VSIT

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Subject/Course:	Advanced Mobile Programming		
Topic	Introduction to Android, Introduction to Android Studio IDE, Application Fundamentals		

Procedure

1. **New Project -> Empty Activity -> Next**
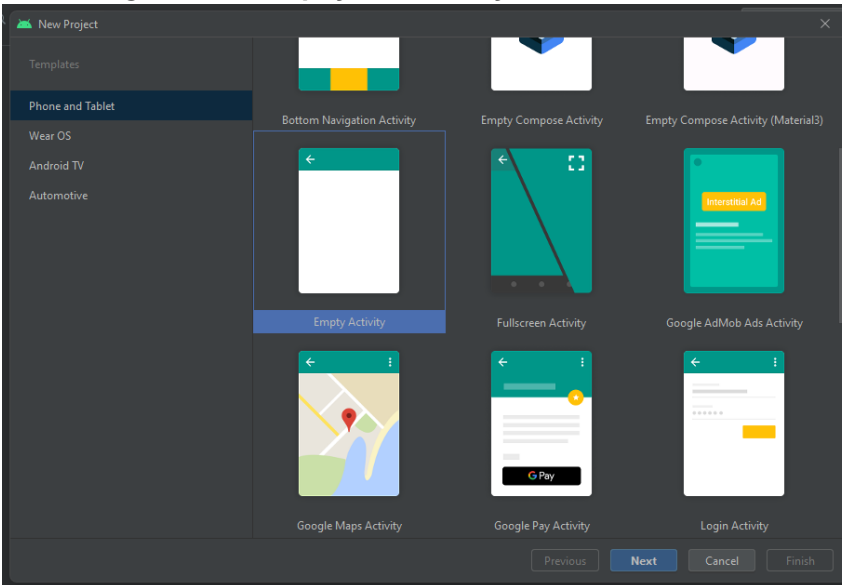
2. **Rename your activity -> Choose Minimum SDK as <u>API 21: Android 5.0 (Lollipop)</u> -> Check <u>Use legacy android.support libraries</u> -> Finish**
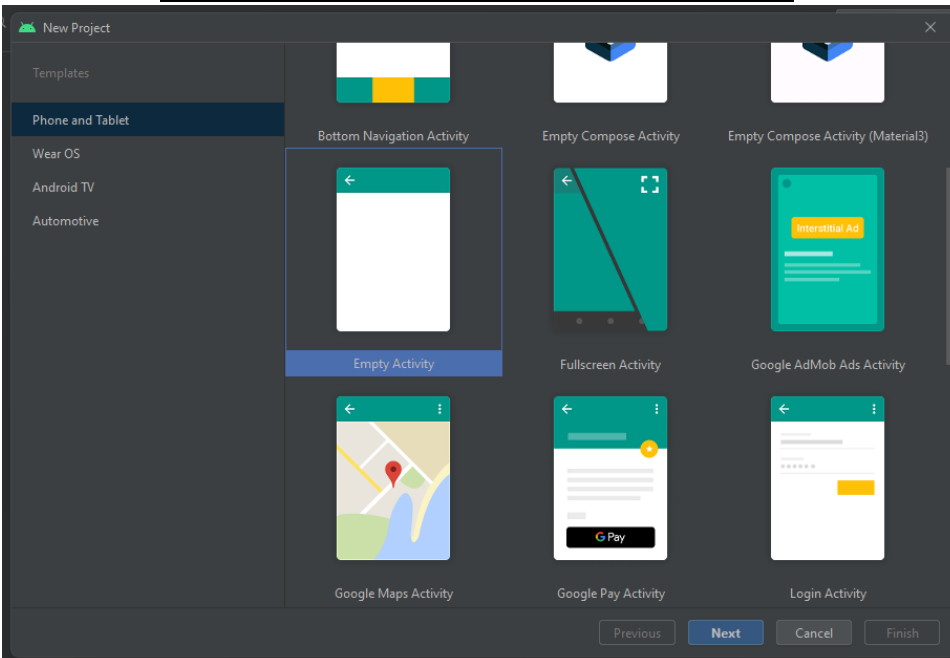
Basic Program

1.a) Design a simple "Hello World" Program.

activity_main.xml
```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</android.support.constraint.ConstraintLayout>
```

MainActivity.kt
```kotlin
package com.example.practical_1a
import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
}
```

Output

Practical_1A

Hello World!

Broadcast Receiver

1.b) Write a program to implement Broadcast Receiver.

activity_main.xml
```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

MainActivity.kt
```kotlin
package com.example.practical_1b

import android.content.Intent
import android.content.IntentFilter
import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {
    lateinit var receiver: airplaneModeChanger
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        receiver = airplaneModeChanger()

        IntentFilter(Intent.ACTION_AIRPLANE_MODE_CHANGED).also {
            registerReceiver(receiver, it)
        }
    }

    override fun onStop() {
        super.onStop()
        unregisterReceiver(receiver)
```

```
        }
}

airplaneModeChanger.kt
package com.example.practical_1b

import android.content.BroadcastReceiver
import android.content.Context
import android.content.Intent
import android.widget.Toast

class airplaneModeChanger : BroadcastReceiver() {
    override fun onReceive(p0: Context?, p1: Intent?) {
        val isAirplaneEnabled = p1?.getBooleanExtra("state", false) ?:return

        if (isAirplaneEnabled) {
            Toast.makeText(p0, "Airplane Mode Enabled", Toast.LENGTH_LONG).show()
        }
        else {
            Toast.makeText(p0, "Airplane Mode Disabled", Toast.LENGTH_LONG).show()
        }
    }
}
```

Output

Hello World!

Airplane Mode Disabled