Name of Student: Pushkar Sane		
Roll Number: 45	**Lab Assignment Number: 3**	
Title of Lab Assignment: Android program based on intent.		
DOP: 05-09-2024	**DOS: 12-09-2024**	
CO Mapped: **CO2**	**PO Mapped:** **PO2, PO3, PSO1**	**Signature:**

Practical No. 3

Aim: Android program based on intent.

Theory:

Intents in Android: Intents are an essential component in Android, used to communicate between components like activities, services, and broadcast receivers. An intent is an abstract description of an operation to be performed, facilitating messaging between different components of the Android operating system.

There are two types of intents:

1. Explicit Intents:
   Explicit intents are used to launch a specific component (e.g., a particular activity or service). The developer explicitly specifies the component that should handle the intent using the component's class name.
2. Implicit Intents:
   Implicit intents do not name a specific component. Instead, they declare a general action to perform, allowing any app that can handle the intent to process it. The system matches the intent with a suitable component using intent filters defined in the app's manifest file.

Key Concepts of Intents:

- Intent Filters:
  Intent filters are used to declare the capabilities of a component in the AndroidManifest.xml file. These filters specify the types of intents the component can handle. For example, an activity might declare an intent filter for the ACTION_SEND action, indicating that it can share data.
- Bundle:
  A Bundle object is often used to pass data between activities when starting an activity with an intent. This can include data types like strings, integers, and more.
- Extras:
  Intent extras are used to pass additional information to the receiving component. These extras can be retrieved from the intent using methods like getStringExtra().

Common Use Cases:

- Starting a new activity:
  Launching another activity within the app or an external activity (e.g., opening a web browser).
- Starting a service:
  Initiating background operations like downloading data or playing music.
- Broadcasting messages:
  Sending system-wide messages that can be received by multiple broadcast receivers.
- Communicating between fragments:
  While fragments typically communicate through the hosting activity, intents can also be used for fragment-to-fragment communication in more complex scenarios.

Code:

MainActivity.java

```
package com.example.intentprogram;
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.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
    private EditText etLink, etLocation, etMessage;

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

        etLink = findViewById(R.id.et_link);
        etLocation = findViewById(R.id.et_location);
        etMessage = findViewById(R.id.et_message);
```

```
        Button btnOpenLink = findViewById(R.id.btn_open_link);
        Button btnOpenMap = findViewById(R.id.btn_open_map);
        Button btnShareText = findViewById(R.id.btn_share_text);

        // Open Website Link
        btnOpenLink.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String url = etLink.getText().toString();
                if (!url.isEmpty()) {
                    Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse(url));
                    startActivity(intent);
                } else {
                                        Toast.makeText(MainActivity.this, "Please enter a link",
Toast.LENGTH_SHORT).show();
                }
            }
        });

        // Open Google Map
        btnOpenMap.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String location = etLocation.getText().toString();
                if (!location.isEmpty()) {
                    Uri geoUri = Uri.parse("geo:0,0?q=" + location);
                    Intent intent = new Intent(Intent.ACTION_VIEW, geoUri);
                    intent.setPackage("com.google.android.apps.maps");
                    startActivity(intent);
                } else {
                                    Toast.makeText(MainActivity.this, "Please enter a location",
Toast.LENGTH_SHORT).show();
                }
            }
        });
```

```
        // Share Text
        btnShareText.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String message = etMessage.getText().toString();
                if (!message.isEmpty()) {
                    Intent intent = new Intent(Intent.ACTION_SEND);
                    intent.setType("text/plain");
                    intent.putExtra(Intent.EXTRA_TEXT, message);
                    startActivity(Intent.createChooser(intent, "Share via"));
                } else {
                                    Toast.makeText(MainActivity.this, "Please enter a message",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

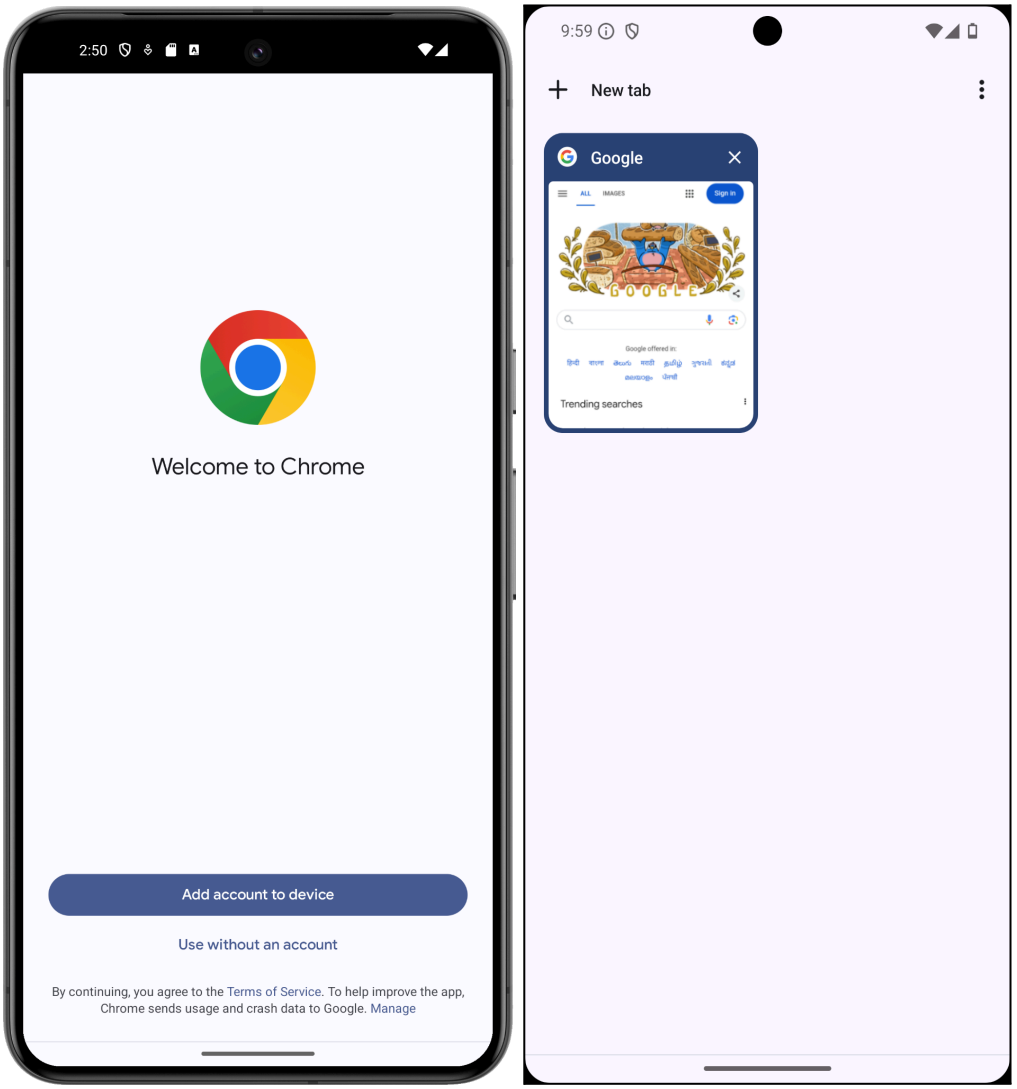
Activity_main.xml

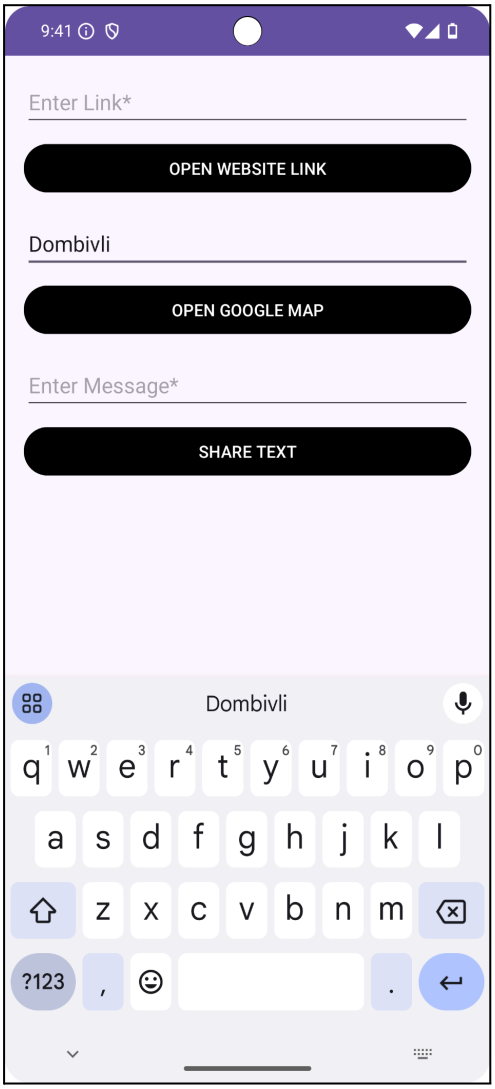
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <EditText
        android:id="@+id/et_link"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Link*"
        android:layout_marginBottom="8dp" />

    <Button
        android:id="@+id/btn_open_link"
```

