



**Pimpri Chinchwad Education Trust's
Pimpri Chinchwad College of Engineering**

Assignment-02

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1. **Write an android application which will allow users to navigate from one activity to another activity. The first Activity will ask the user to enter the name user and the Second activity will display the name in TextView which was entered in the first activity.**

Solution:

MainActivity.java:

```
package com.example.namedisplayapp;

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

public class MainActivity extends AppCompatActivity {

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

        EditText editTextName = findViewById(R.id.editTextName);
        Button buttonSubmit = findViewById(R.id.buttonSubmit);

        buttonSubmit.setOnClickListener(v -> {
            String name = editTextName.getText().toString();
            Intent intent = new Intent(MainActivity.this, SecondActivity.class);
```

```

        intent.putExtra("USER_NAME", name);
        startActivity(intent);
    });
}
}

```

activity_main.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/enter_name_prompt"
        android:textSize="18sp"
        android:layout_marginBottom="8dp" />

    <EditText
        android:id="@+id/editTextName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="@string/enter_name"
        android:textColor="#000000"
        android:layout_marginBottom="16dp"
        android:padding="12dp"
        android:backgroundTint="#DDDDDD" />

    <Button
        android:id="@+id/buttonSubmit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/submit"
        android:layout_gravity="center_horizontal" />

</LinearLayout>

```

SecondActivity.java:

```

package com.example.namedisplayapp;

import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class SecondActivity extends AppCompatActivity {

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

        // Get the Intent that started this activity and extract the string
        Intent intent = getIntent();
        String name = intent.getStringExtra("USER_NAME");

        // Capture the layout's TextView and set the string as its text
        TextView textView = findViewById(R.id.textViewDisplayName);
        textView.setText("Hello, " + name);
    }
}

```

activity_second.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:padding="16dp">

    <TextView
        android:id="@+id/textViewDisplayName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/greeting"
        android:textSize="24sp"
        android:layout_gravity="center_horizontal"
        android:layout_marginTop="20dp"/>

```

```

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

public class MainActivity extends AppCompatActivity {

    private EditText editTextUrl;

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

        editTextUrl = findViewById(R.id.editTextUrl);
        Button buttonOpenUrl = findViewById(R.id.buttonOpenUrl);

        buttonOpenUrl.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String url = editTextUrl.getText().toString();

                // Check if the URL starts with "http://" or "https://"
                if (!url.startsWith("http://") && !url.startsWith("https://")) {
                    url = "http://" + url;
                }

                // Create an intent to open the URL
                Intent intent = new Intent(Intent.ACTION_VIEW);
                intent.setData(Uri.parse(url));
                startActivity(intent);
            }
        });
    }
}

```

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 with proper constraints and corrected attributes -->
```

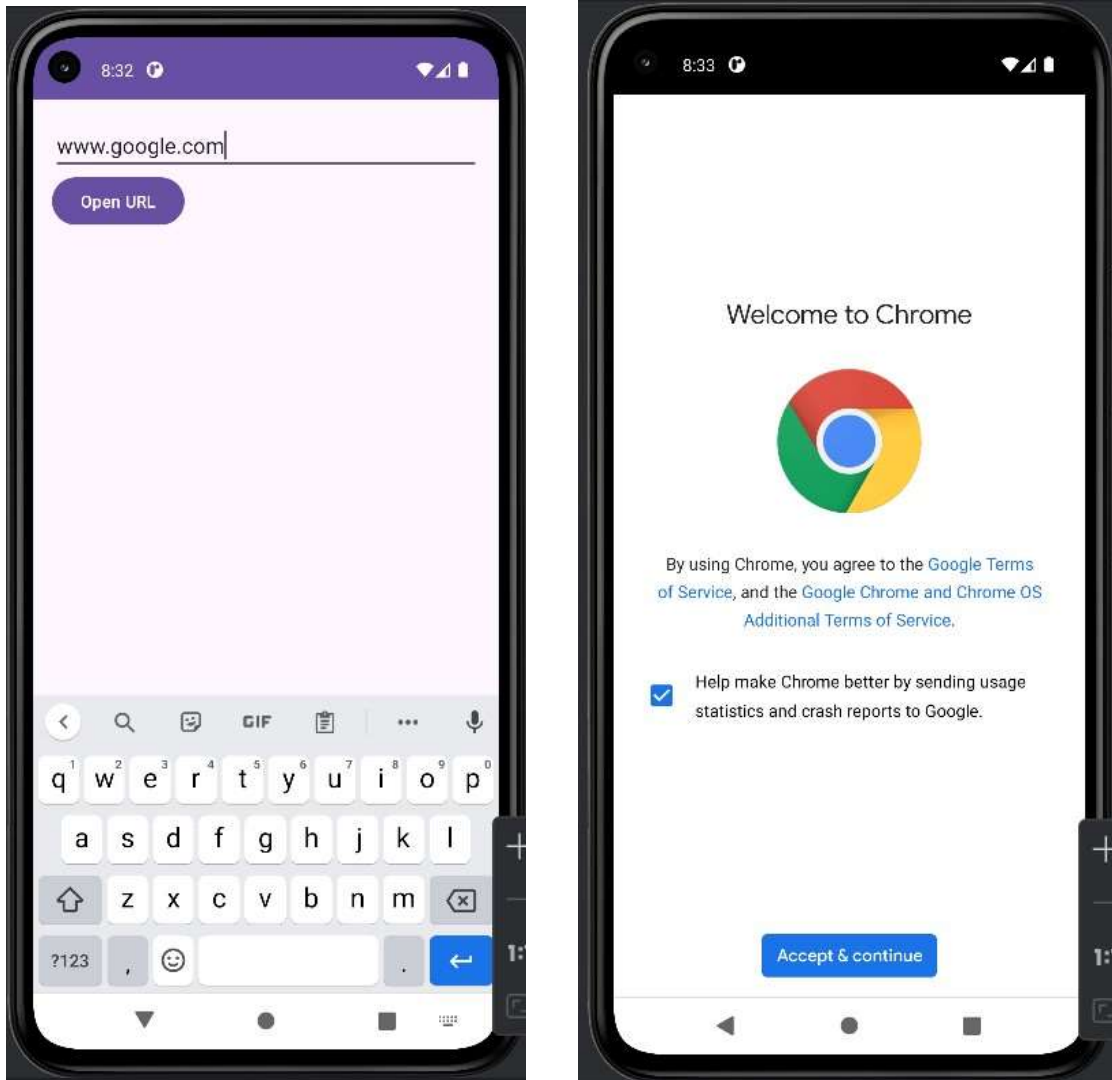
```
<EditText
    android:id="@+id/editTextUrl"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:hint="@string/enter_url"
    android:inputType="textUri"
    android:autofillHints="url"
    android:textColor="@android:color/black"
    android:textColorHint="@android:color/darker_gray"
    android:background="@android:color/white"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/buttonOpenUrl"
    android:layout_margin="16dp" />
```

