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| --- | --- | --- |
| **S.No** | **Practical List** | **Faculty Signature** |
| **1** | Create "hello world" application to display "hello world" in the middle of the screen in the emulator as well as android phone. |  |
| **2** | Create an android app to display various android lifecycle phases. |  |
| **3** | Create a calculator app that performs addition, subtraction, division and multiplication operation on numbers |  |
| **4** | Write an Android application to convert into different currencies for example, Rupees to dollar. |  |
| **5** | Write an application to mark the daily route of travel in map. |  |
| **6** | Create a spinner application with strings taken from resource directory res/values/strings.xml and on changing the spinner value, image will change. Image is saved in the drawable directory. |  |
| **7** | Create an app that uses radio button group which calculates discount on shopping bill amount. Use ediitext to enter bill amount and select one of three radio buttons to determine a discount for 10, 15, or 20 percent.the discount is calculated upon selection of one of the buttons and displayed in a textview control. |  |
| **8** | Create a login application to verify username and password. On successful login, redirect to another activity that has a textview to display "welcome user" with logout button. On click of logout button, a dialog should appear with ok and cancel buttons. On click of oK button, go back to the login activity and on click of cancel button, stay on the same activity. |  |
| **9** | Create an application to perform the operations of create, insert, delete, view and update, using sqlite database. |  |
| **10** | Create an application to pick up any image from the native application gallery and display it on the screen. |  |
| **11** | Create an application to take picture using native application. |  |

**Program 1: Create "hello world" application to display "hello world" in the middle of the screen in the emulator as well as android phone.**

**CODE:**

**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:gravity="center">

<TextView

android:id="@+id/helloText"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Hello World"

android:textSize="24sp"

android:textStyle="bold"/>

</RelativeLayout>

**MainActivity.java:**

package com.example.helloworld;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

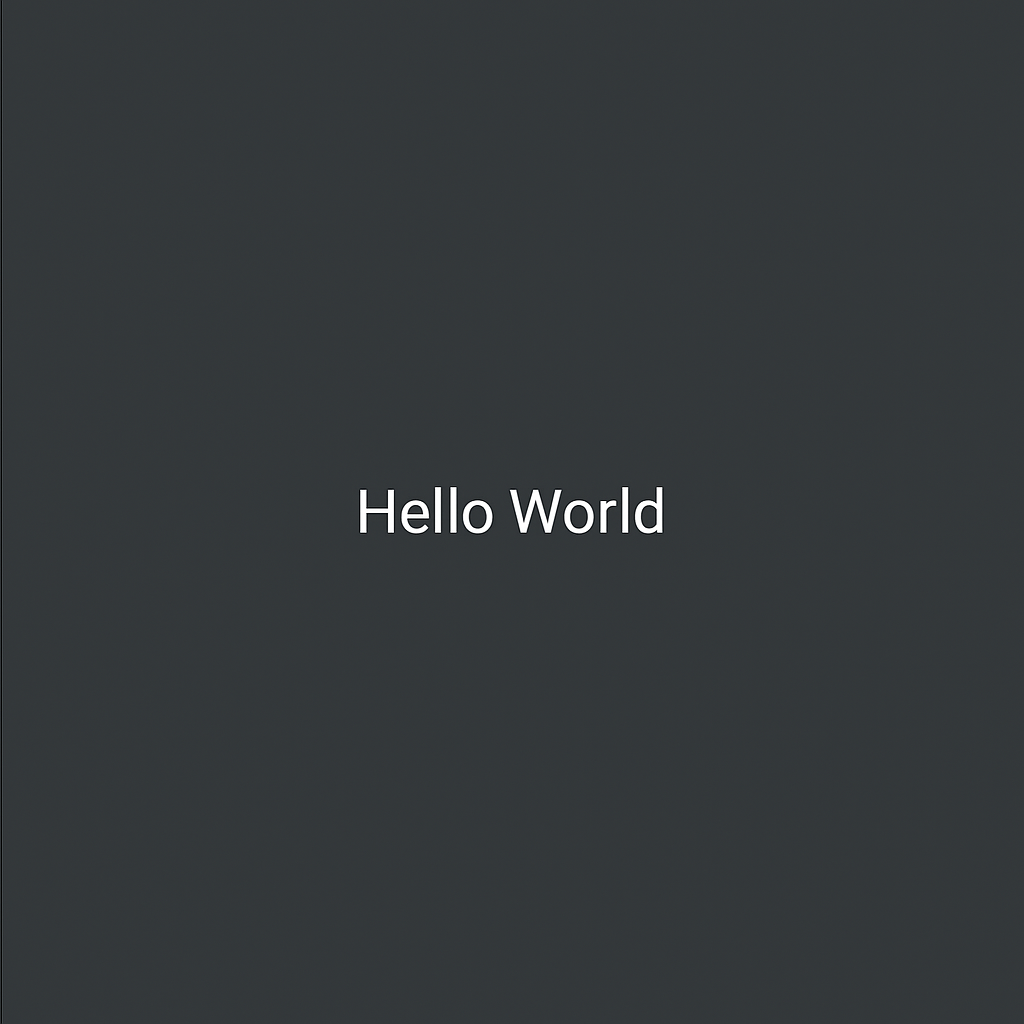
super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

