Ex. No. : 07 **Date: 27.02.2025**

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Telephony services

Aim

Implement an application to get Telephony services.

Procedure:

Step 1 : File -> NewProject

Provide the application name and Click “Next”

Step 2 : Select the target android devices

Select the minimum SDK to run the application. Click “Next”.

Step 3 : Choose the activity for the application (By default choose “Blank Activity).

Click “Next”.

Step 4 : Enter activity name and click "Finish".

Step 5 : Edit the program.

Step 6 : Run the application, 2-ways to run the application.

1. Running through emulator

2. Running through mobile device

AndroidManifest.xml

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.ex8">

   <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
   <uses-permission android:name="android.permission.READ_PHONE_STATE"/>
   <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>

   <application
android:allowBackup="true"
android:label="Telephony Info"
android:theme="@style/Theme.EX8">
<activity android:name=".MainActivity"
android:exported="true">
          <intent-filter>
             <action android:name="android.intent.action.MAIN"/>
             <category android:name="android.intent.category.LAUNCHER"/>
          </intent-filter>
       </activity>
   </application>
</manifest>
```

Activity_main.xml

```
<?xml
version="1.0" encoding="utf-
8"?>
<ScrollView
xmlns:android="http://sche
mas.android.com/apk/res/a
ndroid"
android:layout_width="mat
ch_parent"
```

```
android:layout_height="ma
tch_parent">

   <LinearLayout

android:orientation="vertic
al"

android:padding="16dp"

android:layout_width="mat
ch_parent"

android:layout_height="wr
ap_content">

      <TextView

android:id="@+id/tvTeleph
onyInfo"

android:layout_width="mat
ch_parent"

android:layout_height="wr
ap_content"
android:text="Telephony
Info"

android:textStyle="bold"
```

```
android:textSize="16sp" />

        <TextView

android:id="@+id/tvLocatio
n"

android:layout_width="mat
ch_parent"

android:layout_height="wr
ap_content"

android:text="Location"

android:textStyle="bold"

android:layout_marginTop
="20dp"

android:textSize="16sp" />

        <TextView
android:id="@+id/tvAddres
s"

android:layout_width="mat
ch_parent"
```

```
android:layout_height="wr
ap_content"

android:text="Address"

android:textStyle="bold"

android:layout_marginTop
="20dp"

android:textSize="16sp" />

      <Button

android:id="@+id/btnFetch"

android:layout_width="mat
ch_parent"

android:layout_height="wr
ap_content"
android:text="Fetch
Info"
android:layout_marginTop
="30dp"/>
   </LinearLayout>
</ScrollView>
```

MainActivity.kt

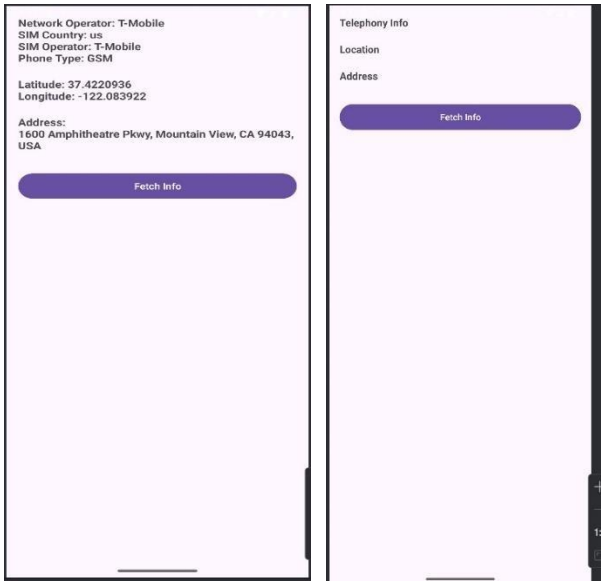
```
package com.example.ex7

