Mobile Application Development Laboratory
Lab 4

Implicit and Explicit Intents

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Aim:

To make an android application that uses Implicit and Explicit intents.

Description of App:

We create an android application with the following specifications:

1. Have two activities, In the first activity, include a title, 2 textboxes, and a button. The user types his/her roll number and name in the textboxes and clicks on the button. Upon clicking, starts another activity using explicit intent.
2. In the second activity (initiated using implicit intent), have welcome messages using Toasts, a TextView, an EditText, three RadioButtons, and two Buttons. User has to type some message in the EditText, select one of the RadioButtons and click on the Submit button. Upon clicking, based on the selection of radio buttons, start the following Intents. If the user clicks on the Back button, return to the first activity. The three intents are:
    - Send message - Open the messages app with the message entered in the EditText.
    - Mail the message- Open the GMail application with the message in body
    - Google search - Open browser and search the message in Google.

Device Specifications:

Model: Poco F1
Android Version: 9 (API Level 28)
Resolution: 2160 x 1080 pixels

Technical Concepts Learnt:

- To create and launch implicit and explicit Intents.
- To understand actions and parse URIs.
- To navigate and pass information between Activities.
- To create and manage RadioButtons and RadioGroups.
- To create and display toasts.

Source Code:

(i) MainActivity.java

```
package com.example.lab4;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText mNameInput, mRollInput;
    Button mSubmitButton;

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

        Toast.makeText(getApplicationContext(), "Welcome to Activity
1", Toast.LENGTH_SHORT).show();

        mNameInput = (EditText) findViewById(R.id.name_input);
        mRollInput = (EditText) findViewById(R.id.roll_input);

        mSubmitButton = (Button) findViewById(R.id.submit_button);
        mSubmitButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String name = mNameInput.getText().toString();
                String roll = mRollInput.getText().toString();
```

```
                if (name.equals("") || roll.equals("")) {
                    Toast.makeText(getApplicationContext(), "Enter
valid Name and Roll Number", Toast.LENGTH_SHORT).show();
                    return;
                }

                Intent i = new Intent(getApplicationContext(),
SecondActivity.class);
                i.putExtra("NAME", name);
                i.putExtra("ROLL", Integer.parseInt(roll));

                startActivity(i);
            }
        });
    }
}
```

(ii) SecondActivity.java

```
package com.example.lab4;

import androidx.appcompat.app.AppCompatActivity;

import android.app.SearchManager;
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 android.widget.RadioGroup;
import android.widget.Toast;

public class SecondActivity extends AppCompatActivity {

    EditText mMessageInput;
    RadioGroup mActionGroup;
```

```
    Button mSubmitButton, mBackButton;

    String name;
    Integer roll;

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

        mMessageInput = (EditText) findViewById(R.id.message_input);
        mActionGroup = (RadioGroup) findViewById(R.id.action_group);
        mSubmitButton = (Button) findViewById(R.id.launch_button);
        mBackButton = (Button) findViewById(R.id.back_button);

        name = getIntent().getStringExtra("NAME");
        roll = getIntent().getIntExtra("ROLL", 0);

        Toast.makeText(getApplicationContext(), "Welcome to Activity
2 " + name + " (" + roll + ")", Toast.LENGTH_SHORT).show();

        mSubmitButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (mMessageInput.getText().toString().equals("")) {
                    Toast.makeText(getApplicationContext(), "Enter
Valid Message", Toast.LENGTH_SHORT).show();
                    return;
                }

                int selectedId =
mActionGroup.getCheckedRadioButtonId();

                switch (selectedId) {
                    case R.id.message:
                        Uri uri = Uri.parse("smsto:");
                        Intent i1 = new Intent(Intent.ACTION_SENDTO,
uri);
                        i1.putExtra("sms_body",
```