```
<!-- Button with proper constraints -->
```

```
<Button
    android:id="@+id/buttonOpenUrl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/open_url"
    android:padding="16dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    android:layout_margin="16dp" />
```

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

Output:



3. Write an android application that will demonstrate the use of BaseAdapter and ArrayAdapter.

Solution:

MainActivity.java

```
package com.example.assignment;
```

```
import android.os.Bundle;
```

```
import android.widget.ArrayAdapter;
```

```

import android.widget.ListView;
import androidx.appcompat.app.AppCompatActivity;

import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {

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

        // ArrayAdapter Example
        ListView listViewArrayAdapter = findViewById(R.id.listViewArrayAdapter);
        String[] colors = {"Red", "Green", "Blue", "Yellow", "Purple"};
        ArrayAdapter<String> arrayAdapter = new ArrayAdapter<>(this,
        android.R.layout.simple_list_item_1, colors);
        listViewArrayAdapter.setAdapter(arrayAdapter);

        // BaseAdapter Example
        ListView listViewBaseAdapter = findViewById(R.id.listViewBaseAdapter);
        List<Person> people = new ArrayList<>();
        people.add(new Person("John", "Doe"));
        people.add(new Person("Jane", "Doe"));
        people.add(new Person("Sam", "Smith"));
        people.add(new Person("Alice", "Johnson"));
        MainActivity2 customBaseAdapter = new MainActivity2(this, people);
        listViewBaseAdapter.setAdapter(customBaseAdapter);
    }
}

```

Person.java

```

package com.example.assignment;

public class Person {
    private String firstName;
    private String lastName;

    public Person(String firstName, String lastName) {
        this.firstName = firstName;
    }
}

```

```

        this.lastName = lastName;
    }

    public String getFirstName() {
        return firstName;
    }

    public String getLastName() {
        return lastName;
    }
}

```

SecondActivity.java:

```

package com.example.assignment;

import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.TextView;
import java.util.List;

public class MainActivity2 extends BaseAdapter {

    private Context context;
    private List<Person> people;

    public MainActivity2(Context context, List<Person> people) {
        this.context = context;
        this.people = people;
    }

    @Override
    public int getCount() {
        return people.size();
    }

    @Override
    public Object getItem(int position) {
        return people.get(position);
    }
}

```



```

@Override
public long getItemId(int position) {
    return position;
}

@Override
public View getView(int position, View convertView, ViewGroup parent) {
    if (convertView == null) {
        convertView = LayoutInflater.from(context).inflate(R.layout.activity_main2,
parent, false);
    }

    TextView textViewFirstName =
convertView.findViewById(R.id.textViewFirstName);
    TextView textViewLastName =
convertView.findViewById(R.id.textViewLastName);

    Person person = people.get(position);
    textViewFirstName.setText(person.getFirstName());
    textViewLastName.setText(person.getLastName());

    return convertView;
}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="ArrayAdapter Example"
        android:textSize="18sp"
        android:paddingBottom="8dp" />

```

```

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

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="BaseAdapter Example"
    android:textSize="18sp"
    android:paddingTop="16dp"
    android:paddingBottom="8dp" />

