) -> finishAffinity());
        alertBox.setNegativeButton("No", (dialogInterface, i) ->
dialogInterface.dismiss());
        alertBox.show();
    }
}
```

LAB_J13

Manifest.xml

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:id="@+id/ll"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/contextMenuTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Context Menu(Long press me)" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/popupMenuBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="21dp"
        android:text="Popup Menu" />

</LinearLayout>
```

menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/save"
        android:title="Save" />
    <item
        android:id="@+id/open"
        android:title="Open" />
    <item
        android:id="@+id/close"
        android:title="Close" />
    <item
        android:id="@+id/exit"
        android:title="Exit" />
</menu>
```

MainActivity.java

```
package com.subhdroid.lab_j13;

//13. Demonstrate Options Menu, Context Menu and Popup Menu in android

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.AppCompatButton;
import androidx.appcompat.widget.PopupMenu;
```

```
import android.graphics.Color;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.LinearLayout;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    LinearLayout ll;

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

        AppCompatButton popupMenuBtn = findViewById(R.id.popupMenuBtn);
        TextView contextMenuTxt = findViewById(R.id.contextMenuTxt);
        ll = findViewById(R.id.ll);
        registerForContextMenu(contextMenuTxt);
```

```
        popupMenuBtn.setOnClickListener(view -> {
            PopupMenu popupMenu = new PopupMenu(MainActivity.this,
popupMenuBtn);
            popupMenu.getMenuInflater().inflate(R.menu.menus_items,
popupMenu.getMenu());
            popupMenu.setOnMenuItemClickListener(item -> {
                Toast.makeText(MainActivity.this, item.getTitle() + " clicked",
                        Toast.LENGTH_SHORT).show();
                return true;
            });

            popupMenu.show();
        });
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        MenuInflater inflater = getMenuInflater();
        inflater.inflate(R.menu.menus_items, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        if (item.getItemId() == R.id.close) {
            Toast.makeText(this, "Close clicked",
Toast.LENGTH_SHORT).show();
        }
```

```
        if (item.getItemId() == R.id.save) {
            Toast.makeText(this, "Save clicked", Toast.LENGTH_SHORT).show();
        }
        if (item.getItemId() == R.id.open) {
            Toast.makeText(this, "Open clicked",
Toast.LENGTH_SHORT).show();
        }
        return true;
    }

    @Override
    public void onCreateContextMenu(ContextMenu menu, View v,
ContextMenu.ContextMenuInfo menuInfo) {
        super.onCreateContextMenu(menu, v, menuInfo);
        menu.setHeaderTitle("Set Background color");
        menu.add(0, v.getId(), 0, "Grey");
        menu.add(0, v.getId(), 0, "Yellow");
        menu.add(0, v.getId(), 0, "Red");
    }

    @Override
    public boolean onContextItemSelected(@NonNull MenuItem item) {
        if (item.getTitle().equals("Grey")) {
            ll.setBackgroundColor(Color.GRAY);
        }
        if (item.getTitle().equals("Yellow")) {
            ll.setBackgroundColor(Color.YELLOW);
        }
```

```
        if (item.getTitle().equals("Red")) {
            ll.setBackgroundColor(Color.RED);
        }
        return true;
    }
}
```

LAB_J14

Manifest.xml

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:gravity="center"
    tools:context=".MainActivity">

   <androidx.appcompat.widget.AppCompatButton
       android:layout_width="wrap_content"
       android:layout_height="wrap_content"
      android:text="Notify me"
      android:id="@+id/btn"/>
```

```
</LinearLayout>
```

activity_new.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:gravity="center"
    tools:context=".NewActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="New Activity" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j14;

