Lab 1:

Demonstrate the setup and installation of android project with java.

Objective

➢ Learn to install and setup android project.

Steps to setup and install the project

Step 1: Download the latest version of Android studio from the official website

Step 2: Install Android Studio and select Android SDK, Android Virtual Device (AVD).

Step 3: Setting up the project

- Open Android Studio
- Click "Start a new Android Studio project."

- In the "New Project" window:

o **Project Name:** Enter a descriptive name for your project.
o **Package Name:** Choose a unique package name. This acts as a namespace for your app's code.
o **Save Location:** Select a location on your computer to save your project files.
o **Minimum SDK:** Choose the minimum SDK level which support the maximum feature.
o We use API 24 ("Nougat"; Android 7.0)
o **Language:** Select "Java" as the development language.
o **Build configuration language:** choose Groovy DSL(build.gradle)
o Click "Finish".

Click on File => New => New Project
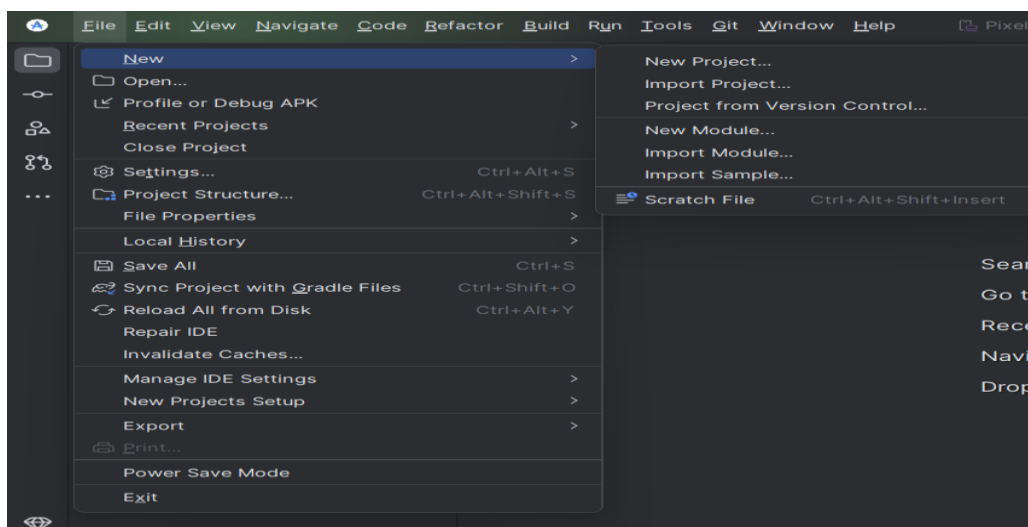
Click on Empty Views Activity
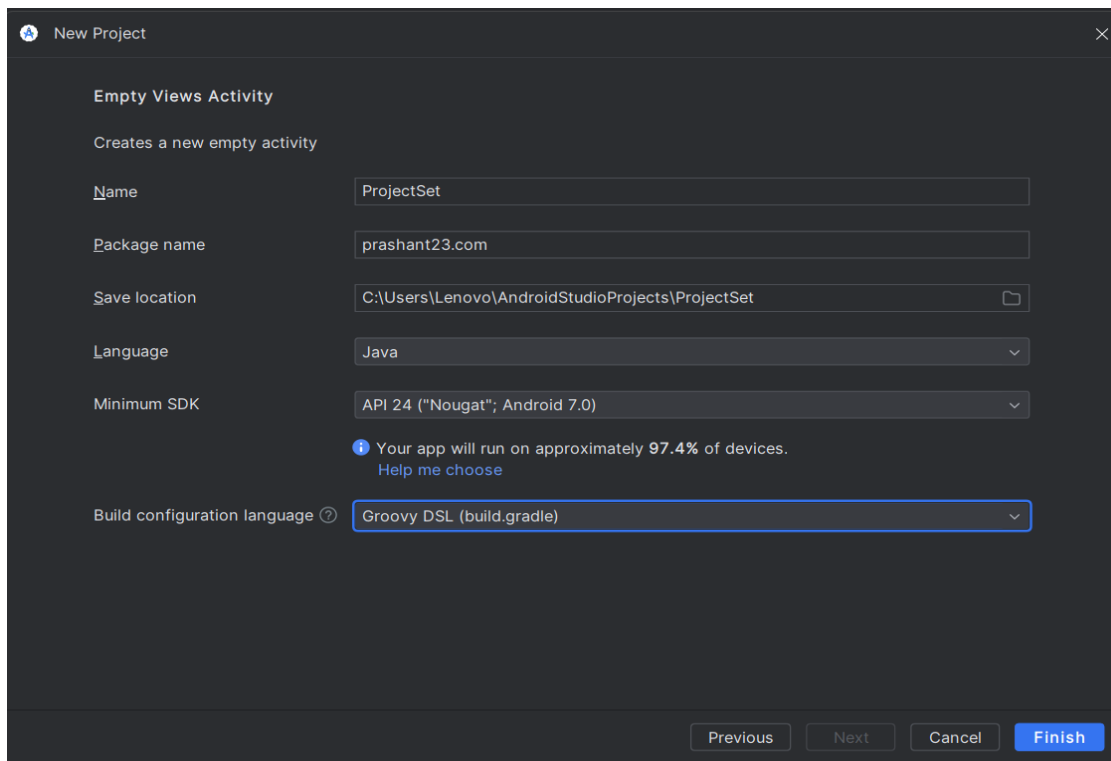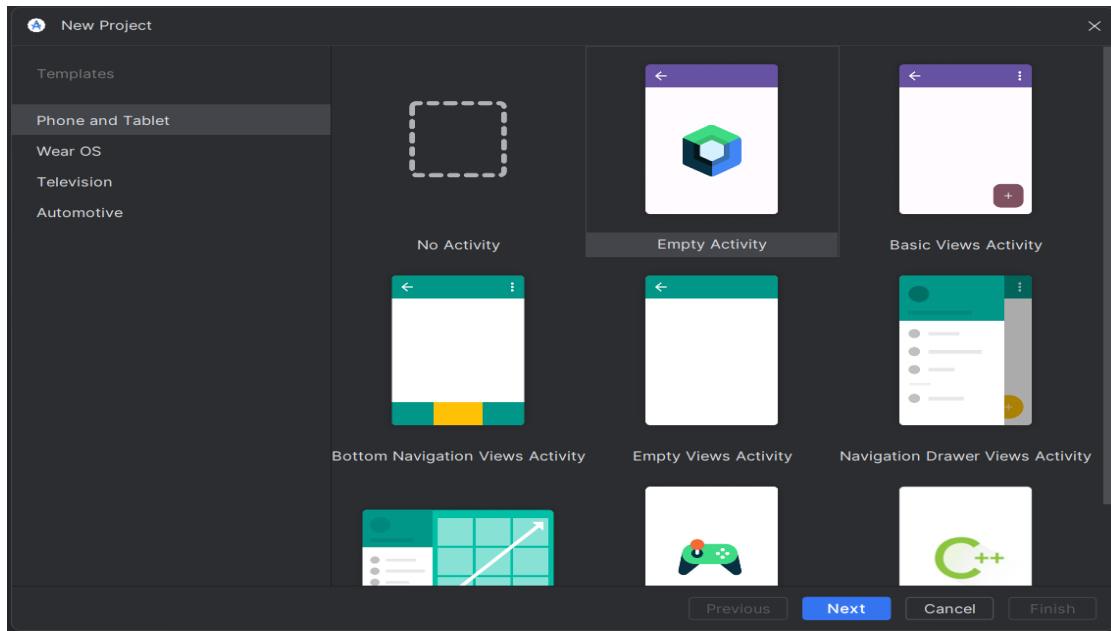
Lab 2:

Develop an android application that prints "hello world" on the bottom of the page.

Objective:

> ➢ Learn to develop and run the android project

Lab work:

MainActivity.java

```java
package prashant.com;

import android.os.Bundle; import
androidx.activity.EdgeToEdge; import
androidx.appcompat.app.AppCompatActivity; import
androidx.core.graphics.Insets; import
androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

    @Override    protected void onCreate(Bundle
savedInstanceState) {
super.onCreate(savedInstanceState);
EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
    } }
```

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/main"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:gravity="bottom|center_horizontal"
tools:context=".MainActivity">

    <TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/hello"
        />
</LinearLayout>
```
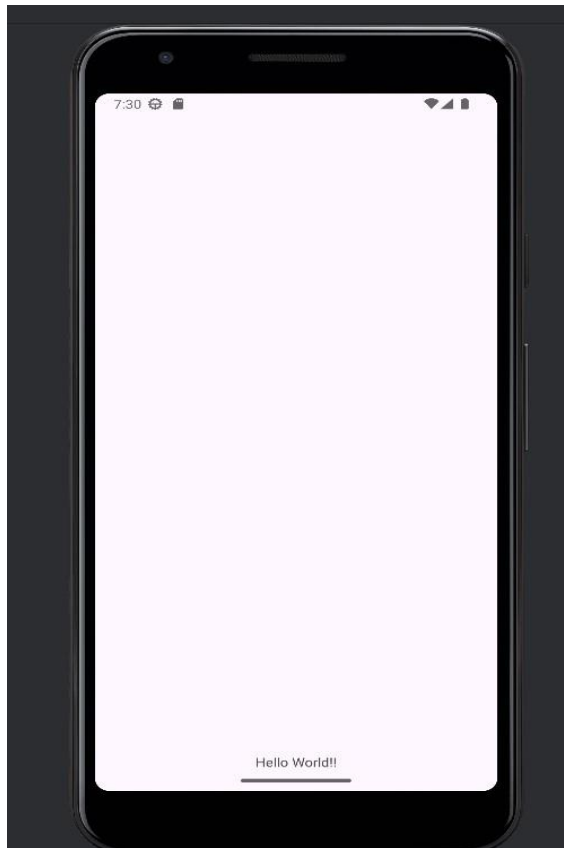
strings.xml

```xml
<resources>
    <string name="app_name">ProfileApp</string>
    <string name="hello">Hello World!!</string>
</resources>
```

Output:

Discussion and Conclusion:

In this lab, we create a simple App to print "Hello world!!" in the bottom of the page layout. We set layout gravity bottom and center_horizontal and in string file we write the string value as "hello world" as set its name as hello and in activity_main.xml file we return the value of string in text as @string/hello.

Lab 3:

Develop an android application with two activities, mainactivity and greetactivity .mainactivity should contain a textbox and button with label " submit'. when clicked on submit greetactivity should open with message hello {name} where name is submitted from mainactivity.

Objective:

> Learn how to deal with two activities

Lab work:

MainActivity.java

package prashant.com;

import android.content.Intent; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.EditText; import androidx.activity.EdgeToEdge; import androidx.appcompat.app.AppCompatActivity; import androidx.core.graphics.Insets; import androidx.core.view.ViewCompat; import androidx.core.view.WindowInsetsCompat;

```java
public class MainActivity extends AppCompatActivity {
private Button submitButton;
private EditText editText;

@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
EdgeToEdge.enable(this);
setContentView(R.layout.activity_main);
ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
return insets;
});
submitButton = findViewById(R.id.submit_btn);
```

```java
String  editText = findViewById(R.id.editText);
submitButton.setOnClickListener(new
View.OnClickListener() {
@Override
public void onClick(View view) {
String text = editText.getText().toString();
Intent i = new Intent(MainActivity.this,GreetActivity.class);
i.putExtra("text",text);
startActivity(i);
}
});
}
}
```

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/main"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:gravity="center"
tools:context=".MainActivity">

<LinearLayout
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="horizontal"
>
<EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:gravity="center_vertical"
android:hint="@string/hello"
android:id="@+id/editText"
/>
</LinearLayout>
```

```xml
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/submit"
android:id="@+id/submit_btn"
    />
</LinearLayout>
```

strings.xml

```xml
<resources>
    <string name="app_name">Profile</string>
    <string name="submit">Submit</string>
    <string name="hello">Enter your name.. </string>
    <string name="helloText">Hello, </string>
</resources>
```

GreetActivity.java

```java
package prashant.com;

import android.os.Bundle; import
android.widget.TextView; import
androidx.activity.EdgeToEdge; import
androidx.appcompat.app.AppCompatActivity; import
androidx.core.graphics.Insets; import
androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class GreetActivity extends AppCompatActivity {
 @Override
protected void onCreate(BundlesavedInstanceState) {
super.onCreate(savedInstanceState);
EdgeToEdge.enable(this);
setContentView(R.layout.activity_greeta);
ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
return insets;
});
```

```java
TextView handleTextView = findViewById(R.id.hello_input);
String  text =getIntent().getStringExtra("text");
handleTextView.setText(text);
}
}
```

activity_greeta.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/main"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:gravity="center_vertical|center"
tools:context=".GreetActivity">