<ListView
    android:id="@+id/listViewBaseAdapter"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" />
</LinearLayout>

```

activity_second.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="wrap_content"
    android:orientation="horizontal"
    android:padding="8dp">

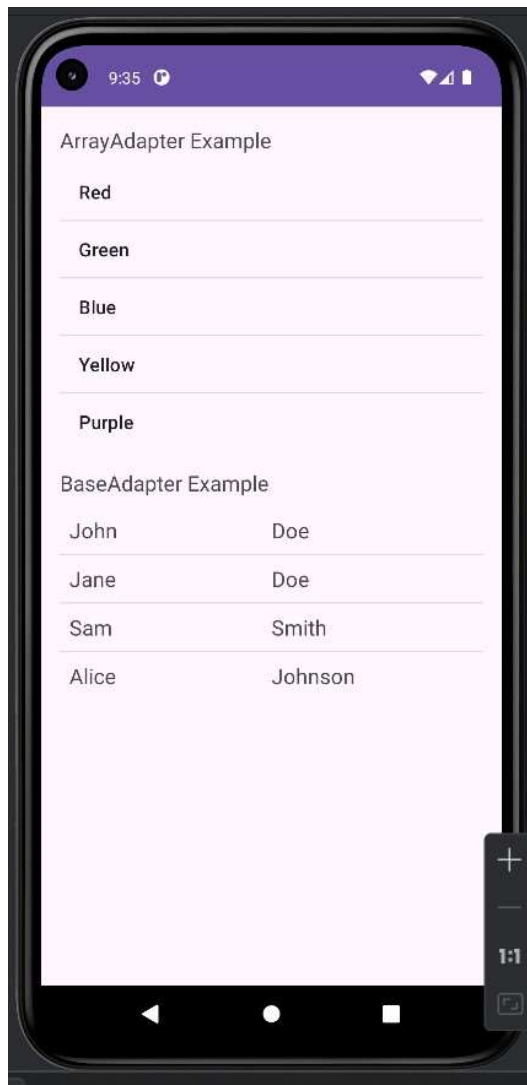
    <TextView
        android:id="@+id/textViewFirstName"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="First Name"
        android:textSize="18sp" />

    <TextView
        android:id="@+id/textViewLastName"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Last Name"

```

```
        android:textSize="18sp" />
</LinearLayout>
```

Output:



4. Write an android application for Gallery using adapters.

Solution:

MainActivity.java:

```
package com.example.assignment;
```

```

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

public class MainActivity extends AppCompatActivity {

    private Integer[] images = {
        R.drawable.a, R.drawable.b, R.drawable.c,
        R.drawable.d, R.drawable.e, R.drawable.f,
        R.drawable.g, R.drawable.h, R.drawable.i
    };

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

        GridView gridView = findViewById(R.id.gridView);
        ImageAdapter imageAdapter = new ImageAdapter(this, images);
        gridView.setAdapter(imageAdapter);

        gridView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position,
long id) {
                Intent intent = new Intent(MainActivity.this, MainActivity2.class);
                intent.putExtra("image", images[position]);
                startActivity(intent);
            }
        });
    }
}

```

ImageAdapter.java:

```

package com.example.assignment;

import android.content.Context;
import android.view.View;
import android.view.ViewGroup;

```

```
import android.widget.BaseAdapter;
import android.widget.ImageView;

public class ImageAdapter extends BaseAdapter {

    private Context context;
    private Integer[] images;

    public ImageAdapter(Context context, Integer[] images) {
        this.context = context;
        this.images = images;
    }

    @Override
    public int getCount() {
        return images.length;
    }

    @Override
    public Object getItem(int position) {
        return images[position];
    }

    @Override
    public long getItemId(int position) {
        return position;
    }

    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        ImageView imageView;
        if (convertView == null) {
            imageView = new ImageView(context);
            imageView.setLayoutParams(new ViewGroup.LayoutParams(250, 250));
            imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
            imageView.setPadding(8, 8, 8, 8);
        } else {
            imageView = (ImageView) convertView;
        }
        imageView.setImageResource(images[position]);
        return imageView;
    }
}
```

MainActivity2.java:

```
package com.example.assignment;

import android.os.Bundle;
import android.widget.ImageView;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity2 extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

        ImageView imageView = findViewById(R.id.imageView);
        int imageResId = getIntent().getIntExtra("image", 0);
        imageView.setImageResource(imageResId);
    }
}
```

activity_main.xml:

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

    <GridView
        android:id="@+id/gridView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:numColumns="3"
        android:verticalSpacing="8dp"
        android:horizontalSpacing="8dp"
        android:gravity="center"
        android:stretchMode="columnWidth" />
</LinearLayout>
```

activity_main2.xml:

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

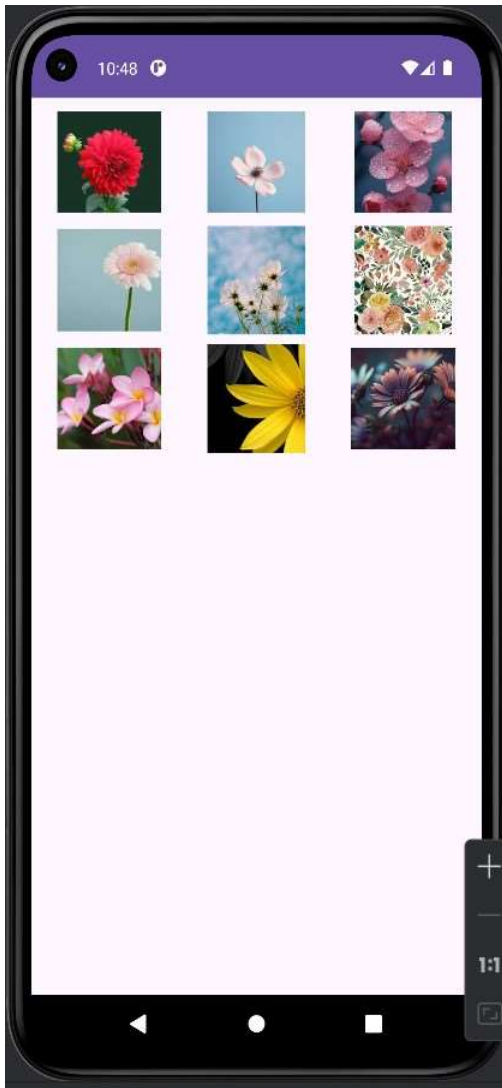
```

