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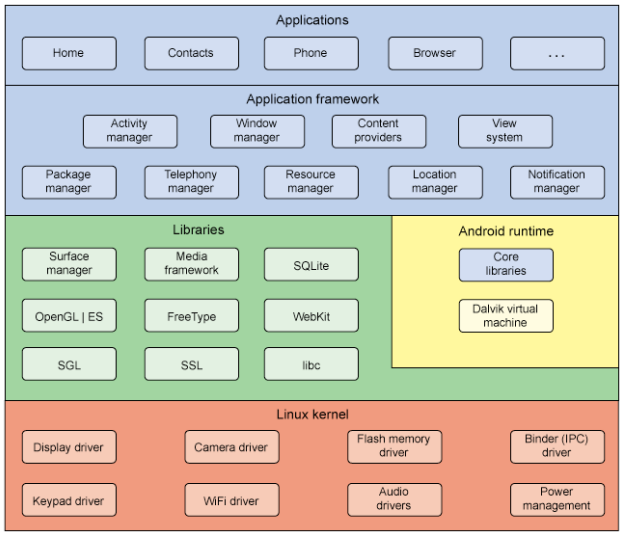
EXPERIMENT 1

AIM: To study android platform, layers of android, four components of android and understanding the Manifest file.

THEORY:

ARCHITECTURE OF ANDROID

Android is a mobile platform which consists of operating system, middleware and key applications



- ***Linux Kernel Layer*** *:* This layer never really interacts with the user, instead it stays at the back end and provides the interface between the software and hardware. Some of them are managing the drivers (camera, wifi ,etc), power managing, security etc.
- ***Native Libraries Layer:*** This generally contains of various libraries(library can be defined as a collection of vast amount of codes) such as the openGL(graphics), webkits , media framework etc.
- ***Application Framework Layer:*** This contains the basic block of function like managing, telephone manager, activity manager etc.
    - ***Important blocks of Application Framework:***
        - *Activity Manager:* Manages the activity life cycle of applications
        - *Content Providers:* Manage the data sharing between applications
        - *Telephony Manager:* Manages all voice calls.
        - *Location Manager:* Location management, using GPS or cell tower
        - *Resource Manager***:** Manage the various types of resources we use in our Application

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- **Application Layer:** This layer is responsible for user interaction with his device It contains all the apps such as sms, contacts,fb etc.

FOUR COMPONENTS OF ANDROID

Activity: An activity represents a single screen with a user interface, in-short Activity performs actions on the screen.

Services: A service is a component that runs in the background to perform long-running operations.

Broadcast Receivers: Broadcast Receivers simply respond to broadcast messages from other applications or from the system.

Content Providers: A content provider component supplies data from one application to others on request.

ANDROID MANIFEST FILE:

Every application must have an AndroidManifest.xml file (with precisely that name) in its root directory. The manifest file presents essential information about your app to the Android system, information the system must have before it can run any of the app's code.

The manifest does the following:

- It names the Java package for the application.
- It describes the components of the application — the activities, services, broadcast receivers, and content providers that the application is composed of.
- The permissions that the app needs in order to access protected parts of the system or other apps.
- The hardware and software feature the app requires.

ASSIGNMENT

Create your first app and display HelloWorld.

Java code

```
package com.example.mca1704.myapplication;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

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xml code

```
<?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_constraintLeft_toLeftOf="parent"
          app:layout_constraintRight_toRightOf="parent"
          app:layout_constraintTop_toTopOf="parent" />
</android.support.constraint.ConstraintLayout>
```

Android Manifest

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
     package="com.example.mca1704.myapplication">
     <application
          android:allowBackup="true"
          android:icon="@mipmap/ic_launcher"
          android:label="@string/app_name"
          android:roundIcon="@mipmap/ic_launcher_round"
          android:supportsRtl="true"
          android:theme="@style/AppTheme">
          <activity android:name=".MainActivity">
               <intent-filter>
                    <action android:name="android.intent.action.MAIN" />
                    <category android:name="android.intent.category.LAUNCHER" />
               </intent-filter>
          </activity>
     </application>
</manifest>
```

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OUTPUT:

CONCLUSION:

in this practical we have studied android platform, layers of android, four components of android and understanding the Manifest file.