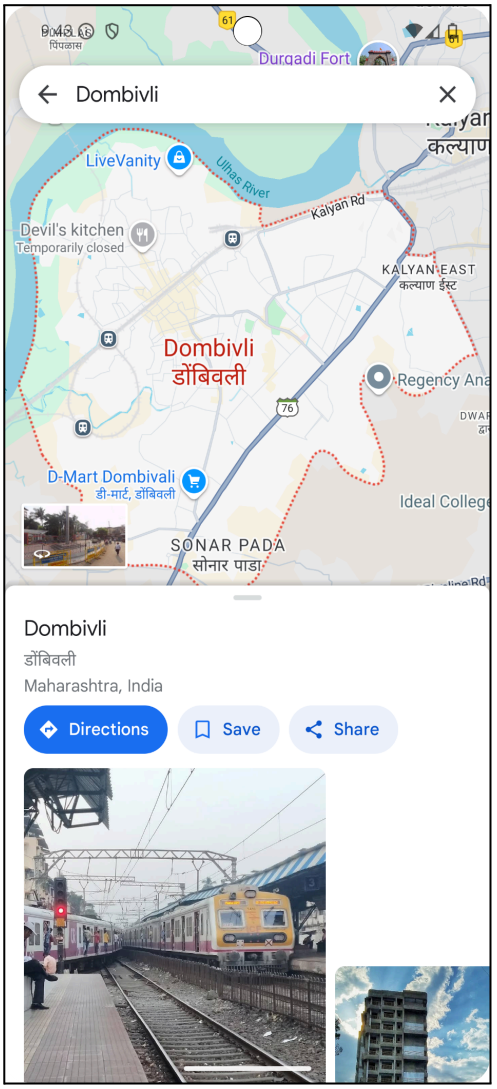
```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/et_link"
    android:layout_marginBottom="16dp"
    android:backgroundTint="#000000"
    android:text="OPEN WEBSITE LINK" />

<EditText
    android:id="@+id/et_location"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter Location*"
    android:layout_below="@id/btn_open_link"
    android:layout_marginBottom="8dp" />

<Button
    android:id="@+id/btn_open_map"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/et_location"
    android:layout_marginBottom="16dp"
    android:backgroundTint="#000000"
    android:text="OPEN GOOGLE MAP" />

<EditText
    android:id="@+id/et_message"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter Message*"
    android:layout_below="@id/btn_open_map"
    android:layout_marginBottom="8dp" />

<Button
    android:id="@+id/btn_share_text"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
```