}

}

**OUTPUT:**

****

**Program 2: Create an android app to display various android lifecycle phases.**

**CODE:**

**MainActivity.java:**

package com.example.lifecycleapp;

import android.os.Bundle;

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);

Toast.makeText(this, "onCreate Called", Toast.LENGTH\_SHORT).show();

}

@Override

protected void onStart() {

super.onStart();

Toast.makeText(this, "onStart Called", Toast.LENGTH\_SHORT).show();

}

@Override

protected void onResume() {

super.onResume();

Toast.makeText(this, "onResume Called", Toast.LENGTH\_SHORT).show();

}

@Override

protected void onPause() {

super.onPause();

Toast.makeText(this, "onPause Called", Toast.LENGTH\_SHORT).show();

}

@Override

protected void onStop() {

super.onStop();

Toast.makeText(this, "onStop Called", Toast.LENGTH\_SHORT).show();

}

@Override

protected void onDestroy() {

super.onDestroy();

Toast.makeText(this, "onDestroy Called", Toast.LENGTH\_SHORT).show();

}

}

**Program 3:** Create a calculator app that performs addition, subtraction, division and multiplication operation on numbers

**CODE:**

**activity\_main.xml:**

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical" android:layout\_width="match\_parent"

android:layout\_height="match\_parent" android:padding="16dp">

<EditText android:id="@+id/num1"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Enter number 1"

android:inputType="numberDecimal"/>

<EditText android:id="@+id/num2"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Enter number 2"

android:inputType="numberDecimal"/>

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Add"/>

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Subtract"/>

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Multiply"/>

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Divide"/>

<TextView android:id="@+id/result"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Result will appear here"

android:textSize="20sp"

android:paddingTop="20dp"/>

</LinearLayout>

**MainActivity.java:**

package com.example.calculatorapp;

import android.os.Bundle;

import android.view.View;

import android.widget.\*;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

EditText num1, num2;

TextView result;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

num1 = findViewById(R.id.num1);

num2 = findViewById(R.id.num2);

result = findViewById(R.id.result);

findViewById(R.id.addBtn).setOnClickListener(v -> calculate('+'));

findViewById(R.id.subBtn).setOnClickListener(v -> calculate('-'));

findViewById(R.id.mulBtn).setOnClickListener(v -> calculate('\*'));

findViewById(R.id.divBtn).setOnClickListener(v -> calculate('/'));

}

void calculate(char operator) {

double a = Double.parseDouble(num1.getText().toString());

double b = Double.parseDouble(num2.getText().toString());

double res = 0;

switch (operator) {

case '+': res = a + b; break;

case '-': res = a - b; break;

case '\*': res = a \* b; break;

case '/': res = a / b; break;

}

result.setText("Result: " + res);

}

}

**Program 4:** Write an Android application to convert into different currencies for example, Rupees to dollar.

**CODE:**

**activity\_main.xml:**

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical"

android:padding="16dp">

<EditText

android:id="@+id/rupees"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Enter amount in INR"

android:inputType="numberDecimal" />

<Button

android:id="@+id/convert"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Convert to USD" />

<TextView

android:id="@+id/result"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Converted amount will appear here"

android:textSize="20sp"

android:paddingTop="20dp"/>

</LinearLayout>

**MainActivity.java:**

package com.example.currencyconverter;

import android.os.Bundle;

import android.widget.\*;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

EditText rupees;

TextView result;

final double USD\_RATE = 0.012; // 1 INR = 0.012 USD approx.