<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/helloText"
/>
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/hello_input"
/>
</LinearLayout>
```
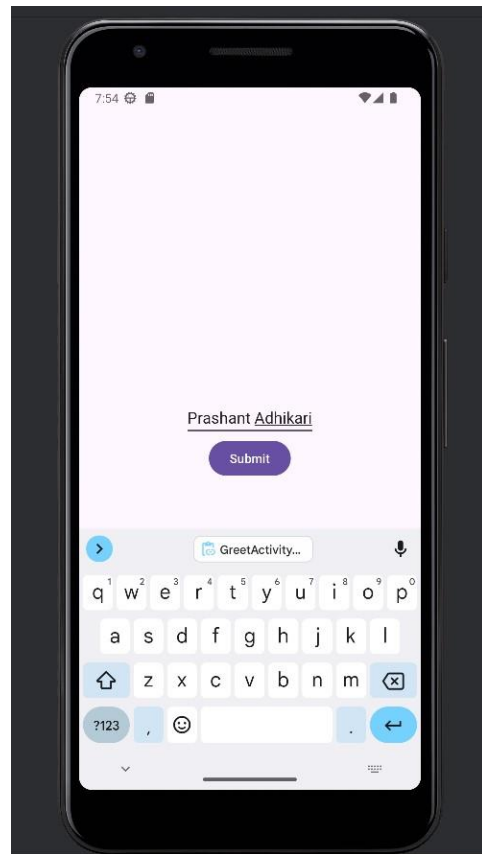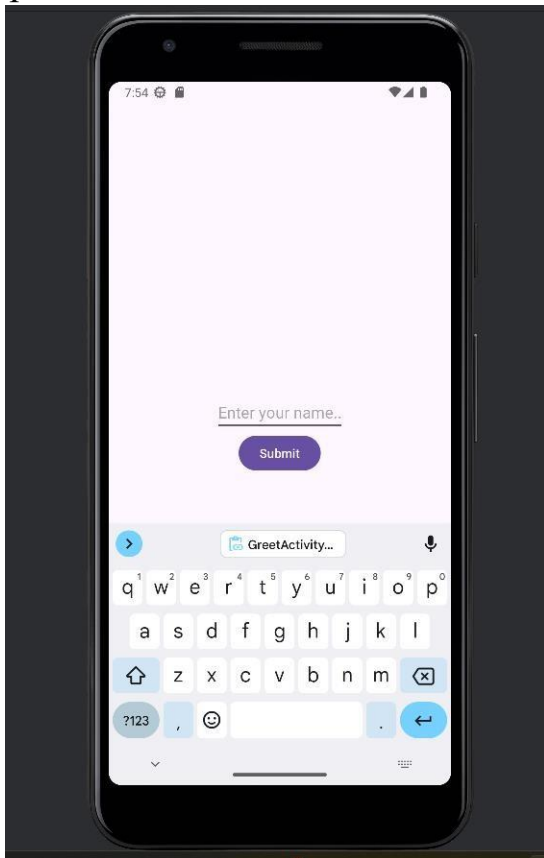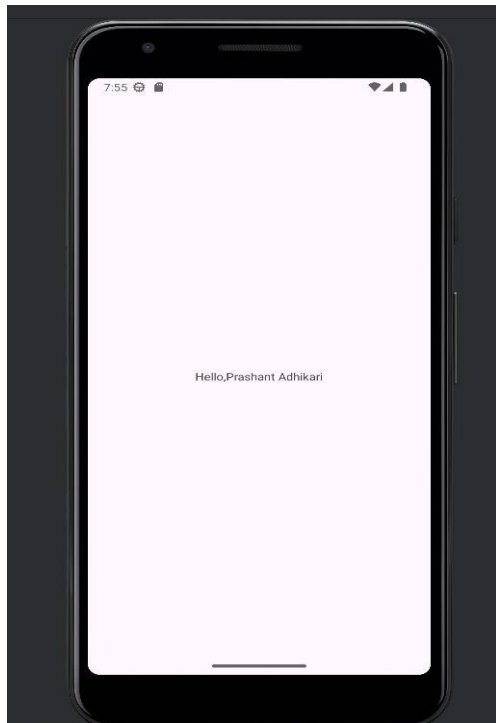
Output:

After click on submit button the GreetActivity comes into scene.

Discussion and conclusion:

In this lab, we learn and deal with two activities as MainActivity and GreetActivity. The activities are store in stack. The MainActivity contains the Text input field and the submit button after click the submit button the activity is change and goes to GreetActivity which contains the user input value and Hello as default value as its UI.

We use Intent feature to communicate between two activities. We create an object of the Intent and pass the MainActivity and GreetActivity as parameter and use startActivity to run the activity.