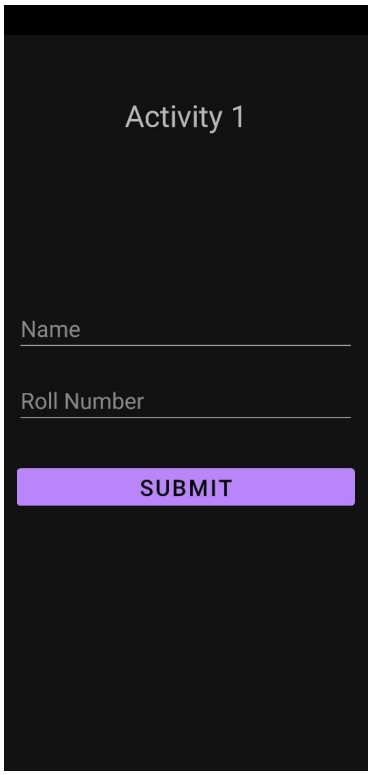
```
mMessageInput.getText().toString());
                        startActivity(i1);
                        break;

                    case R.id.email:
                        Intent i2 = new Intent(Intent.ACTION_SENDTO);
                        i2.setData(Uri.parse("mailto:")); // only
email apps should handle this
                        i2.putExtra(Intent.EXTRA_TEXT,
mMessageInput.getText().toString());
                        if (i2.resolveActivity(getPackageManager())
!= null) {
                            startActivity(i2);
                        }
                        break;

                    case R.id.search:
                        Intent i3 = new
Intent(Intent.ACTION_WEB_SEARCH);
                        i3.putExtra(SearchManager.QUERY,
mMessageInput.getText().toString());
                        startActivity(i3);
                        break;

                    default:
                        Toast.makeText(getApplicationContext(),
"Please choose an option", Toast.LENGTH_SHORT).show();
                }
            }
        });

        mBackButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent activityIntent = new
Intent(getApplicationContext(), MainActivity.class);
                startActivity(activityIntent);
                finish();
            }
```

```
        });
    }
}
```

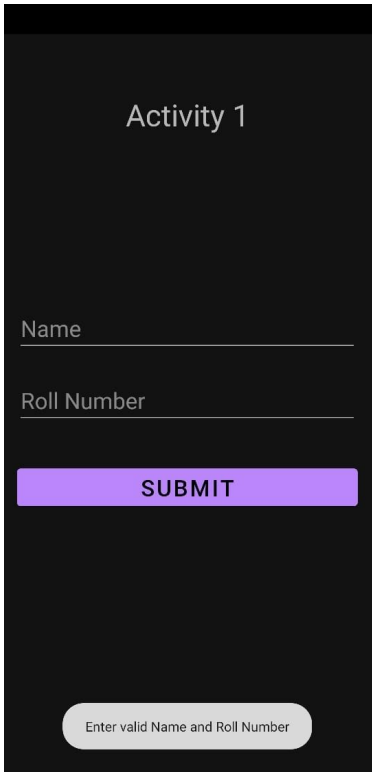
Video Demo:
https://drive.google.com/file/d/1G1oF0MpCr_2lutHisUJI1Mr79LJQ8EQh/view?usp=sharing

APK:
https://drive.google.com/file/d/1C7AbH1AWrnitxje3-Ct4n4Ul-GX5ge-M/view?usp=sharing

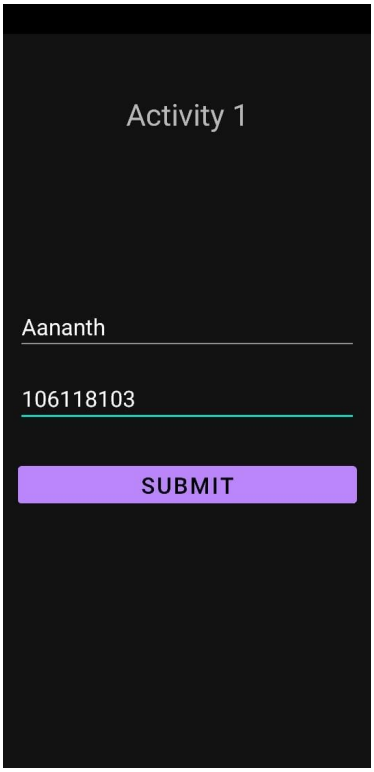
Screenshots:



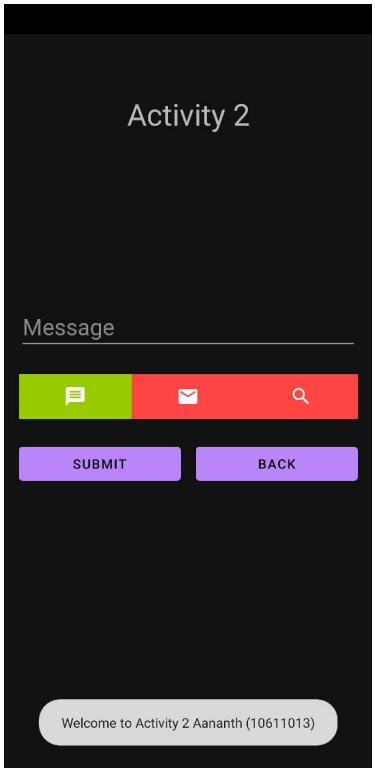
(i) Activity 1 - Initial



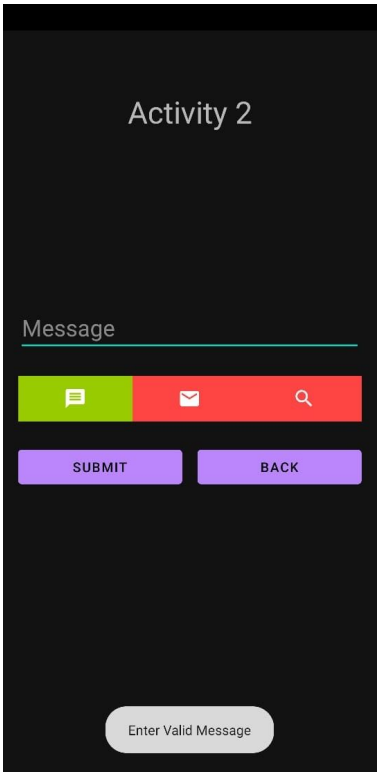
(ii) Activity 1 - Validation



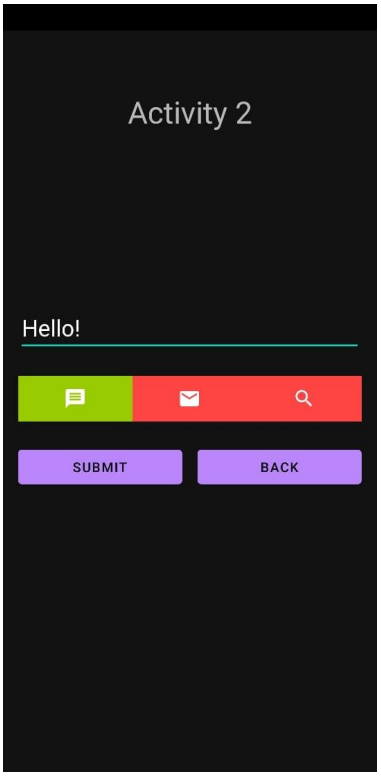
(iii) Activity 1 - Input



(iv) Activity 2 - Initial



(v) Activity 2 - Validation



(vi) Activity 2 - Input

Outcomes:

An android application was developed using Implicit and Explicit intents. Various concepts in Android App Development were explored including:

- Creating and launching implicit and explicit Intents.
- Understanding actions and parsing URIs.
- Navigating and passing information between Activities.
- Creating and managing RadioButtons and RadioGroups.
- Creating and displaying toasts.