//14. Write an application to produce Notification

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

```
import androidx.core.app.NotificationCompat;

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

public class MainActivity extends AppCompatActivity {

    private static final String CHANNEL_ID = "Notification Channel";
    private static final int REQ_CODE = 100;

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

        findViewById(R.id.btn).setOnClickListener(view -> {
            NotificationManager nm = (NotificationManager)
getSystemService(NOTIFICATION_SERVICE);
            NotificationCompat.Builder nb = new NotificationCompat.Builder(this,
CHANNEL_ID);

            Intent intent = new Intent(MainActivity.this, NewActivity.class);
            PendingIntent pendingIntent = PendingIntent.getActivity(this,
REQ_CODE, intent,
```

```
                PendingIntent.FLAG_UPDATE_CURRENT);

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            nb.setSmallIcon(R.drawable.ic_launcher_background)
                    .setContentTitle("New Message Title")
                    .setContentText("Context text")
                    .setSubText("Subtext")
                    .setContentIntent(pendingIntent)
                    .setChannelId(CHANNEL_ID)
                    .build();

            nm.createNotificationChannel((new
NotificationChannel(CHANNEL_ID, "Channel One",
                    NotificationManager.IMPORTANCE_HIGH)));

        } else {
            nb.setSmallIcon(R.drawable.ic_launcher_background)
                    .setContentTitle("New Message Title")
                    .setContentText("Context text")
                    .setSubText("Subtext")
                    .setContentIntent(pendingIntent)
                    .setChannelId(CHANNEL_ID)
                    .build();
        }

        nm.notify(1, nb.build());
    });
  }
```

```
}
```

NewActivity.java

```
package com.subhdroid.lab_j14;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class NewActivity extends AppCompatActivity {

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

LAB_J15

Manifest.xml

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="11dp"
        android:hint="Course name"
        android:inputType="text" />

    <EditText
        android:id="@+id/duration"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="11dp"
        android:hint="Duration (in year)"
        android:inputType="number" />

    <EditText
        android:id="@+id/description"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="11dp"
    android:hint="Description" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/addBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Add Course" />

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

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/updateBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Update" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/deleteBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
        android:text="Delete" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/displayBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Display" />
  </LinearLayout>

  <TextView
    android:id="@+id/txtView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j15;

//15. 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)

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

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

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

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

        MyDBClass mydb = new MyDBClass(this);
        EditText name, duration, description;
        TextView txt = findViewById(R.id.txtView);
        name = findViewById(R.id.name);
        duration = findViewById(R.id.duration);
        description = findViewById(R.id.description);

        findViewById(R.id.addBtn).setOnClickListener(view ->
mydb.addRecord(name.getText().toString(), duration.getText().toString(),
                description.getText().toString()));

        findViewById(R.id.updateBtn).setOnClickListener(view ->
mydb.updateRecord(duration.getText().toString(),
                name.getText().toString()));
```

```
        findViewById(R.id.deleteBtn).setOnClickListener(view ->
mydb.deleteRecord(name.getText().toString()));


        findViewById(R.id.displayBtn).setOnClickListener(view -> {
            ArrayList<CourseModel> list = mydb.getRecords();
            String str = "ID    Name    Duration    Description";


            for (int i = 0; i < list.size(); i++) {


                str += "\n" + list.get(i).id + "    " + list.get(i).name + "    " +
list.get(i).duration + "    " + list.get(i).description;


            }


            txt.setText(str);
        });



    }
}
```

CourseModel.java

```
package com.subhdroid.lab_j15;


public class CourseModel {
    String name, duration, description;
```

```
    int id;

    public CourseModel() {

    }

}
```