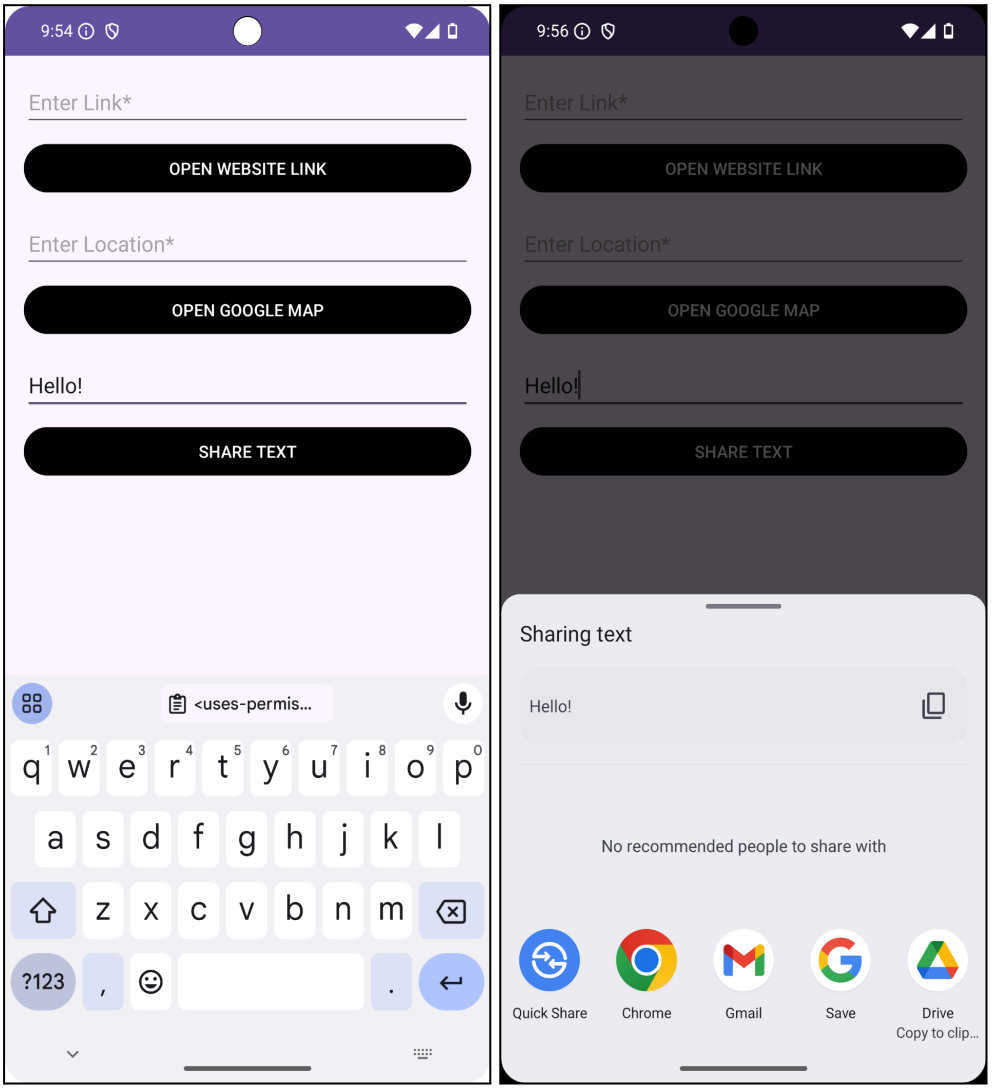
```
    android:layout_below="@id/et_message"
    android:backgroundTint="#000000"
    android:text="SHARE TEXT" />

</RelativeLayout>
```

Output:




9:41
Enter Link*
OPEN WEBSITE LINK
Dombivli
OPEN GOOGLE MAP
Enter Message*
SHARE TEXT
Dombivli


Dombivli
LiveVanity
Ulhas River
Kalyan Rd
Devil's kitchen
Temporarily closed
KALYAN EAST
कल्याण ईस्ट
Dombivli
डोंबिवली
D-Mart Dombivali
डी-मार्ट, डोंबिवली
SONAR PADA
सोनार पाडा
Dombivli
डोंबिवली
Maharashtra, India
Directions
Save
Share



Conclusion:

Android program based on intents is implemented successfully.