<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:scaleType="fitCenter" />
</LinearLayout>

```

OutPut:



5. Write an application demonstrating the use of Android Session Management.

Solution:

MainActivity.java:

```
package com.example.assignment;

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

public class MainActivity extends AppCompatActivity {

    TextView textViewWelcome;
    Button buttonLogout;
    SessionManager sessionManager;

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

        sessionManager = new SessionManager(getApplicationContext());

        if (!sessionManager.isLoggedIn()) {
            Intent intent = new Intent(MainActivity.this, LoginActivity.class);
            startActivity(intent);
            finish();
        }

        textViewWelcome = findViewById(R.id.textViewWelcome);
        buttonLogout = findViewById(R.id.buttonLogout);

        String username = sessionManager.getUserDetails();
        textViewWelcome.setText("Welcome, " + username);

        buttonLogout.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```



```

        sessionManager.logoutUser();

        Intent intent = new Intent(MainActivity.this, LoginActivity.class);
        startActivity(intent);
        finish();
    }
});
}
}

```

SessionManager.java:

```

package com.example.assignment;

import android.content.Context;
import android.content.SharedPreferences;

public class SessionManager {
    SharedPreferences sharedPreferences;
    SharedPreferences.Editor editor;
    Context context;
    int PRIVATE_MODE = 0;

    private static final String PREF_NAME = "SessionPref";
    private static final String IS_LOGIN = "IsLoggedIn";
    public static final String KEY_USERNAME = "Username";

    public SessionManager(Context context) {
        this.context = context;
        sharedPreferences = context.getSharedPreferences(PREF_NAME,
PRIVATE_MODE);
        editor = sharedPreferences.edit();
    }

    public void createLoginSession(String username) {
        editor.putBoolean(IS_LOGIN, true);
        editor.putString(KEY_USERNAME, username);
        editor.commit();
    }

    public boolean isLoggedIn() {
        return sharedPreferences.getBoolean(IS_LOGIN, false);
    }
}

```

```

public void logoutUser() {
    editor.clear();
    editor.commit();
}

public String getUserDetails() {
    return sharedPreferences.getString(KEY_USERNAME, null);
}
}

```

LoginActivity.java:

```

package com.example.assignment;

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

public class LoginActivity extends AppCompatActivity {

    EditText editTextUsername;
    Button buttonLogin;
    SessionManager sessionManager;

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

        sessionManager = new SessionManager(getApplicationContext());

        editTextUsername = findViewById(R.id.editTextUsername);
        buttonLogin = findViewById(R.id.buttonLogin);

        buttonLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String username = editTextUsername.getText().toString().trim();
            }
        });
    }
}

```

```

        if (!username.isEmpty()) {
            sessionManager.createLoginSession(username);

            Intent intent = new Intent(LoginActivity.this, MainActivity.class);
            startActivity(intent);
            finish();
        }
    }
});
}
}

```

activity_main.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical"
    android:padding="16dp">

    <TextView
        android:id="@+id/textViewWelcome"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome"
        android:textSize="18sp" />

    <Button
        android:id="@+id/buttonLogout"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Logout" />
</LinearLayout>

```

activity_login.xml:

```

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

```

```

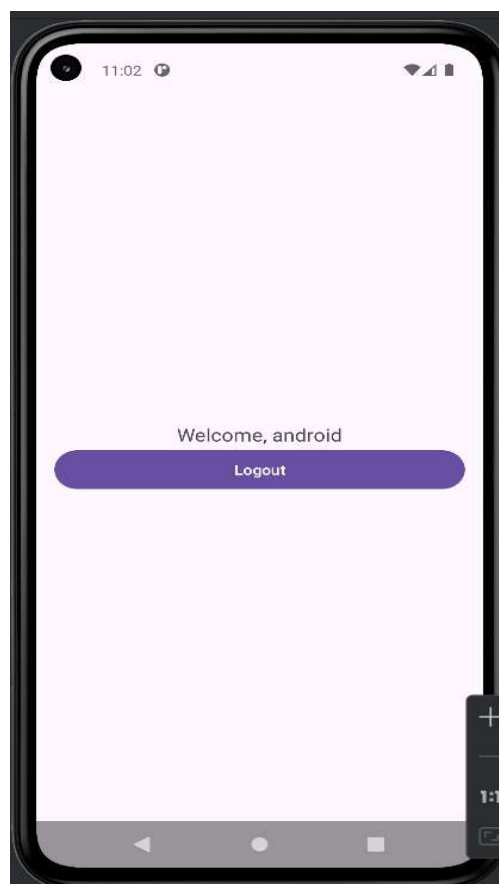
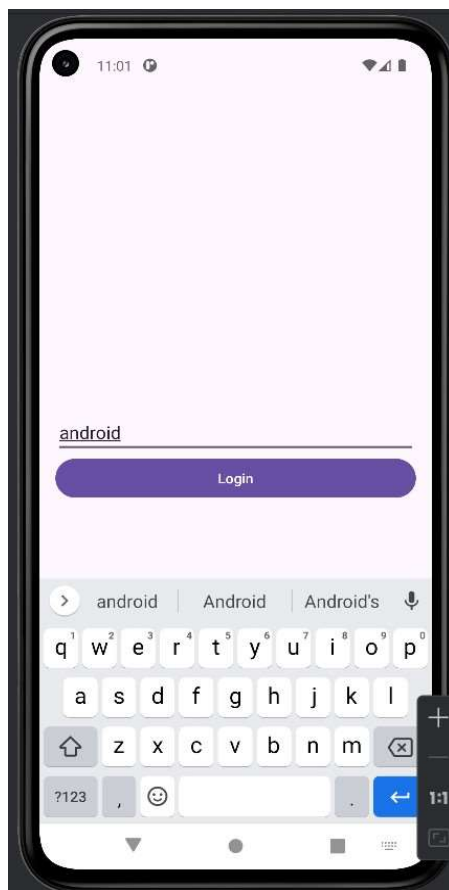
android:layout_height="match_parent"
android:gravity="center"
android:orientation="vertical"
android:padding="16dp">

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

<Button
    android:id="@+id/buttonLogin"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Login" />
</LinearLayout>

```

OutPut:



6. Write an android application which will create three fragments in a single activity.

Solution:

MainActivity.java:

```
package com.example.assignment;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

public class MainActivity extends AppCompatActivity {

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

        // Initialize fragments
        Fragment fragmentOne = new FragmentOne();
        Fragment fragmentTwo = new FragmentTwo();
        Fragment fragmentThree = new FragmentThree();

        // Manage and add fragments to the activity
        FragmentManager fragmentManager = getSupportFragmentManager();
        FragmentTransaction fragmentTransaction =
fragmentManager.beginTransaction();

        fragmentTransaction.add(R.id.fragmentContainer1, fragmentOne);
        fragmentTransaction.add(R.id.fragmentContainer2, fragmentTwo);
        fragmentTransaction.add(R.id.fragmentContainer3, fragmentThree);

        fragmentTransaction.commit();
    }
}
```

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <FrameLayout
        android:id="@+id/fragmentContainer1"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1" />

    <FrameLayout
        android:id="@+id/fragmentContainer2"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1" />

    <FrameLayout
        android:id="@+id/fragmentContainer3"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1" />

</LinearLayout>
```

FragmentOne.java:

```
package com.example.assignment;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class FragmentOne extends Fragment {
```

```

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
    ViewGroup container,
        @Nullable Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_one, container, false);
    }
}

```

fragment_one.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:gravity="center"
    android:orientation="vertical">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fragment One"
        android:textSize="24sp" />
</LinearLayout>

```

FragmentTwo.java:

```

package com.example.assignment;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class FragmentTwo extends Fragment {

    @Nullable
    @Override

```

```

    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
    ViewGroup container,
        @Nullable Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_two, container, false);
    }
}

```

fragment_two.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:gravity="center"
    android:orientation="vertical">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fragment Two"
        android:textSize="24sp" />
</LinearLayout>

```

FragmentThree.java:

```

package com.example.assignment;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class FragmentThree extends Fragment {

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
    ViewGroup container,
        @Nullable Bundle savedInstanceState) {

```



```
        return inflater.inflate(R.layout.fragment_three, container, false);  
    }  
}
```

fragment_three.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:gravity="center"  
    android:orientation="vertical">  
  
    <TextView  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:text="Fragment Three"  
        android:textSize="24sp" />  
</LinearLayout>
```

Output:



7. Write an android application for Fragment Activity Life Cycle.

Solution:

MainActivity.java:

```
package com.example.assignment;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

public class MainActivity extends AppCompatActivity {

    private boolean isFragmentDisplayed = false;

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

        Button buttonShowFragment = findViewById(R.id.buttonShowFragment);
        buttonShowFragment.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (isFragmentDisplayed) {
                    removeFragment();
                } else {
                    displayFragment();
                }
            }
        });
    }

    public void displayFragment() {
        FragmentLifecycle fragment = new FragmentLifecycle();
        FragmentManager fragmentManager = getSupportFragmentManager();
        FragmentTransaction fragmentTransaction =
fragmentManager.beginTransaction();
```

```

        fragmentTransaction.add(R.id.fragmentContainer,
fragment).addToBackStack(null).commit();
        isFragmentDisplayed = true;
    }

    public void removeFragment() {
        FragmentManager fragmentManager = getSupportFragmentManager();
        Fragment fragment =
fragmentManager.findFragmentById(R.id.fragmentContainer);
        if (fragment != null) {
            FragmentTransaction fragmentTransaction =
fragmentManager.beginTransaction();
            fragmentTransaction.remove(fragment).commit();
            isFragmentDisplayed = false;
        }
    }
}

```

activity_main.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <Button
        android:id="@+id/buttonShowFragment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Show Fragment" />

    <FrameLayout
        android:id="@+id/fragmentContainer"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />

</LinearLayout>