import android.Manifest import
android.content.pm.PackageManager import
android.location.Geocoder import
android.location.Location import
android.location.LocationManager import
android.os.Bundle import
android.telephony.TelephonyManager import
android.widget.Button import
android.widget.TextView import
androidx.appcompat.app.AppCompatActivity import
androidx.core.app.ActivityCompat import java.util.*

class MainActivity : AppCompatActivity() {

   private lateinit var tvTelephonyInfo: TextView
private lateinit var tvLocation: TextView     private
lateinit var tvAddress: TextView     private lateinit var
btnFetch: Button     private val
LOCATION_PERMISSION = 101     private lateinit var
locationManager: LocationManager

   override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)        setContentView(R.layout.activity_main)

      tvTelephonyInfo = findViewById(R.id.tvTelephonyInfo)
tvLocation = findViewById(R.id.tvLocation)        tvAddress
= findViewById(R.id.tvAddress)        btnFetch =
findViewById(R.id.btnFetch)

      btnFetch.setOnClickListener {
if (checkPermissions()) {
displayTelephonyInfo()
fetchLocation()
         } else {
requestPermissions()
         }
      }
   }
```

```
    private fun checkPermissions(): Boolean {
return ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) ==
PackageManager.PERMISSION_GRANTED &&
            ActivityCompat.checkSelfPermission(this,
Manifest.permission.READ_PHONE_STATE) ==
PackageManager.PERMISSION_GRANTED
    }

    private fun requestPermissions() {
ActivityCompat.requestPermissions(this,
        arrayOf(Manifest.permission.ACCESS_FINE_LOCATION,
Manifest.permission.READ_PHONE_STATE),
        LOCATION_PERMISSION)
    }

    override fun onRequestPermissionsResult(requestCode: Int, permissions:
Array<out String>, grantResults: IntArray) {        if (requestCode ==
LOCATION_PERMISSION && grantResults.isNotEmpty()
&& grantResults[0] == PackageManager.PERMISSION_GRANTED) {
displayTelephonyInfo()            fetchLocation()
        } else {
            tvTelephonyInfo.text = "Permission Denied"
tvLocation.text = "Permission Denied"
        }
    }

    private fun displayTelephonyInfo() {
        val telephonyManager = getSystemService(TELEPHONY_SERVICE) as
TelephonyManager

        val info = """
            Network Operator: ${telephonyManager.networkOperatorName}
            SIM Country: ${telephonyManager.simCountryIso}
            SIM Operator: ${telephonyManager.simOperatorName}
            Phone Type: ${when (telephonyManager.phoneType) {
TelephonyManager.PHONE_TYPE_GSM -> "GSM"
TelephonyManager.PHONE_TYPE_CDMA -> "CDMA"            else -> "Unknown"
        }}
        """.trimIndent()
```

```
        tvTelephonyInfo.text = info
    }

    private fun fetchLocation() {
        locationManager = getSystemService(LOCATION_SERVICE) as
LocationManager

        if (ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) return

        val location: Location? =
locationManager.getLastKnownLocation(LocationManager.GPS_PROVIDER)
            ?:
locationManager.getLastKnownLocation(LocationManager.NETWORK_PROVIDER
)

        if (location != null) {            val lat = location.latitude
val lon = location.longitude            tvLocation.text =
"Latitude: $lat\nLongitude: $lon"            getAddress(lat,
lon)
        } else {
            tvLocation.text = "Unable to get location."
        }
    }

    private fun getAddress(lat: Double, lon: Double) {
val geocoder = Geocoder(this, Locale.getDefault())
try {
            val addressList = geocoder.getFromLocation(lat, lon, 1)
if (!addressList.isNullOrEmpty()) {                val address =
addressList[0]                val fullAddress =
address.getAddressLine(0)                tvAddress.text =
"Address:\n$fullAddress"
            } else {
                tvAddress.text = "Unable to get address."
            }
        } catch (e: Exception) {            e.printStackTrace()
tvAddress.text = "Geocoder error: ${e.localizedMessage}"
```

```
        }
    }
}
```

Output :



Result:

The Application was developed using Kotlin in Android Studio.