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

rupees = findViewById(R.id.rupees);

result = findViewById(R.id.result);

Button convert = findViewById(R.id.convert);

convert.setOnClickListener(v -> {

double amount = Double.parseDouble(rupees.getText().toString());

double usd = amount \* USD\_RATE;

result.setText("USD: $" + usd);

});

}

}

**Program 5:** Write an application to mark the daily route of travel in map.

**CODE:**

**activity\_main.xml:**

<fragment xmlns:android="http://schemas.android.com/apk/res/android"

android:id="@+id/map"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:name="com.google.android.gms.maps.SupportMapFragment"/>

**MainActivity.java:**

package com.example.travelmap;

import androidx.fragment.app.FragmentActivity;

import android.os.Bundle;

import com.google.android.gms.maps.\*;

import com.google.android.gms.maps.model.\*;

public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {

private GoogleMap mMap;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_maps);

SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()

.findFragmentById(R.id.map);

assert mapFragment != null;

mapFragment.getMapAsync(this);

}

@Override

public void onMapReady(GoogleMap googleMap) {

mMap = googleMap;

LatLng home = new LatLng(28.6139, 77.2090); // example: Delhi

LatLng college = new LatLng(28.6270, 77.3649); // example

mMap.addMarker(new MarkerOptions().position(home).title("Home"));

mMap.addMarker(new MarkerOptions().position(college).title("College"));

mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(home, 10));

mMap.addPolyline(new PolylineOptions().add(home, college).width(5).color(0xFFFF0000));

}

}

**Program 6:** Create a spinner application with strings taken from resource directory res/values/strings.xml and on changing the spinner value, image will change. Image is saved in the drawable directory.

**CODE:**

**activity\_main.xml:**

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<Spinner

android:id="@+id/imageSpinner"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" />

<ImageView

android:id="@+id/imageView"

android:layout\_width="match\_parent"

android:layout\_height="300dp"

android:scaleType="fitCenter"/>

</LinearLayout>

**Strings.xml:**

<resources>

<string name="app\_name">SpinnerImageApp</string>

<string-array name="image\_names">

<item>Image 1</item>

<item>Image 2</item>

<item>Image 3</item>

</string-array>

</resources>

**MainActivity.java:**

package com.example.spinnerimage;

import android.os.Bundle;

import android.view.View;

import android.widget.\*;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

Spinner spinner;

ImageView imageView;

int[] images = {R.drawable.img1, R.drawable.img2, R.drawable.img3};

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

spinner = findViewById(R.id.imageSpinner);

imageView = findViewById(R.id.imageView);

ArrayAdapter<CharSequence> adapter = ArrayAdapter.createFromResource(this,

R.array.image\_names, android.R.layout.simple\_spinner\_item);

adapter.setDropDownViewResource(android.R.layout.simple\_spinner\_dropdown\_item);

spinner.setAdapter(adapter);

spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {

public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {

imageView.setImageResource(images[position]);

}

public void onNothingSelected(AdapterView<?> parent) {}

});

}

}

**Program 7:** Create an app that uses radio button group which calculates discount on shopping bill amount. Use ediitext to enter bill amount and select one of three radio buttons to determine a discount for 10, 15, or 20 percent.the discount is calculated upon selection of one of the buttons and displayed in a textview control.

**CODE:**

**activity\_main.xml:**

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<EditText

android:id="@+id/urlInput"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Enter URL (e.g., google.com)" />

<Button

android:id="@+id/loadBtn"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Go" />

<WebView

android:id="@+id/webView"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent" />

</LinearLayout>

**MainActivity.java:**

package com.example.webbrowser;

import android.os.Bundle;

import android.webkit.WebSettings;

import android.webkit.WebView;

import android.webkit.WebViewClient;

import android.widget.\*;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

WebView webView;

EditText urlInput;

Button loadBtn;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

webView = findViewById(R.id.webView);

urlInput = findViewById(R.id.urlInput);

loadBtn = findViewById(R.id.loadBtn);

WebSettings webSettings = webView.getSettings();

webSettings.setJavaScriptEnabled(true);

webView.setWebViewClient(new WebViewClient());

loadBtn.setOnClickListener(v -> {

String url = urlInput.getText().toString();

if (!url.startsWith("http")) url = "http://" + url;

webView.loadUrl(url);

});

}

}

**Permissions (Add in AndroidManifest.xml):**

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

**Program 8:** Create a login application to verify username and password. On successful login, redirect to another activity that has a textview to display "welcome user" with logout button. On click of logout button, a dialog should appear with ok and cancel buttons. On click of oK button, go back to the login activity and on click of cancel button, stay on the same activity.

**CODE:**

**activity\_main.xml:**

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:padding="16dp"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<EditText

android:id="@+id/username"

android:hint="Username"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" />

<EditText

android:id="@+id/password"

android:hint="Password"

android:inputType="textPassword"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" />

<Button

android:id="@+id/loginBtn"

android:text="Login"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" />

</LinearLayout>

**MainActivity.java:**

package com.example.loginapp;

import android.os.Bundle;

import android.widget.\*;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

EditText username, password;

Button loginBtn;

DBHelper db;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

db = new DBHelper(this);

username = findViewById(R.id.username);

password = findViewById(R.id.password);

loginBtn = findViewById(R.id.loginBtn);

loginBtn.setOnClickListener(v -> {

String user = username.getText().toString();

String pass = password.getText().toString();

if (db.checkUser(user, pass)) {

Toast.makeText(this, "Login Successful", Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(this, "Invalid Credentials", Toast.LENGTH\_SHORT).show();

}

});

}

}

**DBHelper.java:**

package com.example.loginapp;

import android.content.Context;

import android.database.sqlite.\*;

import android.database.\*;

public class DBHelper extends SQLiteOpenHelper {

public DBHelper(Context context) {

super(context, "LoginDB", null, 1);

}

@Override

public void onCreate(SQLiteDatabase db) {

db.execSQL("CREATE TABLE users(username TEXT, password TEXT)");

db.execSQL("INSERT INTO users VALUES('admin', 'admin123')");

}

@Override

public void onUpgrade(SQLiteDatabase db, int oldV, int newV) {

db.execSQL("DROP TABLE IF EXISTS users");

onCreate(db);

}

public boolean checkUser(String username, String password) {

SQLiteDatabase db = this.getReadableDatabase();

Cursor cursor = db.rawQuery("SELECT \* FROM users WHERE username=? AND password=?",

new String[]{username, password});

return cursor.getCount() > 0;

}

}

**Program 9:** Create an application to perform the operations of create, insert,

delete, view and update, using sqlite database.

**CODE:**

**activity\_main.xml:**

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="16dp">

<Button

android:id="@+id/startServiceBtn"

android:text="Start Service"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/stopServiceBtn"

android:text="Stop Service"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

</LinearLayout>

**MainActivity.java:**

package com.example.myservice;

import android.content.Intent;

import android.os.Bundle;

import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

Button start = findViewById(R.id.startServiceBtn);

Button stop = findViewById(R.id.stopServiceBtn);

start.setOnClickListener(v -> startService(new Intent(this, MyService.class)));

stop.setOnClickListener(v -> stopService(new Intent(this, MyService.class)));

}

}

**MyService.java:**

package com.example.myservice;

import android.app.Service;

import android.content.Intent;

import android.os.IBinder;

import android.widget.Toast;

public class MyService extends Service {

@Override

public IBinder onBind(Intent intent) {

return null;

}

public void onCreate() {

Toast.makeText(this, "Service Created", Toast.LENGTH\_SHORT).show();

}

public int onStartCommand(Intent intent, int flags, int startId) {

Toast.makeText(this, "Service Running", Toast.LENGTH\_SHORT).show();

return START\_STICKY;

}

public void onDestroy() {

Toast.makeText(this, "Service Stopped", Toast.LENGTH\_SHORT).show();

}

}

****Declare in** AndroidManifest.xml**:****

<service android:name=".MyService" />

**Program 10:** Create an application to pick up any image from the native application gallery and display it on the screen.

**CODE:**

**MainActivity.java:**

package com.example.xmlparser;

import android.os.Bundle;

import android.util.Xml;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

import org.xmlpull.v1.XmlPullParser;

import java.io.StringReader;

public class MainActivity extends AppCompatActivity {

String xml = "<students><student><name>John</name><age>20</age></student></students>";

TextView tv;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

tv = new TextView(this);

setContentView(tv);

parseXML();

}

void parseXML() {

try {

XmlPullParser parser = Xml.newPullParser();

parser.setInput(new StringReader(xml));

int eventType = parser.getEventType();

StringBuilder sb = new StringBuilder();

while (eventType != XmlPullParser.END\_DOCUMENT) {

if (eventType == XmlPullParser.START\_TAG && parser.getName().equals("name")) {

sb.append("Name: ").append(parser.nextText()).append("\n");

} else if (eventType == XmlPullParser.START\_TAG && parser.getName().equals("age")) {

sb.append("Age: ").append(parser.nextText()).append("\n");

}

eventType = parser.next();

}

tv.setText(sb.toString());

} catch (Exception e) {

tv.setText("Error parsing XML: " + e.getMessage());

}

}

}

**Program 11:** Create an application to take picture using native application.

**CODE:**

**MainActivity.java:**

package com.example.jsonparser;

import android.os.Bundle;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

import org.json.JSONObject;

public class MainActivity extends AppCompatActivity {

String json = "{\"name\":\"Alice\",\"age\":25,\"city\":\"Delhi\"}";

TextView tv;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

tv = new TextView(this);

setContentView(tv);

parseJSON();

}

void parseJSON() {

try {

JSONObject obj = new JSONObject(json);

String text = "Name: " + obj.getString("name") +

"\nAge: " + obj.getInt("age") +

"\nCity: " + obj.getString("city");

tv.setText(text);

} catch (Exception e) {

tv.setText("Error parsing JSON");

}

}

}