```

FragmentLifecycle.java:

```
package com.example.assignment;

import android.os.Bundle;
import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class FragmentLifecycle extends Fragment {

    private static final String TAG = "FragmentLifecycle";
    private TextView lifecycleTextView;

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
    ViewGroup container,
        @Nullable Bundle savedInstanceState) {
        Log.d(TAG, "onCreateView");
        View view = inflater.inflate(R.layout.fragment_lifecycle, container, false);
        lifecycleTextView = view.findViewById(R.id.lifecycleTextView);
        lifecycleTextView.setText("onCreateView called");
        return view;
    }

    @Override
    public void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        Log.d(TAG, "onCreate");
    }

    @Override
    public void onStart() {
        super.onStart();
        Log.d(TAG, "onStart");
        lifecycleTextView.setText(lifecycleTextView.getText() + "\nonStart called");
    }
}
```

```
@Override
public void onResume() {
    super.onResume();
    Log.d(TAG, "onResume");
    lifecycleTextView.setText(lifecycleTextView.getText() + "\nonResume called");
}
```

```
@Override
public void onPause() {
    super.onPause();
    Log.d(TAG, "onPause");
    lifecycleTextView.setText(lifecycleTextView.getText() + "\nonPause called");
}
```

```
@Override
public void onStop() {
    super.onStop();
    Log.d(TAG, "onStop");
    lifecycleTextView.setText(lifecycleTextView.getText() + "\nonStop called");
}
```

```
@Override
public void onDestroyView() {
    super.onDestroyView();
    Log.d(TAG, "onDestroyView");
    lifecycleTextView.setText(lifecycleTextView.getText() + "\nonDestroyView
called");
}
```

```
@Override
public void onDestroy() {
    super.onDestroy();
    Log.d(TAG, "onDestroy");
    lifecycleTextView.setText(lifecycleTextView.getText() + "\nonDestroy called");
}
```

```
@Override
public void onDetach() {
    super.onDetach();
    Log.d(TAG, "onDetach");
    lifecycleTextView.setText(lifecycleTextView.getText() + "\nonDetach called");
}
```

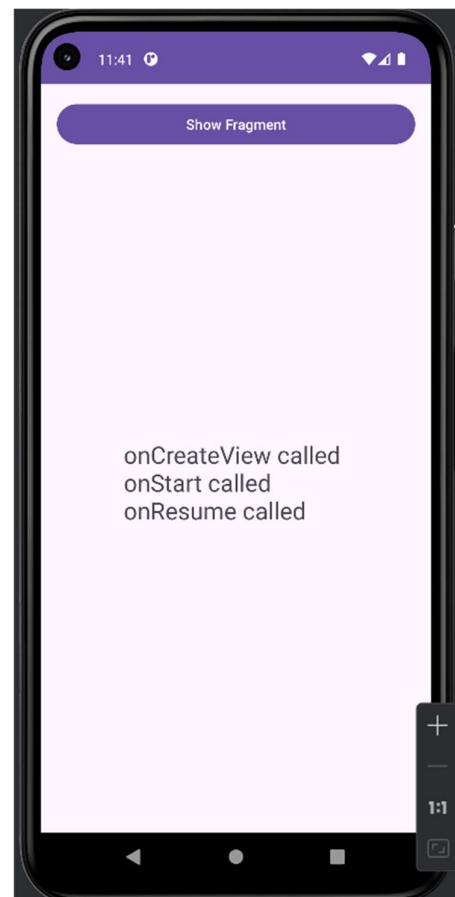
```
}
```

fragment_lifecycle.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:gravity="center"
    android:orientation="vertical">

    <TextView
        android:id="@+id/lifecycleTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fragment Lifecycle"
        android:textSize="24sp" />
</LinearLayout>
```

Output:



8. Write an android application that will look like WhatsApp Application using Fragment.

Solution:

MainActivity.java:

```
package com.example.assignment;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.viewpager2.widget.ViewPager2;
import com.google.android.material.tabs.TabLayout;
import com.google.android.material.tabs.TabLayoutMediator;

public class MainActivity extends AppCompatActivity {

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

        TabLayout tabLayout = findViewById(R.id.tabLayout);
        ViewPager2 viewPager = findViewById(R.id.viewPager);

        // Set up the ViewPager with the FragmentAdapter
        FragmentAdapter fragmentAdapter = new FragmentAdapter(this);
        viewPager.setAdapter(fragmentAdapter);

        // Connect the TabLayout and ViewPager2
        new TabLayoutMediator(tabLayout, viewPager, (tab, position) -> {
            switch (position) {
                case 0:
                    tab.setText("CHATS");
                    break;
                case 1:
                    tab.setText("STATUS");
                    break;
                case 2:
                    tab.setText("CALLS");
                    break;
            }
        })
    }
}
```

```

        }).attach();
    }
}

```

activity_main.xml:

```

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

    <com.google.android.material.tabs.TabLayout
        android:id="@+id/tabLayout"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="?attr/colorPrimary"
        android:theme="@style/ThemeOverlay.MaterialComponents.Dark.ActionBar" />