MyDBClass.java

```
package com.subhdroid.lab_j15;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.widget.Toast;

import androidx.annotation.Nullable;

import java.util.ArrayList;

public class MyDBClass extends SQLiteOpenHelper {
    private static final String DBName = "LabDB";
    private static final int DB_VERSION = 1;
    Context context;
```

```
    public MyDBClass(@Nullable Context context) {
        super(context, DBName, null, DB_VERSION);
        this.context = context;
    }

    @Override
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
        sqLiteDatabase.execSQL("CREATE TABLE course(id INTEGER
PRIMARY KEY AUTOINCREMENT,name " +
                "TEXT,duration TEXT,description TEXT)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {

    }

    public void addRecord(String name, String duration, String description) {

        SQLiteDatabase database = this.getWritableDatabase();

        ContentValues values = new ContentValues();
        values.put("name", name);
        values.put("duration", duration);
        values.put("description", description);

        database.insert("course", null, values);
```

```
        Toast.makeText(context, "Added successfully",
Toast.LENGTH_SHORT).show();
//        database.close();
    }

    public ArrayList<CourseModel> getRecords() {
        SQLiteDatabase db = this.getReadableDatabase();

        Cursor cursor = db.rawQuery("SELECT * FROM course", null);

        ArrayList<CourseModel> recordList = new ArrayList<>();

        while (cursor.moveToNext()) {

            CourseModel model = new CourseModel();

            model.id = cursor.getInt(0);
            model.name = cursor.getString(1);
            model.duration = cursor.getString(2);
            model.description = cursor.getString(3);

            recordList.add(model);
        }
        return recordList;
    }


    public void updateRecord(String duration, String name) {
```

```
        SQLiteDatabase db = this.getWritableDatabase();

        ContentValues cv = new ContentValues();
        cv.put("duration", duration);

        db.update("course", cv, "name=?", new String[]{name});
        Toast.makeText(context, "Updated successfully",
Toast.LENGTH_SHORT).show();
    }

    public void deleteRecord(String courseName) {
        SQLiteDatabase database = this.getWritableDatabase();

        database.delete("course", "name=?", new String[]{courseName});
        Toast.makeText(context, "Deleted successfully",
Toast.LENGTH_SHORT).show();
    }
}
```

LAB_J16

Manifest.xml

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="11dp"
        android:hint="Course name"
        android:inputType="text" />

    <EditText
        android:id="@+id/duration"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="11dp"
        android:hint="Duration (in year)"
        android:inputType="number" />

    <EditText
        android:id="@+id/description"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="11dp"
    android:hint="Description" />

<androidx.appcompat.widget.AppCompatButton
    android:id="@+id/addBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Add Course" />

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

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/updateBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Update" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/deleteBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
            android:text="Delete" />

        <androidx.appcompat.widget.AppCompatButton
            android:id="@+id/displayBtn"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Display" />
    </LinearLayout>

    <TextView
        android:id="@+id/txtView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j16;

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

import android.os.Bundle;
import android.os.Handler;
import android.util.Log;
import android.widget.EditText;
```

```
import android.widget.TextView;
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;

import java.sql.Array;
import java.util.HashMap;

public class MainActivity extends AppCompatActivity {
    DatabaseReference courseRef =
FirebaseDatabase.getInstance().getReference("course");
    EditText name, duration, description;
    TextView txt;
    String record = "";

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



        txt = findViewById(R.id.txtView);
        name = findViewById(R.id.name);
        duration = findViewById(R.id.duration);
```

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

        findViewById(R.id.addBtn).setOnClickListener(view -> addRecord());

        findViewById(R.id.updateBtn).setOnClickListener(view ->
updateRecord());

        findViewById(R.id.deleteBtn).setOnClickListener(view ->
deleteRecord());

        findViewById(R.id.displayBtn).setOnClickListener(view -> {
            getAllCourse();
            Handler handler = new Handler();
            handler.postDelayed(new Runnable() {
                @Override
                public void run() {
                    txt.setText(record);
                }
            }, 3000);
        });

    }


    private void addRecord() {
        CourseModel courseModel = new CourseModel(name.getText().toString(),
                duration.getText().toString(),
                description.getText().toString());
```

```
        String courseID = courseRef.push().getKey();


        courseRef.child(courseID).setValue(courseModel);
        Toast.makeText(this, "Course added", Toast.LENGTH_SHORT).show();
    }


    private void deleteRecord() {
        courseRef.addValueEventListener(new ValueEventListener() {
            @Override
            public void onDataChange(@NonNull DataSnapshot dataSnapshot) {
                HashMap<String, Array> dataMap = (HashMap<String, Array>)
dataSnapshot.getValue();
                for (String key : dataMap.keySet()) {
                    courseRef.child(key).addValueEventListener(new
ValueEventListener() {
                        @Override
                        public void onDataChange(@NonNull DataSnapshot snapshot) {


                            CourseModel course =
snapshot.getValue(CourseModel.class);


                            if (name.getText().toString().equals(course.getName())) {
                                snapshot.getRef().removeValue();
                                Toast.makeText(MainActivity.this, "Record deleted",
                                        Toast.LENGTH_SHORT).show();
                            }
                        }
```

```
                @Override
                public void onCancelled(@NonNull DatabaseError error) {
                    Log.d("DB Error : ", error.toString());
                }
            });
        }

    }

    @Override
    public void onCancelled(@NonNull DatabaseError error) {
        Toast.makeText(getApplicationContext(), "Fail to get data.",
Toast.LENGTH_SHORT).show();
    }
  });
 }

 private void updateRecord() {
   courseRef.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot dataSnapshot) {
        HashMap<String, Array> dataMap = (HashMap<String, Array>)
dataSnapshot.getValue();
        for (String key : dataMap.keySet()) {
            courseRef.child(key).addValueEventListener(new
ValueEventListener() {
                @Override
```

```
                public void onDataChange(@NonNull DataSnapshot snapshot) {
                    CourseModel course =
snapshot.getValue(CourseModel.class);
                    if (name.getText().toString().equals(course.getName())) {

courseRef.child(key).child("duration").setValue(duration.getText().toString());
                        Toast.makeText(MainActivity.this, "Record Updated",
                                Toast.LENGTH_SHORT).show();
                    }
                }

                @Override
                public void onCancelled(@NonNull DatabaseError error) {
                    Log.d("DB Error : ", error.toString());
                }
            });

        }
    }

    @Override
    public void onCancelled(@NonNull DatabaseError error) {
        Toast.makeText(getApplicationContext(), "Fail to get data.",
Toast.LENGTH_SHORT).show();
    }
  });
}
```

```
    private void getAllCourse() {
        courseRef.addValueEventListener(new ValueEventListener() {
            @Override
            public void onDataChange(@NonNull DataSnapshot dataSnapshot) {
                HashMap<String, Array> dataMap = (HashMap<String, Array>)
dataSnapshot.getValue();
                record = "";
                for (String key : dataMap.keySet()) {
                    courseRef.child(key).addValueEventListener(new
ValueEventListener() {

                        @Override
                        public void onDataChange(@NonNull DataSnapshot snapshot) {

                            CourseModel course =
snapshot.getValue(CourseModel.class);

                            String str = "\n" + course.getName() + "    " +
course.getDuration() +
                                    "    " + course.getDescription();

                            record += str;

                        }

                        @Override
                        public void onCancelled(@NonNull DatabaseError error) {
                            Log.d("DB Error : ", error.toString());
```

```
                }
            });
        }
    }

    @Override
    public void onCancelled(@NonNull DatabaseError error) {
        Toast.makeText(getApplicationContext(), "Fail to get data.",
Toast.LENGTH_SHORT).show();
    }
  });
 }
}
```

CourseModel.java

```
package com.subhdroid.lab_j16;

public class CourseModel {
    String name, duration, description;

    CourseModel(String name, String duration, String description) {
        this.name = name;
        this.duration = duration;
        this.description = description;
    }

    public CourseModel() {
```

```
}

public String getName() {
    return name;
}

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

public String getDuration() {
    return duration;
}

public void setDuration(String duration) {
    this.duration = duration;
}

public String getDescription() {
    return description;
}

public void setDescription(String description) {
    this.description = description;
}
```

}

LAB_J17

Manifest.xml

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

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <WebView
        android:id="@+id/webView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />
```

```
    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Go to Google" />

    <ProgressBar
        android:id="@+id/pgBar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:visibility="gone" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j17;

//17. Demonstrate WebView to display the web pages in an android application.

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.AppCompatButton;

import android.graphics.Bitmap;
import android.os.Bundle;
import android.view.View;
```

```
import android.webkit.WebView;
import android.webkit.WebViewClient;
import android.widget.ProgressBar;

public class MainActivity extends AppCompatActivity {

    WebView webView;
    ProgressBar pgBar;
    AppCompatButton btn;

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

        webView = findViewById(R.id.webView);
        pgBar = findViewById(R.id.pgBar);
        btn = findViewById(R.id.btn);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                webView.loadUrl("https://www.google.com");
                pgBar.setVisibility(View.VISIBLE);
                webView.setWebViewClient(new WebViewClient() {
                    @Override
                    public void onPageStarted(WebView view, String url, Bitmap
favicon) {
                        super.onPageStarted(view, url, favicon);
```

```
            }

            @Override
            public void onPageFinished(WebView view, String url) {
                pgBar.setVisibility(View.GONE);
                btn.setVisibility(View.GONE);
                super.onPageFinished(view, url);
            }
        });
    }
});

}

@Override
public void onBackPressed() {
    if (webView.canGoBack()) {
        webView.goBack();
    } else {
        super.onBackPressed();
    }
}
}
```

LAB_J18

Manifest.xml

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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter name" />

    <EditText
        android:id="@+id/mobile"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter phone no" />

    <androidx.appcompat.widget.AppCompatButton
```

```
        android:id="@+id/setDataBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Set Data" />

    <androidx.appcompat.widget.AppCompatButton
        android:id="@+id/getDataBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Get Data" />

    <TextView
        android:id="@+id/data"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>
```

MainActivity.java

```
package com.subhdroid.lab_j18;

//18. Write an android app to write JSON data into a file and read JSON data from created file.

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

```
import androidx.appcompat.widget.AppCompatButton;

import android.os.Bundle;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import org.json.JSONException;
import org.json.JSONObject;

import java.io.BufferedReader;
import java.io.BufferedWriter;
import java.io.File;
import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;

public class MainActivity extends AppCompatActivity {
    AppCompatButton setDataBtn, getDataBtn;
    EditText name, mobile;
    TextView data;

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

```
        name = findViewById(R.id.name);
        mobile = findViewById(R.id.mobile);
        data = findViewById(R.id.data);

        setDataBtn = findViewById(R.id.setDataBtn);
        getDataBtn = findViewById(R.id.getDataBtn);

        setDataBtn.setOnClickListener(view -> setData());

        getDataBtn.setOnClickListener(view -> getData());
    }

    private void setData() {
        JSONObject jsonObject = new JSONObject();
        try {
            jsonObject.put("Name", name.getText().toString());
            jsonObject.put("Phone", mobile.getText().toString());
        } catch (JSONException e) {
            e.printStackTrace();
        }
        String userString = jsonObject.toString();
        try {
            File file = new File(getApplicationContext().getFilesDir(),
"LAB_J18.json");
            FileWriter fileWriter = new FileWriter(file);
            BufferedWriter bufferedWriter = new BufferedWriter(fileWriter);
            bufferedWriter.write(userString);
```

```
            bufferedWriter.close();
        } catch (IOException e) {
            e.printStackTrace();
        }
        Toast.makeText(this, "Data Set", Toast.LENGTH_SHORT).show();
    }

    private void getData() {
        try {
            File file = new File(getApplicationContext().getFilesDir(),
"LAB_J18.json");
            FileReader fileReader = new FileReader(file);
            BufferedReader bufferedReader = new BufferedReader(fileReader);
            StringBuilder stringBuilder = new StringBuilder();
            String line = bufferedReader.readLine();
            while (line != null) {
                stringBuilder.append(line).append("\n");
                line = bufferedReader.readLine();
            }
            bufferedReader.close();
            String response = stringBuilder.toString();
            JSONObject jsonObject = new JSONObject(response);
            String rec = "Name : " + jsonObject.get("Name");
            rec += "\nPhone : " + jsonObject.get("Phone");
            data.setText(rec);

        } catch (IOException e) {
            e.printStackTrace();
```

```
        } catch (JSONException e) {
            e.printStackTrace();
        }
    }
}
```