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LAB REPORT

ON

Mobile Programming

By

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activity_main.java:

```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=".MainActivity">
    <TextView
        android:layout_gravity="center"
        android:textAlignment="center"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Hello World"
        android:textSize="24dp"
        />
</LinearLayout>
```

MainActivity.java

```java
package com.example.helloworld;
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);

        }

    }
```

1.2 Output Window

2 Develop android application to develop Login Form. Pass and display username on another activity

2.1 Source Code

activity_login.java

```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=".LoginActivity">


    <EditText
        android:id="@+id/username"
        android:layout_width="346dp"
        android:layout_height="60dp"
        android:layout_marginBottom="44dp"
        android:background="@drawable/edittext_bg_color"
        android:ems="10"
        android:hint=" enter Username"
        android:inputType="textPersonName"
        android:textSize="30sp"
        app:layout_constraintBottom_toTopOf="@+id/password"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0" />
```

```xml
<EditText
    android:id="@+id/password"
    android:layout_width="347dp"
    android:layout_height="64dp"
    android:layout_marginBottom="60dp"
    android:hint=" enter password"
    android:inputType="textPassword"
    android:background="@drawable/edittext_bg_color"
    android:textSize="30sp"
    app:layout_constraintBottom_toTopOf="@+id/button"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.468"
    app:layout_constraintStart_toStartOf="parent" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="252dp"
    android:background="@drawable/button_bg_color"
    android:text="Login"
    android:textSize="30dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent" />

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

activity_display.java

```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=".DisplayActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="44dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.562"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

LoginActivity.java

```java
package com.example.loginform;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.*;

public class LoginActivity extends AppCompatActivity {

    Button btn;

    EditText edtUn,edtPw;

    @Override

    protected void onCreate(Bundle savedInstanceState) {


        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_login);


        btn=findViewById(R.id.button);

        edtUn=findViewById(R.id.username);

        edtPw=findViewById(R.id.password);

        btn.setOnClickListener(v -> {

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

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

            if(username.equals("Prajwal") &&

            password.equals("12345")) {

                Intent inte = new Intent(getApplicationContext(),

                DisplayActivity.class);

                inte.putExtra("username", username);

                startActivity(inte);

            }
```

```java
            else{

                Toast.makeText(LoginActivity.this, "Invalid
                username or password", Toast.LENGTH_LONG).show();

            }

        });

    }

}
```

DisplayActivity.java

```java
package com.example.loginform;

import android.content.Intent;

import android.os.Bundle;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class DisplayActivity extends AppCompatActivity {

    TextView tv;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_display);

        tv=findViewById(R.id.textView);

        Intent inte = getIntent();

        String uname=inte.getStringExtra("username");

        tv.setText("welcome ,"+uname);


    }

}
```
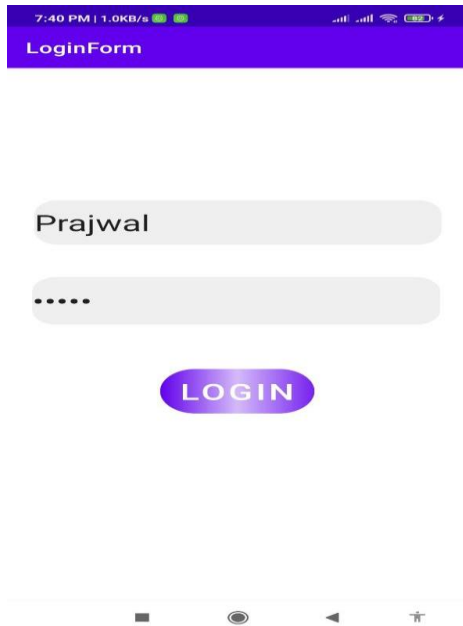
2.2 Output Window