    <androidx.viewpager2.widget.ViewPager2
        android:id="@+id/viewPager"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />

</LinearLayout>

```

FragmentAdapter.java:

```

package com.example.assignment;

import androidx.annotation.NonNull;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentActivity;
import androidx.viewpager2.adapter.FragmentStateAdapter;

public class FragmentAdapter extends FragmentStateAdapter {

    public FragmentAdapter(@NonNull FragmentActivity fragmentActivity) {
        super(fragmentActivity);
    }
}

```



```

@NonNull
@Override
public Fragment createFragment(int position) {
    switch (position) {
        case 0:
            return new ChatsFragment();
        case 1:
            return new StatusFragment();
        case 2:
            return new CallsFragment();
        default:
            return new ChatsFragment();
    }
}

@Override
public int getItemCount() {
    return 3;
}
}

```

ChatsFragment.java:

```

package com.example.assignment;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class ChatsFragment extends Fragment {

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
    ViewGroup container,
        @Nullable Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_chats, container, false);
    }
}

```

```
}
```

fragment_chats.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:text="Chats"
        android:textSize="24sp" />
</LinearLayout>
```

StatusFragment.java:

```
package com.example.assignment;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class StatusFragment extends Fragment {

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
    ViewGroup container,
        @Nullable Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_status, container, false);
    }
}
```

fragment_status.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:text="Status"
        android:textSize="24sp" />
</LinearLayout>

```

CallsFragment.java:

```

package com.example.assignment;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class CallsFragment extends Fragment {

    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable
    ViewGroup container,
        @Nullable Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_calls, container, false);
    }
}

```

```

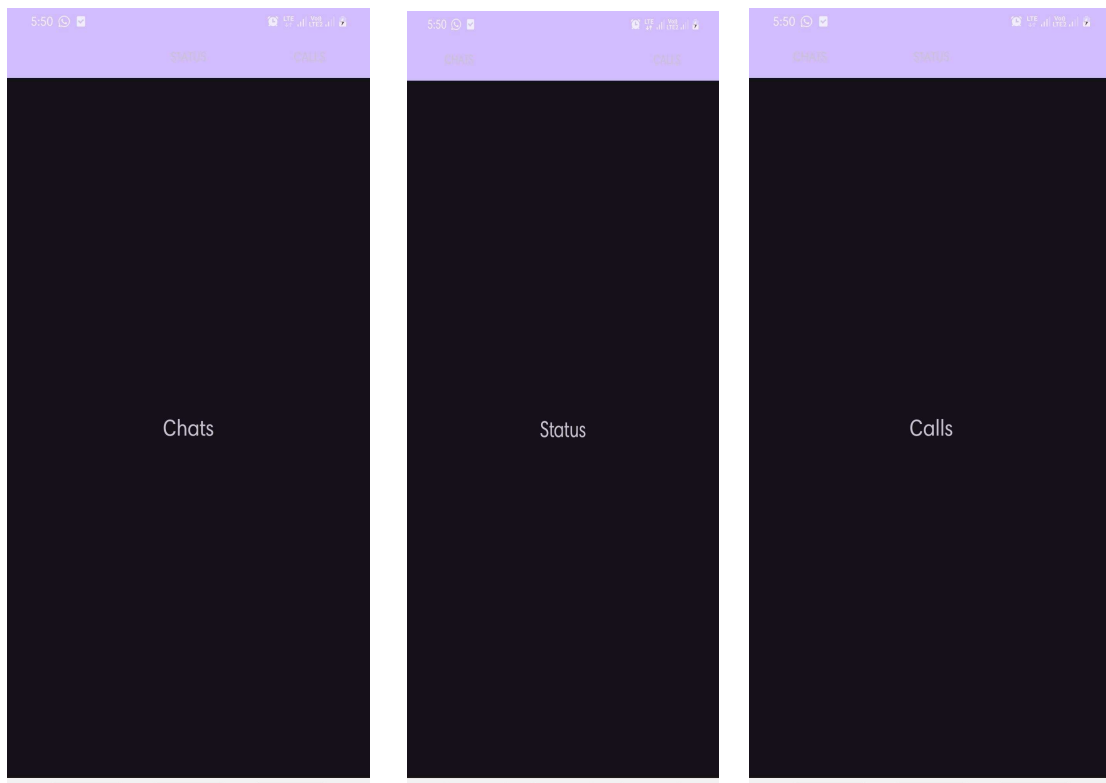
fragment_calls.xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"

```

```
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:gravity="center">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Calls"
            android:textSize="24sp" />
    </LinearLayout>
```

Output:



9. Write an android application that will parse XML data

Solution:

MainActivity.java:

```
package com.example.assignment;
```

```

import androidx.appcompat.app.AppCompatActivity;
import android.os.AsyncTask;
import android.os.Bundle;
import android.util.Xml;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import org.xmlpull.v1.XmlPullParser;
import org.xmlpull.v1.XmlPullParserException;

import java.io.IOException;
import java.io.InputStream;
import java.net.HttpURLConnection;
import java.net.URL;

public class MainActivity extends AppCompatActivity {

    private TextView outputTextView;
    private Button parseButton;

