Practical - 1

Question: Create Hello World application to display "Hello World" in the middle of the screen in the emulator as well as android phone.

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:background="#2E2E2E"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/helloWorldText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:text="Hello World :)"
        android:textColor="#FFCF00"
        android:textSize="50dp" />

</RelativeLayout>
```

Outputs:


12:50
Hello World :)
This is the Emulator Screen
Hello World :)
This is the Phone Screen

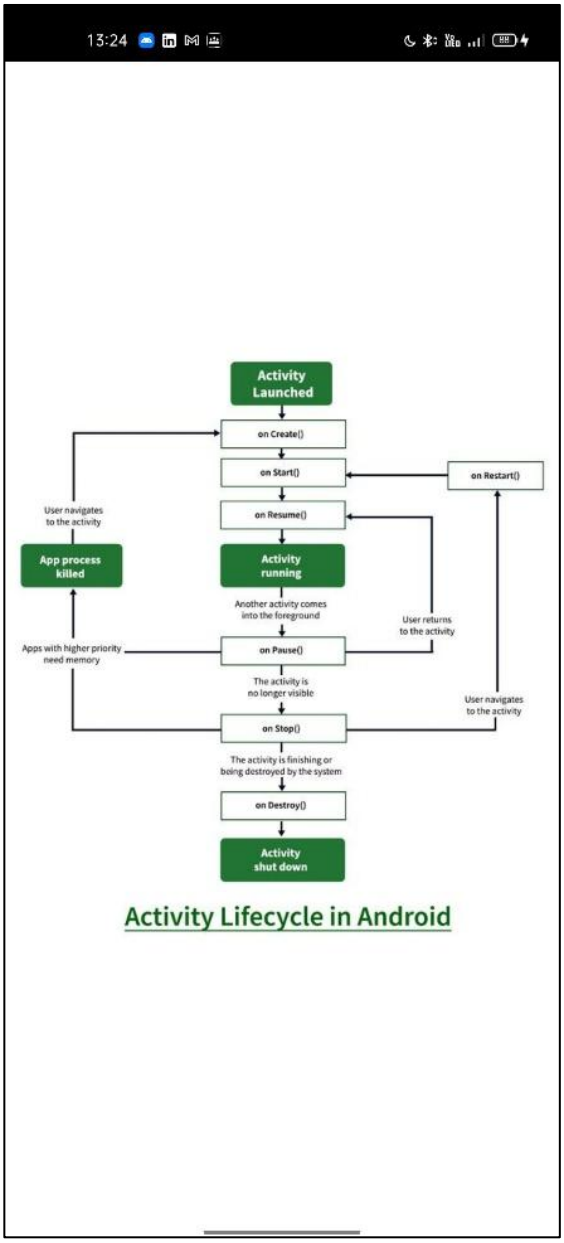
Practical - 2

Question: Create an android application to display various android lifecycle phases.

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"
    android:background="@color/white">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_centerInParent="true"
        android:src="@drawable/img1" />

</RelativeLayout>
```

Output:


13:24
Activity Launched
on Create()
on Start()
on Restart()
on Resume()
User navigates to the activity
App process killed
Activity running
Another activity comes into the foreground
User returns to the activity
Apps with higher priority need memory
on Pause()
The activity is no longer visible
User navigates to the activity
on Stop()
The activity is finishing or being destroyed by the system
on Destroy()
Activity shut down
Activity Lifecycle in Android

Practical - 3

Question: Create a calculator app that performs addition, subtraction, division and multiplication operations on numbers.

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/heading"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="CALCULATOR"
        android:textSize="30sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <TextView
        android:id="@+id/calcBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:hint="Calculations"
        android:padding="10sp"
        android:textAlignment="center"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/heading" />
    <GridLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/calcBox"
        android:layout_marginTop="25dp"
        android:columnCount="4"
        android:padding="5sp"
        android:rowCount="6"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/calcBox">

        <Button
            android:layout_columnSpan="1"
            android:layout_columnWeight="0"
            android:onClick="onClearClick"
            android:text="AC" />
```

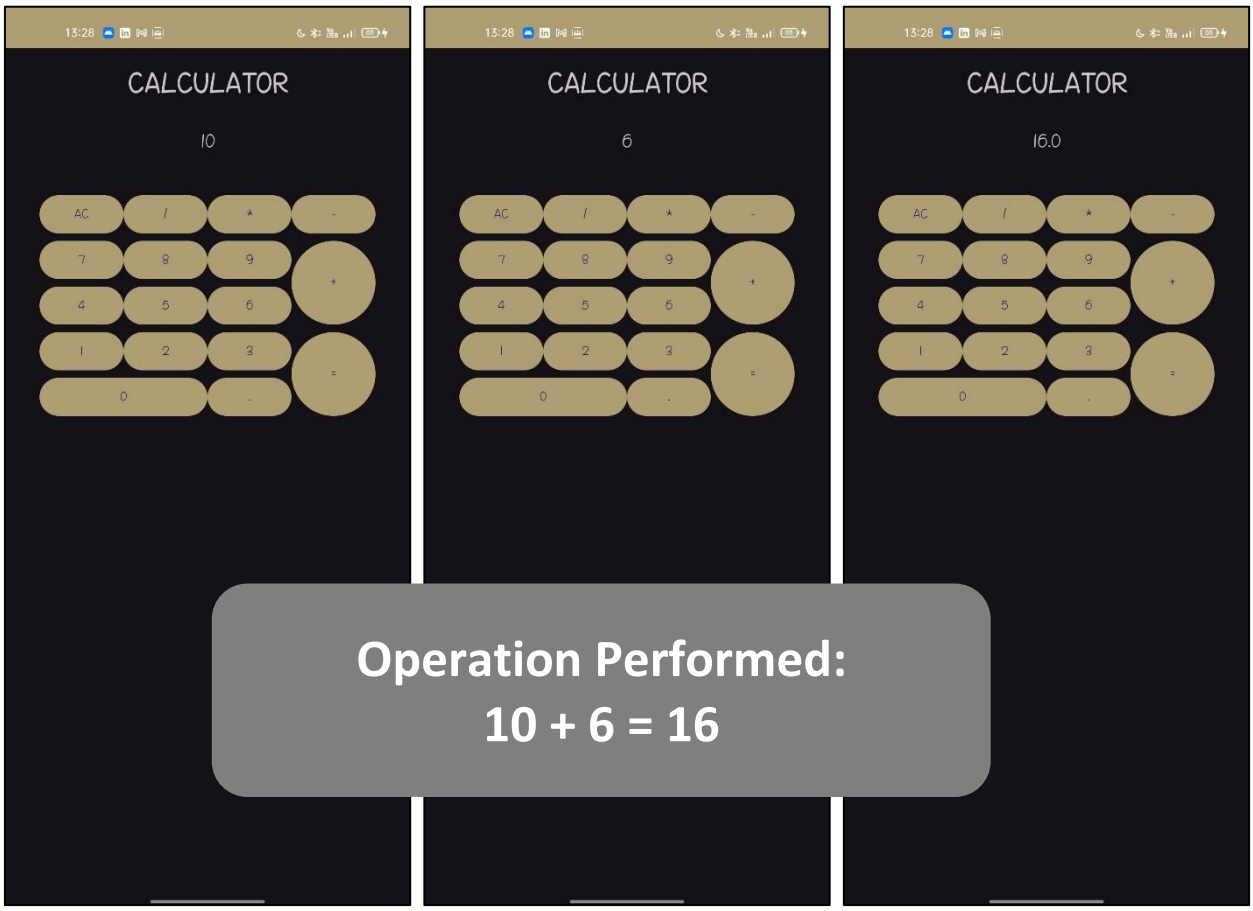
```
        <Button
            android:onClick="onOperatorClick"
            android:text="/" />
        <Button
            android:onClick="onOperatorClick"
            android:text="*" />
        <Button
            android:onClick="onOperatorClick"
            android:text="-" />
        <Button
            android:onClick="onNumberClick"
            android:text="7" />
        <Button
            android:onClick="onNumberClick"
            android:text="8" />
        <Button
            android:onClick="onNumberClick"
            android:text="9" />
        <Button
            android:layout_rowSpan="2"
            android:layout_rowWeight="1"
            android:onClick="onOperatorClick"
            android:text="+" />
        <Button
            android:onClick="onNumberClick"
            android:text="4" />
        <Button
            android:onClick="onNumberClick"
            android:text="5" />
        <Button
            android:onClick="onNumberClick"
            android:text="6" />
        <Button
            android:onClick="onNumberClick"
            android:text="1" />
        <Button
            android:onClick="onNumberClick"
            android:text="2" />
        <Button
            android:onClick="onNumberClick"
            android:text="3" />
        <Button
            android:layout_rowSpan="2"
            android:layout_rowWeight="1"
            android:onClick="onEqualClick"
            android:text="=" />
        <Button
            android:layout_columnSpan="2"
            android:layout_columnWeight="1"
            android:onClick="onNumberClick"
            android:text="0" />
        <Button
            android:onClick="onDecimalClick"
            android:text="." />
    </GridLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```
package com.gamezoned.prac3;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    private TextView calcBox;
    private String currentInput = "";
    private String currentOperator = "";
    private double currentResult = 0;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        calcBox = findViewById(R.id.calcBox);
    }
    public void onNumberClick(View view) {
        Button button = (Button) view;
        currentInput += button.getText().toString();
        updateResultTextView();
    }
    public void onOperatorClick(View view) {
        Button button = (Button) view;
        try {
            currentOperator = button.getText().toString();
            currentResult = Double.parseDouble(currentInput);
            currentInput = "";
        } catch (Exception err) {
            System.out.println(err);
        }
    }
    public void onEqualClick(View view) {
        if (!currentInput.isEmpty()) {
            double secondOperand = Double.parseDouble(currentInput);
            switch (currentOperator) {
                case "+":
                    currentResult += secondOperand;
                    break;
                case "-":
                    currentResult -= secondOperand;
                    break;
                case "*":
                    currentResult *= secondOperand;
                    break;
                case "/":
                    if (secondOperand != 0) {
                        currentResult /= secondOperand;
                    } else {
                        currentResult = Double.NaN; // Handle division by zero
                    }
                    break;
            }
            currentInput = "";
            updateResultTextView();
```

```
        }
    }
    public void onClearClick(View view) {
        currentInput = "";
        currentOperator = "";
        currentResult = 0;
        updateResultTextView();
    }
    public void onDecimalClick(View view) {
        if (!currentInput.contains(".")) {
            currentInput += ".";
            updateResultTextView();
        }
    }
    private void updateResultTextView() {
        calcBox.setText(currentInput.isEmpty()? String.valueOf(currentResult): currentInput);
    }
}
```

Outputs:


CALCULATOR
10
CALCULATOR
6
CALCULATOR
16.0
Operation Performed:
10 + 6 = 16

Practical - 4

Question: Write an Android application to convert into different currencies. For example, Dollar to Euro.

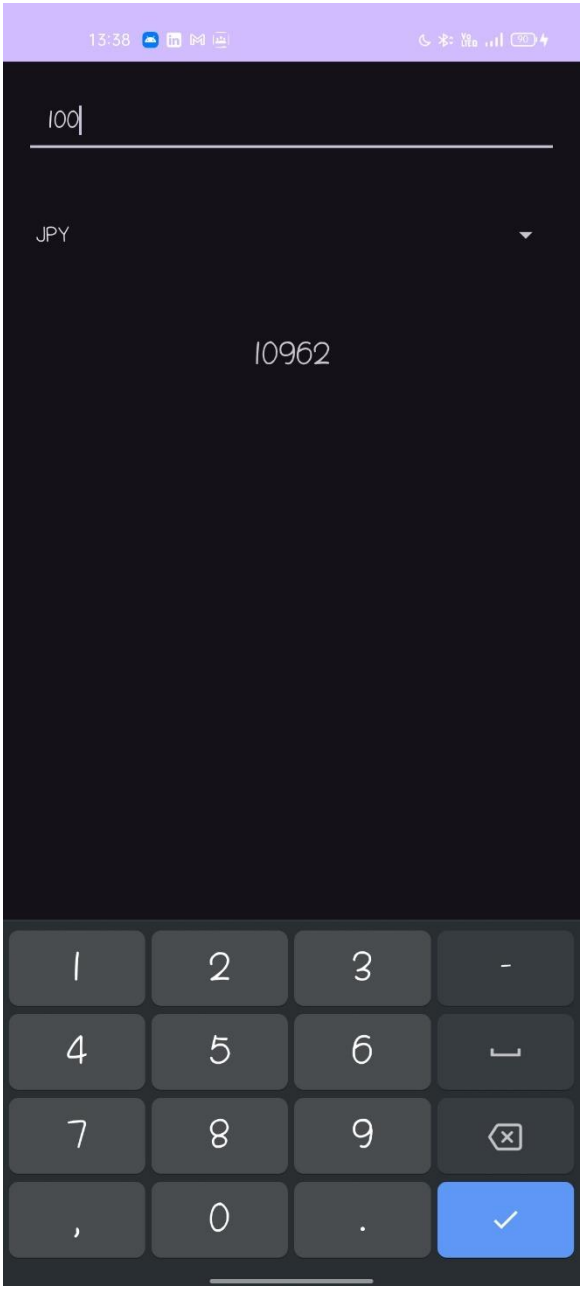
activity_main.xml:

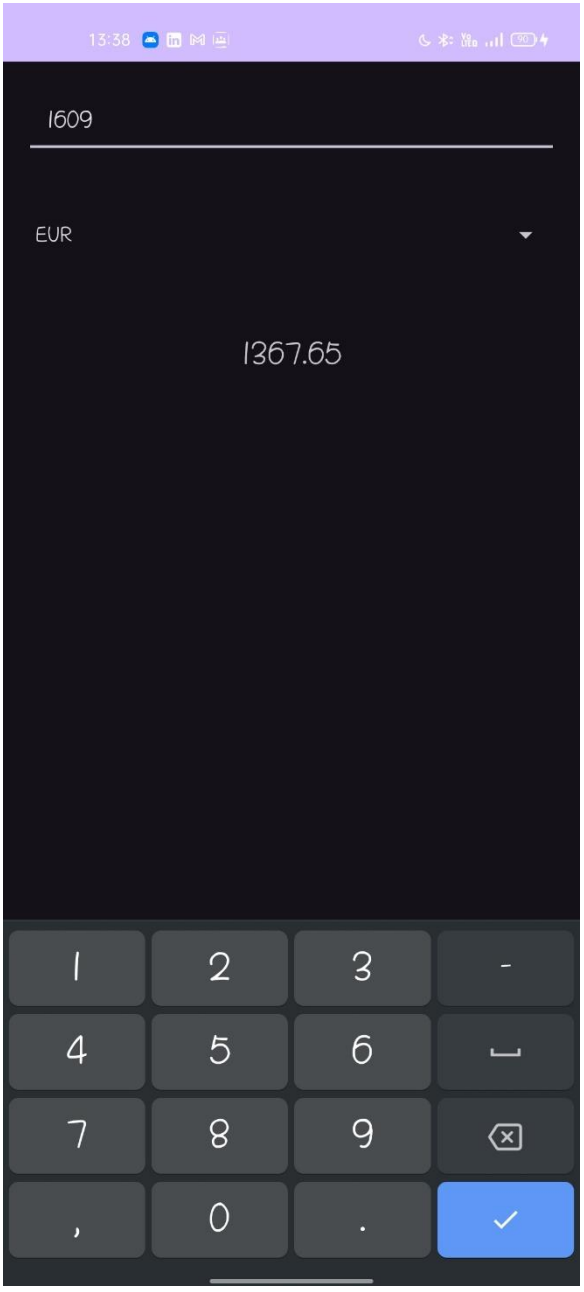
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/inputEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Amount"
        android:inputType="numberDecimal"
        android:padding="16dp"
        android:layout_margin="16dp" />

    <Spinner
        android:id="@+id/currencySpinner"
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:layout_below="@id/inputEditText"
        android:layout_margin="16dp"/>

    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/currencySpinner"
        android:layout_centerHorizontal="true"
        android:textSize="24sp"
        android:layout_marginTop="32dp"/>

</RelativeLayout>
```

MainActivity.java:

```
package com.gamezoned.prac4;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
import java.text.DecimalFormat;
import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {
    private EditText inputEditText;
    private TextView resultTextView;
    private Spinner currencySpinner;
    private List<String> currencyList = new ArrayList<>();
    private double[] exchangeRates = {1.0, 0.85, 0.72, 109.62};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        inputEditText = findViewById(R.id.inputEditText);
        resultTextView = findViewById(R.id.resultTextView);
        currencySpinner = findViewById(R.id.currencySpinner);
        currencyList.add("USD");
        currencyList.add("EUR");
        currencyList.add("GBP");
        currencyList.add("JPY");

        ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.simple_spinner_item,
currencyList);
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        currencySpinner.setAdapter(adapter);
        currencySpinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> adapterView, View view, int position,
long l) { convertCurrency(); }
            @Override
            public void onNothingSelected(AdapterView<?> adapterView) {}
        });
    }
    private void convertCurrency() {
        String inputStr = inputEditText.getText().toString().trim();
        if (!inputStr.isEmpty()) {
            double amount = Double.parseDouble(inputStr);
            int selectedCurrencyIndex = currencySpinner.getSelectedItemPosition();
            double convertedAmount = amount * exchangeRates[selectedCurrencyIndex];
            DecimalFormat df = new DecimalFormat("#.##");
            resultTextView.setText(df.format(convertedAmount));
        } else { resultTextView.setText(""); }
    }
}
```

Outputs:


13:38
100
JPY
10962
1
2
3
-
4
5
6
7
8
9
,
0
.


13:38
1609
EUR
1367.65
1
2
3
-
4
5
6
7
8
9
,
0
.

Practical - 5

Question: Write an application to mark the daily route of travel in map.

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">

    <fragment
        android:id="@+id/map_fragment"
        android:name="com.google.android.gms.maps.SupportMapFragment"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_above="@id/add_marker_button"/>

    <Button
        android:id="@+id/add_marker_button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Add Marker"
        android:layout_alignParentBottom="true"/>

</RelativeLayout>
```

MainActivity.java:

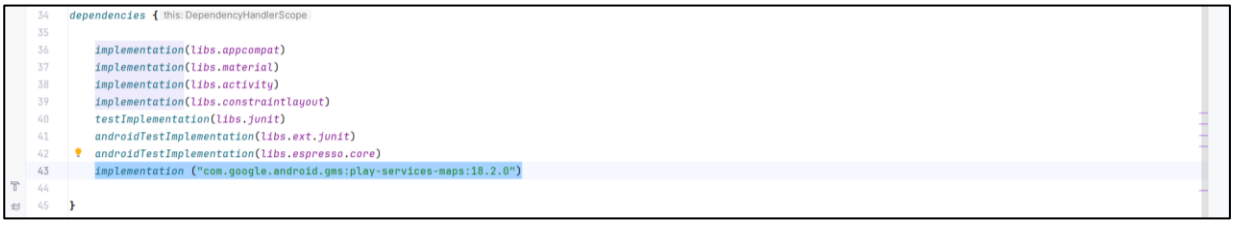
```
package in.activity_training.myapplication;

import android.Manifest;
import android.content.pm.PackageManager;
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;

import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;

public class MainActivity extends AppCompatActivity implements OnMapReadyCallback {

    private static final int LOCATION_PERMISSION_REQUEST_CODE = 1;
    private GoogleMap mMap;
    private Button addMarkerButton;

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

        SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()
                .findFragmentById(R.id.map_fragment);
        if (mapFragment != null) {  mapFragment.getMapAsync(this);  }

        addMarkerButton = findViewById(R.id.add_marker_button);
        addMarkerButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (mMap != null) {
                    LatLng currentLocation = mMap.getCameraPosition().target;
                    addMarker(currentLocation);
                }
            }
        });
    }

    @Override
    public void onMapReady(@NonNull GoogleMap googleMap) {
        mMap = googleMap;
        if (ContextCompat.checkSelfPermission(this, Manifest.permission.ACCESS_FINE_LOCATION)
== PackageManager.PERMISSION_GRANTED) {  enableMyLocation();  }
        else      {      ActivityCompat.requestPermissions(this,      new      String[]      {
Manifest.permission.ACCESS_FINE_LOCATION }, LOCATION_PERMISSION_REQUEST_CODE); }
        LatLng defaultLocation = new LatLng(0, 0);
        mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(defaultLocation, 10));
```

```
    }

    @Override
    public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions,
@NonNull int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions, grantResults);
        if (requestCode == LOCATION_PERMISSION_REQUEST_CODE) {
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) { enableMyLocation(); }
            else { Toast.makeText(this, "Location permission denied",
Toast.LENGTH_SHORT).show(); }
        }
    }

    private void enableMyLocation() {
        if (mMap != null) {
           if (ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED && ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) != PackageManager.PERMISSION_GRANTED) { return; }
           mMap.setMyLocationEnabled(true);
        }
    }

    private void addMarker(LatLng latLng) {
        mMap.addMarker(new MarkerOptions().position(latLng));
        Toast.makeText(MainActivity.this, "Marker added", Toast.LENGTH_SHORT).show();
    }
}
```

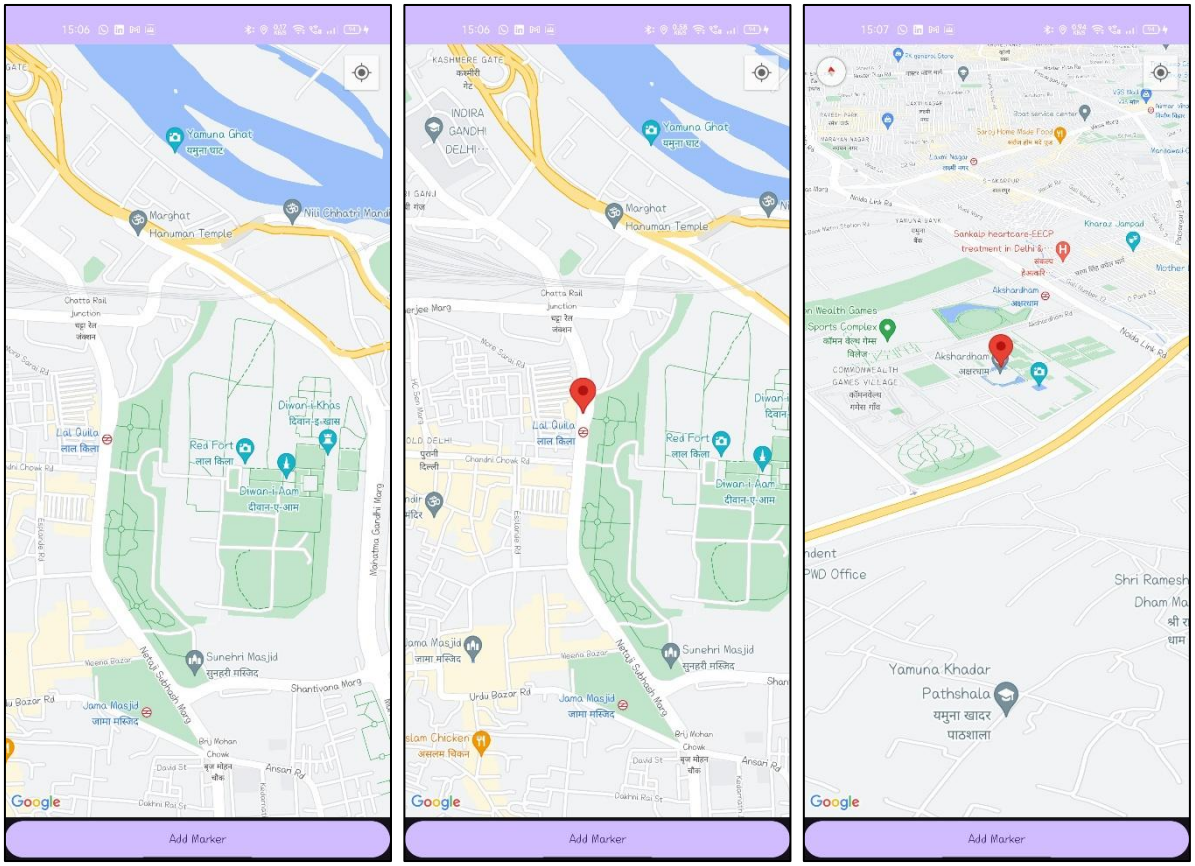
AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">
    <uses-permission android:name="android.permission.INTERNET" />
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MyApplication"
        tools:targetApi="31">
        <meta-data
            android:name="com.google.android.geo.API_KEY"
            android:value="@string/google_maps_key" />
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Note that the dependency highlighted in the following image is needed to be implemented.



Outputs:


Yamuna Ghat
यमुना घाट
Marghat Hanuman Temple
Lal Quila
लाल किला
Red Fort
लाल किला
Diwan-i-Khas
दीवान-इ-खास
Diwan-i-Aam
दीवान-ए-आम
Sunehri Masjid
सुनहरी मस्जिद
Jama Masjid
जामा मस्जिद
Shantivana Marg
Add Marker
Google
Yamuna Khadar
Pathshala
यमुना खादर
पाठशाला
Akshardham
अक्षरधाम
Add Marker
Google
Add Marker
Google

Practical - 6

Question: Create an app that uses radio button group which calculates discount on shopping bill amount. Use EditText 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.

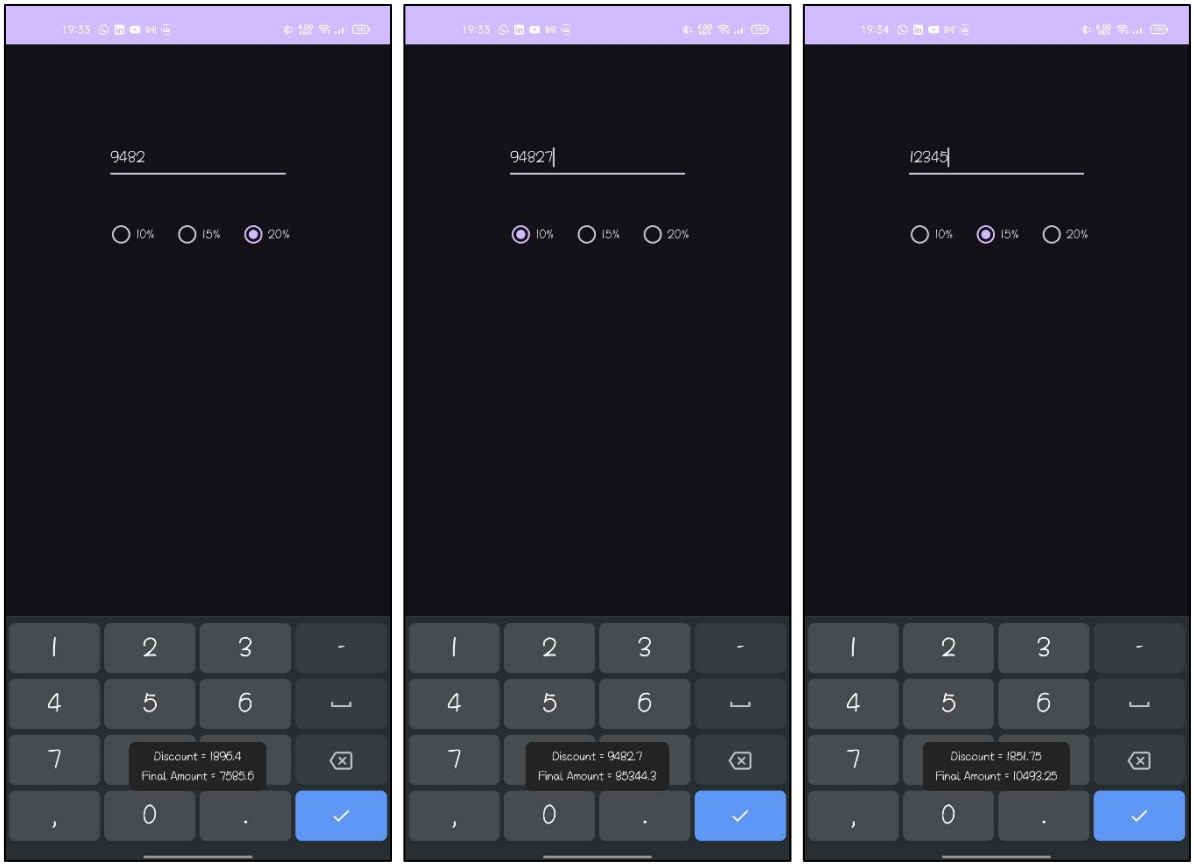
activity_main.xml:

```
<?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">
    <EditText
        android:id="@+id/billAmt"
        android:layout_width="200sp"
        android:layout_height="50sp"
        android:layout_marginTop="100dp"
        android:hint="Enter Bill Amount"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <RadioGroup
        android:id="@+id/radios"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="25dp"
        android:orientation="horizontal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/billAmt">
        <RadioButton
            android:id="@+id/radio10"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="10sp"
            android:text="10%" />
        <RadioButton
            android:id="@+id/radio15"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="10sp"
            android:text="15%" />
        <RadioButton
            android:id="@+id/radio20"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="10sp"
            android:text="20%" />
    </RadioGroup>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```
package com.gamezoned.prac9;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

        RadioGroup radios = findViewById(R.id.radios);
        radios.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(RadioGroup group, int checkedId) {
                RadioButton rb = findViewById(checkedId);
                EditText billAmt = findViewById(R.id.billAmt);
                if (!billAmt.getText().toString().isEmpty()) {
                    if (rb == findViewById(R.id.radio10)) {  Toast.makeText(MainActivity.this,
discount(0.1, billAmt), Toast.LENGTH_SHORT).show();  }
                    else       if       (rb       ==       findViewById(R.id.radio15))       {
Toast.makeText(MainActivity.this, discount(0.15, billAmt), Toast.LENGTH_SHORT).show();  }
                    else       if       (rb       ==       findViewById(R.id.radio20))       {
Toast.makeText(MainActivity.this, discount(0.2, billAmt), Toast.LENGTH_SHORT).show();  }
                }
            }
        });
    }

    private String discount(double disc, EditText amt) {
        double tot = Double.parseDouble(String.valueOf(amt.getText()));
        return  "Discount  =  "  +  String.valueOf(disc  *  tot)  +  "\nFinal  Amount  =  "  +
String.valueOf(tot - (tot * disc));
    }
}
```

Outputs:


9482
10%
15%
20%
Discount = 1896.4
Final Amount = 7585.6
94827
10%
15%
20%
Discount = 9482.7
Final Amount = 85344.3
12345
10%
15%
20%
Discount = 1851.75
Final Amount = 10493.25

Practical - 7

Question: Create an application that uses checkbox for construction of a shopping list so the user can check off items as they are picked up. The checked items should be displayed in a TextView control.

activity_main.xml:

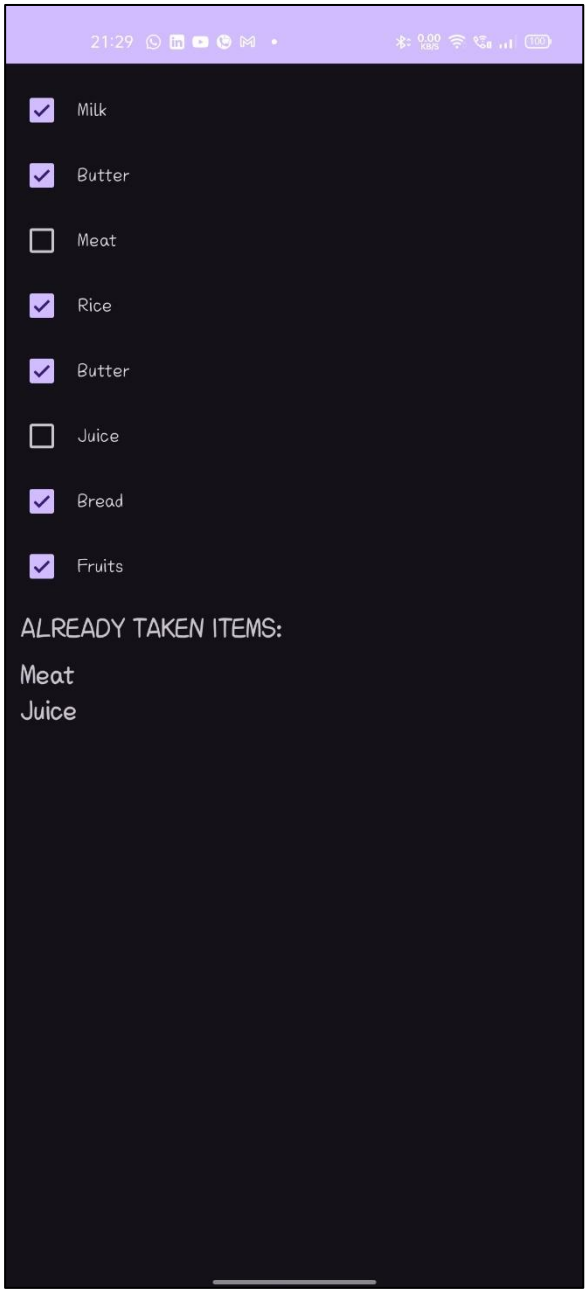
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="10sp"
    tools:context=".MainActivity">
    <LinearLayout
        android:id="@+id/itemsList"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">
        <CheckBox
            android:id="@+id/milk"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="true"
            android:padding="10sp"
            android:text="Milk" />
        <CheckBox
            android:id="@+id/butter"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="true"
            android:padding="10sp"
            android:text="Butter" />
        <CheckBox
            android:id="@+id/meat"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="true"
            android:padding="10sp"
            android:text="Meat" />
        <CheckBox
            android:id="@+id/rice"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="true"
            android:padding="10sp"
            android:text="Rice" />
        <CheckBox
            android:id="@+id/eggs"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
```

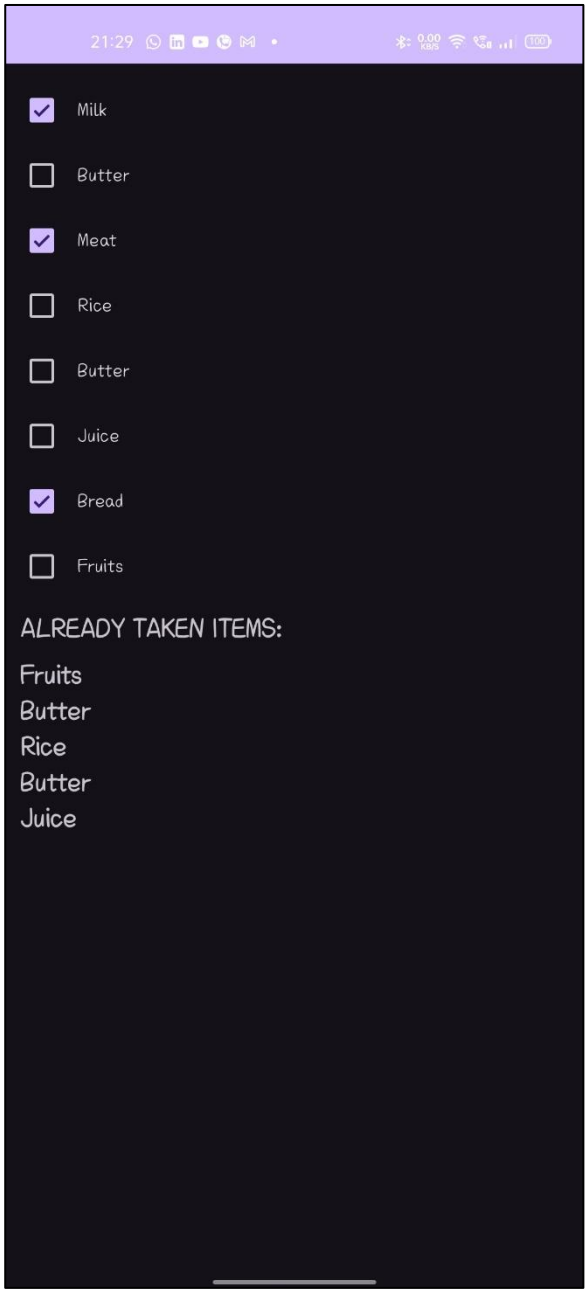
```
            android:checked="true"
            android:padding="10sp"
            android:text="Butter" />
        <CheckBox
            android:id="@+id/juice"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="true"
            android:padding="10sp"
            android:text="Juice" />
        <CheckBox
            android:id="@+id/bread"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="true"
            android:padding="10sp"
            android:text="Bread" />
        <CheckBox
            android:id="@+id/fruits"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="true"
            android:padding="10sp"
            android:text="Fruits" />
    </LinearLayout>
    <TextView
        android:id="@+id/head1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10sp"
        android:text="ALREADY TAKEN ITEMS:"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/itemsList" />
    <TextView
        android:id="@+id/items"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10sp"
        android:text=""
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/head1" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```
package com.gamezoned.prac10;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    private LinearLayout itemsList;
    private TextView items;

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

        itemsList = findViewById(R.id.itemsList);
        items = findViewById(R.id.items);

        for (int i=0 ; i<itemsList.getChildCount() ; i++) {
            View view = itemsList.getChildAt(i);
            if (view instanceof CheckBox) {
                CheckBox cb = (CheckBox) view;
                cb.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener() {
                    @Override
                    public void onCheckedChanged(CompoundButton buttonView, boolean isChecked)
{
                        if (!isChecked) {
                            items.setText(items.getText() + cb.getText().toString() + "\n");
                        } else {
                            String temp = items.getText().toString();
                            temp = temp.replace(cb.getText().toString() + "\n", ""); // Update
temp with replaced string
                            items.setText(temp);
                        }
                    }
                });
            }
        }
    }
}
```

Outputs:


21:29
Milk
Butter
Meat
Rice
Butter
Juice
Bread
Fruits
ALREADY TAKEN ITEMS:
Meat
Juice


21:29
Milk
Butter
Meat
Rice
Butter
Juice
Bread
Fruits
ALREADY TAKEN ITEMS:
Fruits
Butter
Rice
Butter
Juice

Practical - 8

Question: 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.

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"
    android:layout_margin="10sp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/usr"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="50sp"
        android:hint="Enter Username"
        android:text=""
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/pass"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20sp"
        android:hint="Enter Password"
        android:inputType="textPassword"
        android:text=""
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/usr" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20sp"
        android:onClick="loginValid"
        android:text="Verify"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/pass" />

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

home_page.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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="10sp">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="20sp"
        android:text="WELCOME USER !!!"
        android:textSize="25sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20sp"
        android:onClick="logoutModal"
        android:text="LOGOUT"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <RelativeLayout
        android:id="@+id/logoutModal"
        android:layout_width="match_parent"
        android:layout_height="300sp"
        android:background="#AC9034"
        android:padding="10sp"
        android:visibility="gone"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        android:layout_margin="25sp"
        app:layout_constraintTop_toTopOf="parent">

        <RelativeLayout
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true">

            <TextView
                android:id="@+id/logoutText"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:padding="10sp"
```

```
                android:text="Do you want to logout?"
                android:textColor="@color/white"
                android:textSize="20sp" />

            <LinearLayout
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_below="@+id/logoutText"
                android:layout_centerHorizontal="true"
                android:padding="10sp">

                <Button
                    android:layout_width="100sp"
                    android:layout_height="wrap_content"
                    android:layout_below="@+id/logoutText"
                    android:text="OK"
                    android:onClick="logout"
                    android:textStyle="bold"
                    android:backgroundTint="#6ED5CB"
                    app:layout_constraintBottom_toBottomOf="parent" />

                <Button
                    android:layout_width="100sp"
                    android:layout_height="wrap_content"
                    android:layout_below="@+id/logoutText"
                    android:text="Cancel"
                    android:onClick="cancel"
                    android:textStyle="bold"
                    android:backgroundTint="#6ED5CB"
                    app:layout_constraintBottom_toBottomOf="parent" />

            </LinearLayout>

        </RelativeLayout>

    </RelativeLayout>

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

MainActivity.java:

```
package com.gamezoned.prac11;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    EditText usr, pswd;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        usr = findViewById(R.id.usr);
        pswd = findViewById(R.id.pass);
    }

    public void loginValid(View view) {
        String username = usr.getText().toString();
        String password = pswd.getText().toString();
        Boolean isUsr = false, isPass = false;

        if (username.isEmpty()) {
            Toast.makeText(this, "Username cannot be empty", Toast.LENGTH_SHORT).show();
            isUsr = false;
        } else if (username.contains(" ")) {
            Toast.makeText(this, "Invalid Username", Toast.LENGTH_SHORT).show();
            isUsr = false;
        } else { isUsr = true; }

        if (password.isEmpty()) {
            Toast.makeText(this, "Password cannot be empty", Toast.LENGTH_SHORT).show();
            isPass = false;
        } else if (password.length() < 8) {
            Toast.makeText(this, "Invalid Password", Toast.LENGTH_SHORT).show();
            isPass = false;
        } else { isPass = true; }

        if (isUsr && isPass) {
            Intent homePage = new Intent(this, HomePage.class);
//            homePage.putExtra("name", username);
            startActivity(homePage);
            finish();
        }
    }
}
```

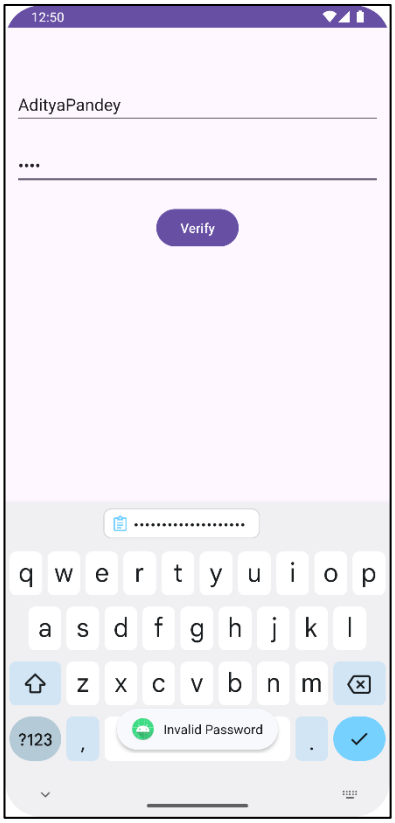
HomePage.java:

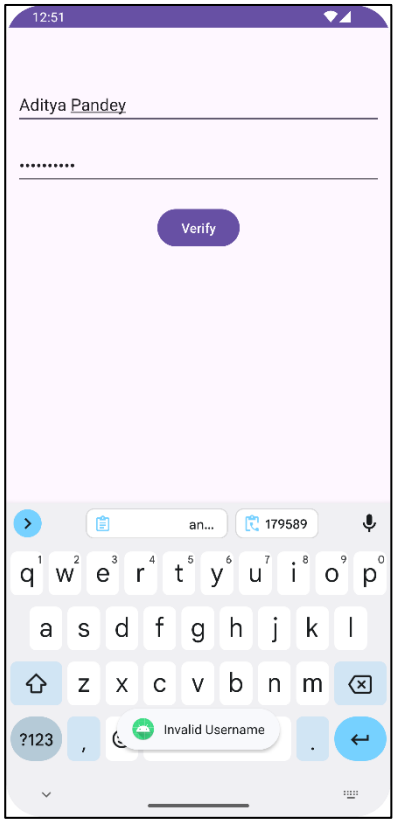
```
package com.gamezoned.prac11;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.RelativeLayout;
import androidx.appcompat.app.AppCompatActivity;

public class HomePage extends AppCompatActivity {

    public RelativeLayout modal;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.home_page);
        modal = findViewById(R.id.logoutModal);
//        String name = getIntent().getStringExtra("name");
//        Toast.makeText(this, "Welcome " + name, Toast.LENGTH_SHORT).show();
    }

    public void logoutModal(View view) {
        modal.setVisibility(view.VISIBLE);
    }

    public void logout(View view) {
        Intent mainActivity = new Intent(this, MainActivity.class);
        startActivity(mainActivity);
        finish();
    }

    public void cancel (View view) { modal.setVisibility(view.GONE); }

}
```

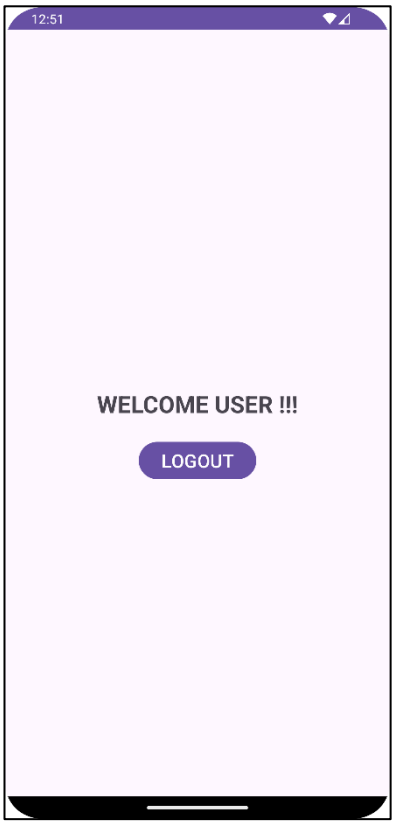
AndroidManifest.xml:

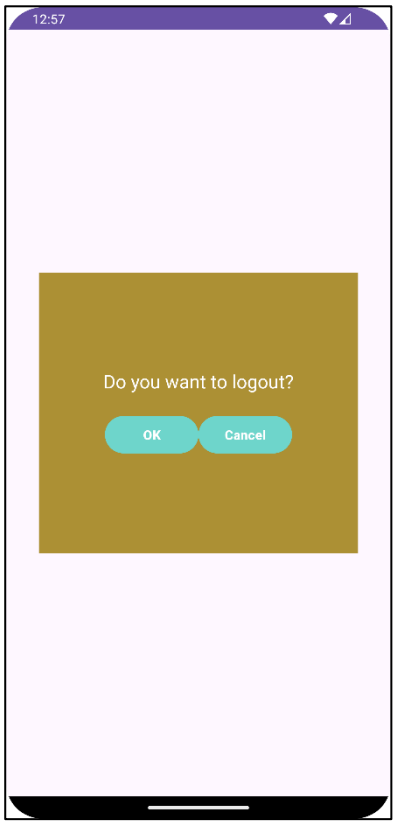
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Prac11"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity
            android:name=".HomePage"
            android:exported="false" />
    </application>

</manifest>
```

Outputs:


12:50
AdityaPandey
Verify
Invalid Password


12:51
Aditya Pandey
Verify
Invalid Username


12:51
WELCOME USER !!!
LOGOUT


12:57
Do you want to logout?
OK
Cancel

Practical - 9

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

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">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="10sp"
        tools:srcCompat="@tools:sample/avatars" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/imageView"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="10sp"
        android:onClick="imgChoose"
        android:text="Choose Image" />

</RelativeLayout>
```

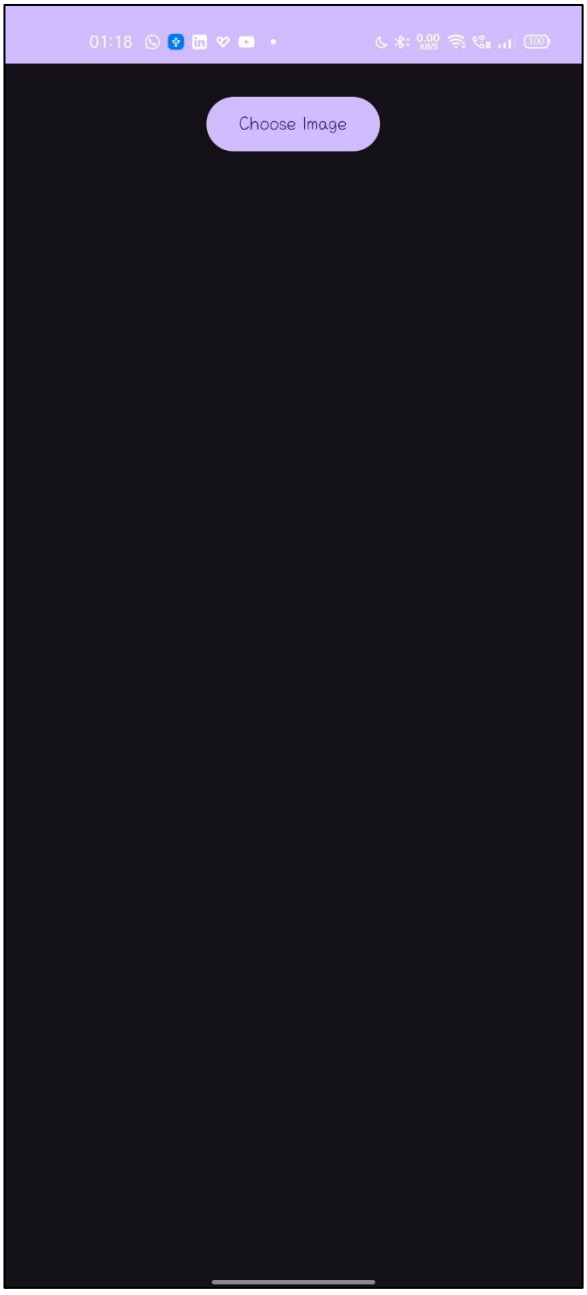
MainActivity.java:

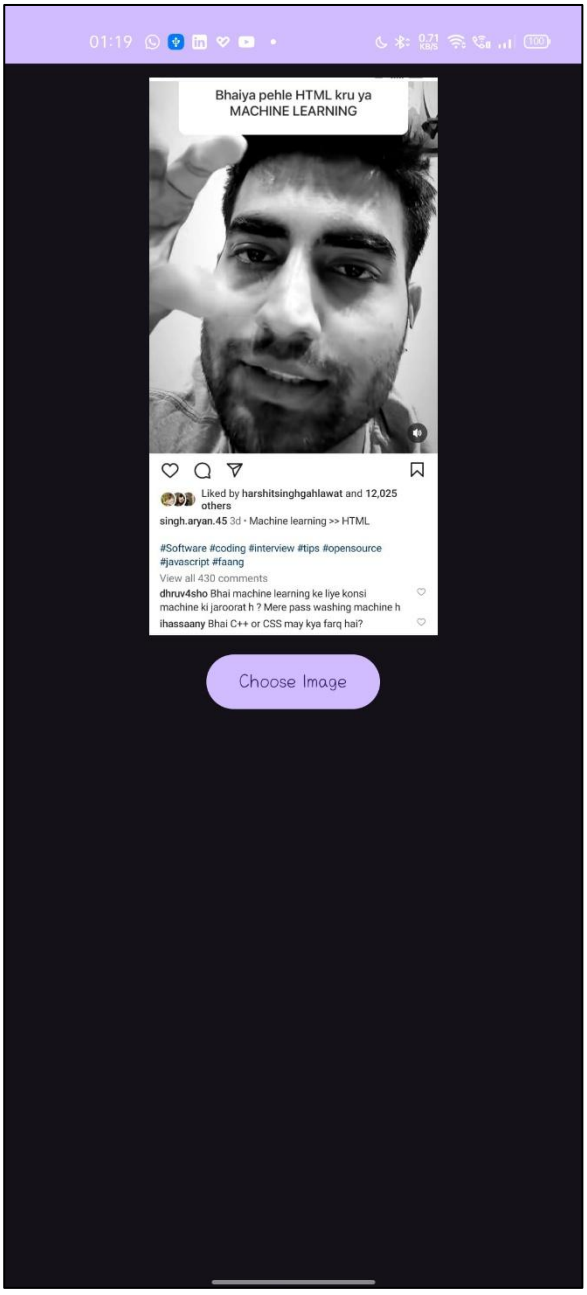
```
package com.gamezoned.prac13;

import android.content.Intent;
import android.graphics.Bitmap;
import android.net.Uri;
import android.os.Bundle;
import android.provider.MediaStore;
import android.view.View;
import android.widget.ImageView;

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

public class MainActivity extends AppCompatActivity {

    private static final int PICK_IMAGE_REQUEST = 1;
    ImageView imageView;

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

    public void imgChoose(View view) {
        Intent           imgs           =           new           Intent(Intent.ACTION_PICK,
MediaStore.Images.Media.EXTERNAL_CONTENT_URI);
        startActivityForResult(imgs, PICK_IMAGE_REQUEST);
    }

    @Override
    protected void onActivityResult(int requestCode, int resultCode, @Nullable Intent data) {
        super.onActivityResult(requestCode, resultCode, data);
        if (requestCode == PICK_IMAGE_REQUEST && resultCode == RESULT_OK && data != null) {
            Uri imageUri = data.getData();
            try {
                Bitmap   bitmap   =   MediaStore.Images.Media.getBitmap(getContentResolver(),
imageUri);
                imageView.setImageBitmap(bitmap);
            } catch (Exception e) {
                e.printStackTrace();
                System.out.println("LOL LMAO");
            }
        }
    }
}
```

AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

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

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Prac13"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

Outputs:


01:18
Choose Image


01:19
Bhaiya pehle HTML kru ya
MACHINE LEARNING
Liked by harshitsinghgahlawat and 12,025 others
singh.aryan.45 3d • Machine learning >> HTML
#Software #coding #interview #tips #opensource
#javascript #faang
View all 430 comments
dhruv4sho Bhai machine learning ke liye konsi machine ki jaroorat h ? Mere pass washing machine h
ihassaany Bhai C++ or CSS may kya farq hai?
Choose Image

Practical - 10

Question: Read phonebook contacts using content providers and display in list.

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">

    <ListView
        android:id="@+id/list"
        android:layout_width="wrap_content"
        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>
```

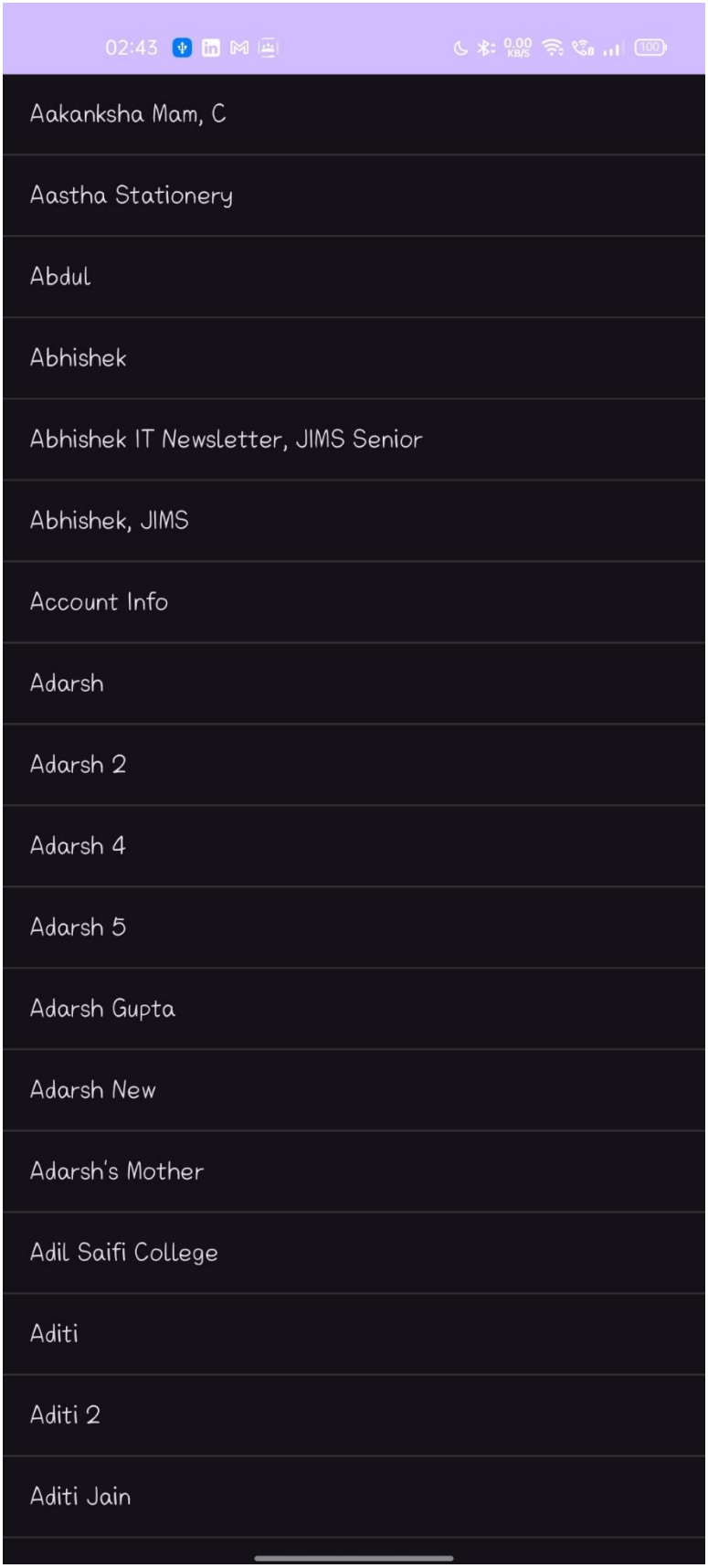
MainActivity.java:

```
package com.gamezoned.pracc14;
import android.Manifest;
import android.content.pm.PackageManager;
import android.database.Cursor;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.widget.ListView;
import android.widget.SimpleCursorAdapter;
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 READ_CONTACTS_REQUEST_CODE = 1;
     private ListView listView;
     @Override
     protected void onCreate(Bundle savedInstanceState) {
            super.onCreate(savedInstanceState);
            setContentView(R.layout.activity_main);
            listView = findViewById(R.id.list);
            if (ContextCompat.checkSelfPermission(this, Manifest.permission.READ_CONTACTS) !=
PackageManager.PERMISSION_GRANTED) {
                  ActivityCompat.requestPermissions(this,                                    new
String[]{Manifest.permission.READ_CONTACTS}, READ_CONTACTS_REQUEST_CODE);
            } else {  readContacts();  }
     }
     @Override
     public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions,
@NonNull int[] grantResults) {
            super.onRequestPermissionsResult(requestCode, permissions, grantResults);
            if (requestCode == READ_CONTACTS_REQUEST_CODE) {
                  if     (grantResults.length     >     0     &&     grantResults[0]     ==
PackageManager.PERMISSION_GRANTED) {  readContacts(); }
                  else {  finish();  }
            }
     }
     private void readContacts() {
            String[]          projection          =          {ContactsContract.Contacts._ID,
ContactsContract.Contacts.DISPLAY_NAME,};
            Cursor cursor = getContentResolver().query(ContactsContract.Contacts.CONTENT_URI,
projection, null, null, ContactsContract.Contacts.DISPLAY_NAME + " ASC");
            String[] fromColumns = {ContactsContract.Contacts.DISPLAY_NAME};
            int[] toViews = {android.R.id.text1};
            SimpleCursorAdapter      adapter      =      new      SimpleCursorAdapter(this,
android.R.layout.simple_list_item_1, cursor, fromColumns, toViews, 0);
            listView.setAdapter(adapter);
            if (cursor == null) {
                  cursor.close();
            }
     }
}
```

AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

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

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Pracc14"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

Outputs:


02:43
Aakanksha Mam, C
Aastha Stationery
Abdul
Abhishek
Abhishek IT Newsletter, JIMS Senior
Abhishek, JIMS
Account Info
Adarsh
Adarsh 2
Adarsh 4
Adarsh 5
Adarsh Gupta
Adarsh New
Adarsh's Mother
Adil Saifi College
Aditi
Aditi 2
Aditi Jain