3 Develop Android application to create two fragments and switch from one fragment to another fragment.

3.1 Source Code

activity_main.xml

```
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <FrameLayout
        android:id="@+id/fragment_container"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_above="@+id/buttonSwitchFragment" />
    <Button
        android:id="@+id/buttonSwitchFragment"
        android:layout_width="234dp"
        android:layout_height="96dp"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="16dp"
        android:textSize="24dp"
        android:text="Switch Fragment" />

</RelativeLayout>


fragment_one.xml

<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
```

```
        android:layout_height="match_parent"

        android:padding="16dp">

        <TextView

            android:id="@+id/textViewFragmentOne"

            android:layout_width="wrap_content"

            android:layout_height="wrap_content"

            android:text="Fragment One"

            android:textSize="24sp"

            android:layout_centerInParent="true" />

</RelativeLayout>
```

fragment_two.xml

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

        android:layout_width="match_parent"

        android:layout_height="match_parent"

        android:padding="16dp">

        <TextView

            android:id="@+id/textViewFragmentTwo"

            android:layout_width="wrap_content"

            android:layout_height="wrap_content"

            android:text="Fragment Two"

            android:textSize="24sp"

            android:layout_centerInParent="true" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.fragmentexample;

import android.os.Bundle;
```

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

import androidx.fragment.app.*;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        loadFragment(new FragmentOne());


findViewById(R.id.buttonSwitchFragment).setOnClickListener(v -> {

            FragmentTwo fragmentTwo = new FragmentTwo();

            Bundle args = new Bundle();

            args.putString("dataKey", "Data from Fragment One");

            fragmentTwo.setArguments(args);

            loadFragment(fragmentTwo);

        });

    }


    private void loadFragment(Fragment fragment) {

        FragmentManager fragmentManager =
getSupportFragmentManager();

        FragmentTransaction fragmentTransaction =
fragmentManager.beginTransaction();

        fragmentTransaction.replace(R.id.fragment_container,
fragment);

        fragmentTransaction.addToBackStack(null);

        fragmentTransaction.commit();

    }

}
```

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FragmentOne.java

```java
package com.example.fragmentexample;

import android.os.Bundle;

import android.view.*;

import androidx.fragment.app.Fragment;

public class FragmentOne extends Fragment {

    @Override

    public View onCreateView(LayoutInflater inflater, ViewGroup
container, Bundle savedInstanceState) {

        return inflater.inflate(R.layout.fragment_one, container,
false);

    }

}
```

FragmentTwo.java

```java
package com.example.fragmentexample;

import android.os.Bundle;

import android.view.*;

import androidx.fragment.app.Fragment;

import android.widget.TextView;

public class FragmentTwo extends Fragment {

    @Override

    public View onCreateView(LayoutInflater inflater, ViewGroup
container, Bundle savedInstanceState) {

        View view = inflater.inflate(R.layout.fragment_two,
container, false);

        TextView textViewFragmentTwo =
view.findViewById(R.id.textViewFragmentTwo);

        Bundle args = getArguments();

        if (args != null) {
```
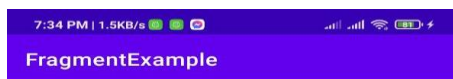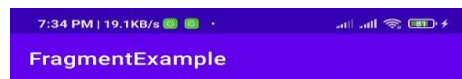
```
            String data = args.getString("dataKey", "");

            textViewFragmentTwo.setText(data);

        }

        return view;

    }

}
```

3.2 Output Window

4 Develop android to create context, option and popup menu.

4.1 Source Code

Menu.xml

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


    <item android:id="@+id/home"
        android:title="home">Home</item>
    <item android:id="@+id/about_us"
        android:title="About us">About Us</item>
    <item android:id="@+id/rate_us"
        android:title="Share">Share</item>
    <item android:id="@+id/context_menu"
        android:title="contextmenu">context menu</item>
    <item android:id="@+id/popup_menu"
        android:title="popup menu">popup menu</item>
</menu>
```

Context_menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:id="@+id/profile"
        android:title="profile">view profile</item>
    <item android:id="@+id/call"
        android:title="call">call</item>
</menu>
```

Popup.xml

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

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```
<menu xmlns:android="http://schemas.android.com/apk/res/android">

    <item android:id="@+id/hide"

        android:title="hide">hide</item>

    <item android:id="@+id/show"

        android:title="show">show</item>

</menu>
```

activity_popup_menu.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=".PopupMenuShow">


    <Button

            android:id="@+id/btn"

            android:layout_width="wrap_content"

            android:layout_height="wrap_content"

            android:text="show popup menu"

        />


</LinearLayout>
```

activity_context_menu.java

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

```xml
    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:orientation="vertical"

    tools:context=".ContextMenu">


    <ListView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:id="@+id/listview"

        />


</LinearLayout>
```

PopMenuShow.java

```java
package com.example.menuexample;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.*;

import android.widget.*;

public class PopupMenuShow extends AppCompatActivity {

    Button btn;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_popup_menu);


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

```
        btn.setOnClickListener(v -> {


            PopupMenu popupMenu = new PopupMenu(this,btn);


            popupMenu.getMenuInflater().inflate(R.menu.popup,popupMenu.
            getMenu());
             popupMenu.show();
             popupMenu.setOnMenuItemClickListener(item -> {
                  Toast.makeText(PopupMenuShow.this, "you
clicked"+item.getTitle(), Toast.LENGTH_SHORT).show();
                  return true;
             });
        });


    }
}
```

MainActivity.java

```
package com.example.menuexample;


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


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


public class MainActivity extends AppCompatActivity {
```

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


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


@Override
public boolean onOptionsItemSelected(@NonNull MenuItem item) {
    switch(item.getItemId()){
        case R.id.about_us:
            Toast.makeText(this, "you are going to about us
            activity....", Toast.LENGTH_SHORT).show();
            break;

        case R.id.rate_us:
            Toast.makeText(this, "you are going to share
            activity....", Toast.LENGTH_SHORT).show();
            break;

        case R.id.home:
            Toast.makeText(this, "you are going to home
            activity....", Toast.LENGTH_SHORT).show();
            break;
```

```java
        case R.id.context_menu:

            Intent intent = new Intent(this,ContextMenu.class);

            startActivity(intent);

            break;


        case R.id.popup_menu:

             Intent intent2 = new Intent(this,
             PopupMenuShow.class);

            startActivity(intent2);

            break;


    }

    return super.onOptionsItemSelected(item);

}
}
```

ContextMenu.java

```java
package com.example.menuexample;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.*;

import android.widget.*;

public class ContextMenu extends AppCompatActivity {

    ListView listView;

    String
contacts[]={"Roshan","subhanjal","padam","shreya","roshni"};

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
```

```java
        setContentView(R.layout.activity_context_menu);

        listView=findViewById(R.id.listview);

        ArrayAdapter<String> adapter=new
ArrayAdapter<>(this,android.R.layout.simple_list_item_1,contacts);

        listView.setAdapter(adapter);

        registerForContextMenu(listView);

    }

    @Override

    public void onCreateContextMenu(android.view.ContextMenu menu,
View v, android.view.ContextMenu.ContextMenuInfo menuInfo) {

        super.onCreateContextMenu(menu, v, menuInfo);

        getMenuInflater().inflate(R.menu.context_menu,menu);

    }

    @Override

    public boolean onContextItemSelected(@NonNull MenuItem item) {

        switch(item.getItemId()){

            case R.id.profile:

                Toast.makeText(this, "viewing profile....",
                Toast.LENGTH_SHORT).show();

                break;


            case R.id.call:

                Toast.makeText(this, "calling....",
                Toast.LENGTH_SHORT).show();

                break;

        }

        return super.onContextItemSelected(item);

    }

}
```

4.2   Output Window
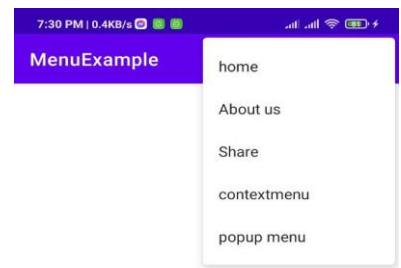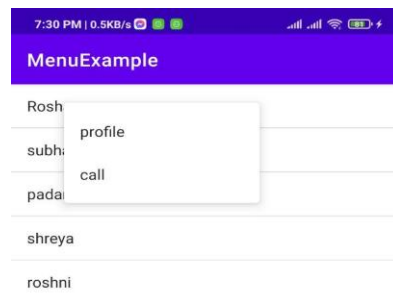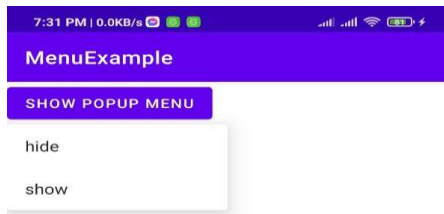
5 Develop an android application to create a dialog box.

5.1 Source Code

activity_main.xml

```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:orientation="vertical"
    android:gravity="center"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical"
      >
        <Button
            android:id="@+id/one_button_dialog"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="one button Dialog"
            />

        <Button
            android:id="@+id/multi_button_dialog"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="multi button Dialog"
```

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```
              />

        <Button

            android:id="@+id/custom_dialog"

            android:layout_width="wrap_content"

            android:layout_height="wrap_content"

            android:text="custom Dialog"

            />

        <Button

            android:id="@+id/dialog_frgment"

            android:layout_width="wrap_content"

            android:layout_height="wrap_content"

            android:text="Dialog Fragment"

            />


    </LinearLayout>

</LinearLayout>
```

fragment_custom_dialog.xml

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

<LinearLayout

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:orientation="vertical"

    android:gravity="center">

        <TextView

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:textColor="#DD922121"
```

```xml
        android:textSize="44dp"

        android:textAllCaps="false"

        android:text="do you want to close this dialog: "/>

    <Button

        android:id="@+id/yesf"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textSize="30dp"

        android:text="yes"

        />

    <Button

        android:id="@+id/nof"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textSize="30dp"

        android:text="no"

        />

</LinearLayout>
```

activity_custom_dialog.xml

```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"

    android:orientation="vertical"

    android:gravity="center">

`    <TextView
```

```xml
        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textColor="#DD922121"

        android:textSize="44dp"

        android:text="do you want to close this dialog: "/>

    <Button

        android:id="@+id/yes"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textSize="30dp"

        android:text="yes"

        />

    <Button

        android:id="@+id/no"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textSize="30dp"

        android:text="no"

        />

</LinearLayout>
```

MainActivity.java

```java
package com.example.dialogexample;

import android.app.Dialog;

import android.content.DialogInterface;

import android.graphics.Color;

import android.graphics.drawable.ColorDrawable;

import android.os.Bundle;

import android.view.View;
```

```java
import android.widget.*;

import androidx.appcompat.app.*;

public class MainActivity extends AppCompatActivity {

    Button one,multi,custom,dialogFragmentbtn;


    @Override

    protected void onCreate(Bundle savedInstanceState) {


        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);


        one=findViewById(R.id.one_button_dialog);

        multi=findViewById(R.id.multi_button_dialog);

        custom=findViewById(R.id.custom_dialog);

        dialogFragmentbtn=findViewById(R.id.dialog_frgment);


        one.setOnClickListener(v -> {

            AlertDialog alertDialog=new

AlertDialog.Builder(MainActivity.this).create();

            alertDialog.setTitle("press ok");

            alertDialog.setMessage("this is single button");

            alertDialog.setCancelable(false);


alertDialog.setButton(DialogInterface.BUTTON_POSITIVE, "Ok",
(dialog, which) -> Toast.makeText(MainActivity.this, "you just
finished  single button test", Toast.LENGTH_SHORT).show());

            alertDialog.show();

        });

        multi.setOnClickListener(v -> {
```

```java
            AlertDialog.Builder alertDialogBuilder = new
AlertDialog.Builder(MainActivity.this);

            alertDialogBuilder.setTitle("multi button check");

    alertDialogBuilder.setIcon(R.drawable.ic_launcher_background);

            alertDialogBuilder.setCancelable(false);

            alertDialogBuilder.setMessage("this is three");

            alertDialogBuilder.setPositiveButton("yes", (dialog,
            which) -> {
            Toast.makeText(MainActivity.this, "you just press yes
            button ", Toast.LENGTH_SHORT).show();

                System.out.println(which);

            });

            alertDialogBuilder.setNegativeButton("No", (dialog,
            which) -> {

                Toast.makeText(MainActivity.this, "you just press
                No button ", Toast.LENGTH_SHORT).show();

                System.out.println(which);

            });


            alertDialogBuilder.setNeutralButton("cancel", (dialog,
which) -> {

                Toast.makeText(MainActivity.this, "you just press
cancel button ", Toast.LENGTH_SHORT).show();

                System.out.println(which);

            });

            alertDialogBuilder.show();

        });

        custom.setOnClickListener(v -> {

            Button yes,no;

            Dialog dialog = new Dialog(MainActivity.this);
```

```java
dialog.setContentView(R.layout.activity_custom_dialog);
            dialog.getWindow().setBackgroundDrawable(new
ColorDrawable(Color.TRANSPARENT));
            yes=dialog.findViewById(R.id.yes);
            no=dialog.findViewById(R.id.no);
            yes.setOnClickListener(v1 -> {
                dialog.dismiss();
                Toast.makeText(MainActivity.this, "you close
dialog", Toast.LENGTH_SHORT).show();
            });
            no.setOnClickListener(v12 ->
Toast.makeText(MainActivity.this, "you clicked no ",
Toast.LENGTH_SHORT).show());
            dialog.show();
        });


        dialogFragmentbtn.setOnClickListener(v -> {
            CustomDialogFragment customDialogFragment = new
CustomDialogFragment();
            customDialogFragment.setCancelable(false);

customDialogFragment.show(getSupportFragmentManager(),"dialog");
        });



    }


}
```

CustomDialogFragment.java

```java
package com.example.dialogexample;

import android.graphics.Color;

import android.graphics.drawable.ColorDrawable;

import android.os.Bundle;

import android.view.*;

import android.widget.*;

import androidx.fragment.app.DialogFragment;

public class CustomDialogFragment extends DialogFragment {

    public View onCreateView(LayoutInflater inflater,  ViewGroup parent, Bundle savedInstanceState) {

        Button yes,no;

        View view =
inflater.inflate(R.layout.fragment_custom_dialog,parent,false);

        yes=view.findViewById(R.id.yesf);

        no=view.findViewById(R.id.nof);

        getDialog().getWindow().setBackgroundDrawable(new
ColorDrawable(Color.TRANSPARENT));

        yes.setOnClickListener(v -> {

            getDialog().dismiss();

            Toast.makeText(getContext(), "you close dialog",
Toast.LENGTH_SHORT).show();

        });

        no.setOnClickListener(v -> Toast.makeText(getContext(),
"you clicked no ", Toast.LENGTH_SHORT).show());

        return view;

    }

}
```
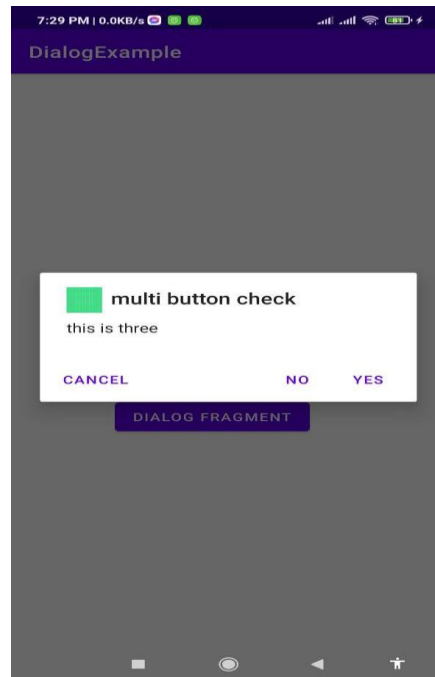
5.2 Output Window

6 Develop an android application to store the data in database and display it using recycler view.

6.1 Source Code

activity_main.xml

```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">

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/rv_quotes"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

contact_item.xml

```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="wrap_content"

android:background="#E6E5E5"

android:id="@+id/ll_contact_item"

android:padding="16dp">


<ImageView

    android:id="@+id/contact_image"

    android:layout_width="64dp"

    android:layout_height="64dp"

    android:scaleType="centerCrop"

    android:src="@drawable/avatar" />


<LinearLayout

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:orientation="vertical"

    android:paddingStart="16dp">


    <TextView

        android:id="@+id/contact_name"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:textColor="#000"

        android:textSize="16sp"

        tools:text="John Doe" />


    <TextView

        android:id="@+id/contact_email"
```

```xml
            android:layout_width="match_parent"

            android:layout_height="wrap_content"

            android:textColor="#666"

            android:textSize="14sp"

            tools:text="john.doe@example.com" />

        <TextView

            android:id="@+id/contact_phone"

            android:layout_width="match_parent"

            android:layout_height="wrap_content"

            android:textColor="#666"

            android:textSize="14sp"

            tools:text="(555) 555-1212" />

    </LinearLayout>

</LinearLayout>
```

MainActivity.java

```java
package com.example.sqllitedemo;

import android.os.Bundle;

import android.view.Menu;

import androidx.appcompat.app.AppCompatActivity;

import androidx.recyclerview.widget.*;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

    private RecyclerViewAdapter recyclerViewAdapter;

    private RecyclerView rvContacts;

    private LinearLayoutManager layoutManager;

    private ArrayList<Contact> contacts;

    private DatabaseHelper dbHelper;

    @Override
```

```java
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        rvContacts = findViewById(R.id.rv_quotes);

        layoutManager = new LinearLayoutManager(this);

        rvContacts.setLayoutManager(layoutManager);

        dbHelper = new DatabaseHelper(this);

        saveSomeTempContacts();

        contacts = dbHelper.getAllContacts();

        recyclerViewAdapter = new RecyclerViewAdapter(this ,
contacts);

        rvContacts.setAdapter(recyclerViewAdapter);


    }


    public boolean onCreateOptionsMenu(Menu menu) {


getMenuInflater().inflate(R.menu.recycler_view_option_menu,menu);

        return true;

    }

    private void saveSomeTempContacts(){

        String[] names = {

                "John Smith",

                "Mary Jones",

                "Peter Brown",

                "Susan Green",

                "David Williams",

                "Sarah Davis",

                "Michael Carter",
```

```java
        "Jessica Garcia",

        "William Hernandez",

        "Linda Lopez"

};


String[] emails = {

        "john.smith@gmail.com",

        "mary.jones@yahoo.com",

        "peter.brown@hotmail.com",

        "susan.green@aol.com",

        "david.williams@outlook.com",

        "sarah.davis@icloud.com",

        "michael.carter@msn.com",

        "jessica.garcia@yahoo.com",

        "william.hernandez@gmail.com",

        "linda.lopez@hotmail.com"

};


String[] phoneNumbers = {

        "9841234567",

        "9851234567",

        "9861234567",

        "9871234567",

        "9881234567",

        "9891234567",

        "9841234567",

        "9851234567",

        "9861234567",

        "9871234567",
```

```java
        };


        for (int i = 0; i < names.length; i++) {

            Contact contact = new Contact(i + 1, names[i],
phoneNumbers[i], emails[i]);

            dbHelper.saveContact(contact);

        }

    }

}
```

DatabaseHelper.java

```java
package com.example.sqllitedemo;


import android.content.ContentValues;

import android.content.Context;

import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

import android.util.Log;

import android.widget.Toast;


import androidx.annotation.Nullable;


import java.util.ArrayList;

import java.util.Arrays;


public class DatabaseHelper extends SQLiteOpenHelper {

    private String TAG = "Database Helper";

    private static final String DB_NAME = "phone_directory_db";

    private static final int DB_VERSION = 1;
```

```java
    private Context context;


    public DatabaseHelper(@Nullable Context context) {
        super(context, DB_NAME, null, DB_VERSION);
        this.context=context;
    }


    @Override
    public void onCreate(SQLiteDatabase db) {
        String CREATE_TABLE_QUERY = "CREATE TABLE contacts(id INTEGER
PRIMARY KEY AUTOINCREMENT, name TEXT, phone TEXT, email TEXT)";
        db.execSQL(CREATE_TABLE_QUERY);
        Toast.makeText(context, "", Toast.LENGTH_SHORT).show();
    }


    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
        String DROP_TABLE_QUERY = "DROP TABLE IF EXISTS contacts";
        db.execSQL(DROP_TABLE_QUERY);
        onCreate(db);
    }


    public boolean saveContact(Contact contact){
        SQLiteDatabase db = this.getWritableDatabase();


        ContentValues values = new ContentValues();
        values.put("id", contact.getId());
        values.put("name", contact.getName());
```

```java
        values.put("phone", contact.getPhone());

        values.put("email", contact.getEmail());


        long result = db.insert("contacts", null, values);

        db.close();

        return result > -1;

    }




    public ArrayList<Contact> getAllContacts() {

        ArrayList<Contact> contactList = new ArrayList<>();


        SQLiteDatabase database = this.getReadableDatabase();

        Cursor cursor = database.rawQuery("SELECT * FROM contacts",
null);


        String[] columns = {"id", "name", "email", "phone"};

        String[] args = {"Ram", "2"};

        Log.d(TAG, "getAllContacts: " + Arrays.toString(columns));

            Cursor cursor1 = database.query("contacts", columns,
        null, null, null, null, null);

        if (cursor.moveToFirst()) {

            int idIndex = cursor.getColumnIndex("id");

            int nameIndex = cursor.getColumnIndex("name");

            int emailIndex = cursor.getColumnIndex("email");

            int phoneIndex = cursor.getColumnIndex("phone");
```

```
        do {

            int id = cursor.getInt(idIndex);

            String name = cursor.getString(nameIndex);

             String email = emailIndex != -1 ?
             cursor.getString(emailIndex) : null;

            String phone = phoneIndex != -1 ?
            cursor.getString(phoneIndex) : null;

            Contact contact = new Contact(id, name, email, phone);

            contactList.add(contact);

        } while (cursor.moveToNext());

                cursor.close();

        }

    database.close();

    return contactList;

    }

}
```
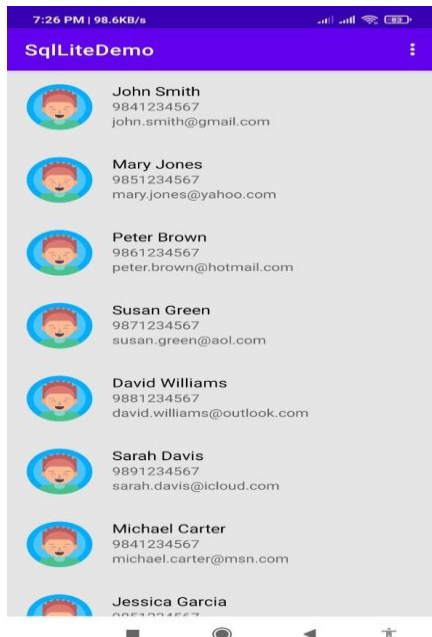
6.2   Output Window

7 Develop android application to read data from the server and display it.

7.1 Source Code

activity_main.java

```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">
    <ScrollView
        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"
        >
        <TextView
            android:id="@+id/textView"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="TextView"
            android:textSize="30dp"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent" />
```

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

MainActivity.java

```java
package com.example.retrofitexample;

import android.os.Bundle;

import android.util.Log;

import android.webkit.*;

import android.widget.*;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import com.google.gson.Gson;

import com.google.gson.GsonBuilder;

import java.io.IOException;

import java.util.List;

import retrofit2.Call;

import retrofit2.Callback;

import retrofit2.Response;

import retrofit2.Retrofit;

import retrofit2.converter.gson.GsonConverterFactory;

public class MainActivity extends AppCompatActivity {

    private TextView textView;


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);


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

```java
        Retrofit retrofit = new Retrofit.Builder()
                .baseUrl("https://conforming-
entrance.000webhostapp.com/api/")

.addConverterFactory(GsonConverterFactory.create())
                .build();


        JsonPlaceHolderApi jsonPlaceHolderApi =
retrofit.create(JsonPlaceHolderApi.class);


        Call<List<Book>> call =
jsonPlaceHolderApi.getPost("104006205261242708831");


        call.enqueue(new Callback<List<Book>>() {
            @Override
            public void onResponse(@NonNull Call<List<Book>> call,
Response<List<Book>> response) {
                    if (response.isSuccessful()) {
                        StringBuilder content = new StringBuilder();
                        String id, file, name;
                        List<Book> books = response.body();
                        for (Book book : books) {
                            id = book.getIsbnno();
                            name = book.getName();
                            file = book.getAuthor();
                            content.append("\n\nid=
").append(id).append("\nname=
").append(name).append("\nauthor=").append(file);
```

```java
                    }
                    textView.setText(content.toString());
                } else {
                    textView.setText("error response code: " +
response.code());
                    Log.d("fail", "onResponse: " +
response.code());
                }
            }


            @Override
            public void onFailure(Call<List<Book>> call, Throwable
            t) {
                textView.setText("Error: " + t.getMessage());
                Log.d("API Call Error", t.getMessage(), t);
            }
        });
    }


}
```

Book.java

```java
package com.example.retrofitexample;


public class Book {
    private String isbnno;
    private String name;
    private String author;


    public Book(String isbnno, String name, String author) {
```

```java
        this.isbnno = isbnno;

        this.name = name;

        this.author = author;

    }

    public String getIsbnno() {

        return isbnno;

    }

    public String getName() {

        return name;

    }


    public String getAuthor() {

        return author;

    }


}
```
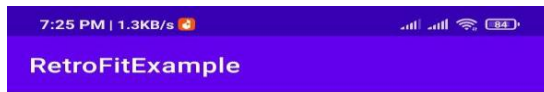
JsonPlaceholderApi.java

```java
package com.example.retrofitexample;

import java.util.List;

import retrofit2.Call;

import retrofit2.http.*;

public interface JsonPlaceHolderApi {

    @Headers({"Accept: application/json","Accept-Language:en-
US,en"})

    @GET("{username}")

    Call<List<Book>> getPost(@Path("username") String username);

}
```

7.2   Output Window

id= 9781234679
name= security requirement
author=prajwal

id= 978504301421
name= Hello Android
author=Ed burnette

8 Develop android application to implement Google map.

8.1 Source Code

MapsActivity.java

```java
package com.example.map;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import androidx.core.app.ActivityCompat;

import androidx.core.content.ContextCompat;

import androidx.fragment.app.FragmentActivity;

import android.content.pm.PackageManager;

import android.location.*;

import android.os.Bundle;

import android.widget.Toast;

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

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

public class MapsActivity extends AppCompatActivity implements
OnMapReadyCallback {

    private GoogleMap mMap;

    private MapView mapView;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_maps);

        mapView = findViewById(R.id.map_view);

        mapView.onCreate(savedInstanceState);

        mapView.getMapAsync(this);

        }


        @Override
```

```java
    public void onMapReady(GoogleMap map) {

        mMap = map;

        LatLng sydney = new LatLng(-33.870453, 151.208755);

        mMap.addMarker(new

      MarkerOptions().position(sydney).title("Sydney"));

        CameraUpdate cameraUpdate =

        CameraUpdateFactory.newLatLngZoom(sydney, 15.0f);

        mMap.moveCamera(cameraUpdate);

        mMap.animateCamera(cameraUpdate);

        mMap.setMapType(GoogleMap.MAP_TYPE_SATELLITE);

    }

}
```

activity_maps.xml

```xml
 <RelativeLayout
 xmlns:android="http://schemas.android.com/apk/res/android"
 xmlns:tools="http://schemas.android.com/tools"
 android:layout_width="match_parent"
 android:layout_height="match_parent">
 <com.google.android.gms.maps.MapView
 android:id="@+id/map_view"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 tools:context=".MapsActivity" />
 </RelativeLayout>
```

8.2   Output Window