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

        outputTextView = findViewById(R.id.outputTextView);
        parseButton = findViewById(R.id.parseButton);

        parseButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // Start the AsyncTask to fetch and parse the XML
                new
FetchAndParseXMLTask().execute("https://www.example.com/books.xml");
            }
        });
    }

    private class FetchAndParseXMLTask extends AsyncTask<String, Void, String> {

        @Override
        protected String doInBackground(String... urls) {

```

```

    try {
        return parseXMLFromUrl(urls[0]);
    } catch (IOException | XmlPullParserException e) {
        e.printStackTrace();
        return "Error parsing XML";
    }
}

@Override
protected void onPostExecute(String result) {
    outputTextView.setText(result);
}

private String parseXMLFromUrl(String urlString) throws IOException,
XmlPullParserException {
    InputStream inputStream = null;
    try {
        URL url = new URL(urlString);
        HttpURLConnection connection = (HttpURLConnection)
url.openConnection();
        connection.setReadTimeout(10000);
        connection.setConnectTimeout(15000);
        connection.setRequestMethod("GET");
        connection.setDoInput(true);
        connection.connect();

        inputStream = connection.getInputStream();
        return parseXML(inputStream);
    } finally {
        if (inputStream != null) {
            inputStream.close();
        }
    }
}

private String parseXML(InputStream inputStream) throws
XmlPullParserException, IOException {
    XmlPullParser parser = Xml.newPullParser();
    parser.setFeature(XmlPullParser.FEATURE_PROCESS_NAMESPACES, false);
    parser.setInput(inputStream, null);

    StringBuilder result = new StringBuilder();
    int eventType = parser.getEventType();

```

```

String tagName = null;
String title = null;
String author = null;

while (eventType != XmlPullParser.END_DOCUMENT) {
    switch (eventType) {
        case XmlPullParser.START_TAG:
            tagName = parser.getName();
            break;
        case XmlPullParser.TEXT:
            if ("title".equals(tagName)) {
                title = parser.getText();
            } else if ("author".equals(tagName)) {
                author = parser.getText();
            }
            break;
        case XmlPullParser.END_TAG:
            if ("book".equals(parser.getName())) {
                result.append("Title: ").append(title).append("\n")
                    .append("Author: ").append(author).append("\n\n");
            }
            break;
    }
    eventType = parser.next();
}
return result.toString();
}
}
}

```

activity_main.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

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

```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Parse XML" />

<TextView
    android:id="@+id/outputTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:textSize="16sp" />
</LinearLayout>
```

Output:



10. Write an android application that will parse JSON data

Solution:

MainActivity.java:

```
package com.example.assignment;

import androidx.appcompat.app.AppCompatActivity;
import android.os.AsyncTask;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import org.json.JSONArray;
import org.json.JSONException;
import org.json.JSONObject;
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.net.HttpURLConnection;
import java.net.URL;

public class MainActivity extends AppCompatActivity {

    private TextView outputTextView;
    private Button parseButton;

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

        outputTextView = findViewById(R.id.outputTextView);
        parseButton = findViewById(R.id.parseButton);

        parseButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // Start the AsyncTask to fetch and parse the JSON
                new
FetchAndParseJSONTask().execute("https://www.example.com/users.json");
            }
        });
    }
}
```

```
});
}
```

```
private class FetchAndParseJSONTask extends AsyncTask<String, Void, String> {
```

```
    @Override
    protected String doInBackground(String... urls) {
        try {
            return fetchJSONFromUrl(urls[0]);
        } catch (IOException | JSONException e) {
            e.printStackTrace();
            return "Error parsing JSON";
        }
    }
}
```

```
    @Override
    protected void onPostExecute(String result) {
        outputTextView.setText(result);
    }
}
```

```
    private String fetchJSONFromUrl(String urlString) throws IOException,
    JSONException {
```

```
        StringBuilder result = new StringBuilder();
        URL url = new URL(urlString);
        HttpURLConnection connection = (HttpURLConnection)
url.openConnection();
        connection.setReadTimeout(10000);
        connection.setConnectTimeout(15000);
        connection.setRequestMethod("GET");
        connection.setDoInput(true);
        connection.connect();
```

```
        BufferedReader reader = new BufferedReader(new
InputStreamReader(connection.getInputStream()));
        String line;
        while ((line = reader.readLine()) != null) {
            result.append(line);
        }
        reader.close();
        return parseJSON(result.toString());
    }
}
```

```
    private String parseJSON(String jsonString) throws JSONException {
```

```

        StringBuilder parsedResult = new StringBuilder();

        // Create a JSON array from the string
        JSONArray jsonArray = new JSONArray(jsonString);

        // Loop through each object in the array
        for (int i = 0; i < jsonArray.length(); i++) {
            JSONObject userObject = jsonArray.getJSONObject(i);

            String name = userObject.getString("name");
            String email = userObject.getString("email");
            String phone = userObject.getString("phone");

            parsedResult.append("Name: ").append(name).append("\n")
                .append("Email: ").append(email).append("\n")
                .append("Phone: ").append(phone).append("\n\n");
        }
        return parsedResult.toString();
    }
}

```

activity_main.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <Button
        android:id="@+id/parseButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Parse JSON" />

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

```

```
        android:layout_marginTop="16dp"  
        android:textSize="16sp" />  
</LinearLayout>
```

Output:

