ANDROID APPLICATIONS

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* BASIC AIM

Our basic aim was to construct an android app which shows our position on map , the latitude and longitude, the speed, elevation and other geographical parameters.

* MOTIVE BEHIND THIS IDEA??

While thinking of the summer project and discussing our ideas with our co-ordinators , we finally thought to work on android as our main aim was to develop a app. which can be easily available to people and can be used by them whenever they need . As many of us have an android phone so we can also have that app. . This application is highly useful for navigators as it gives us latitude, longitude, directions and elevation !! It can also be used by athelets and cyclists as it also gives our speed over a particular time . Even mountaineers can also use this app to find their height above the sea level.And this app can also be used by a common man as a GPS to locate his position on map and find his way.

* THEORY :

1. *JAVA JDK*

To run android apps in eclipse we first have to run and install JAVA JDK 7 (latest version) so as to be able to run and write java programs as JAVA is the only programming language used eclipse to create android apps. JDK can be downloaded from http://www.oracle.com/technetwork/

java/javase/downloads/index.html .

2. ECLIPSE IDE

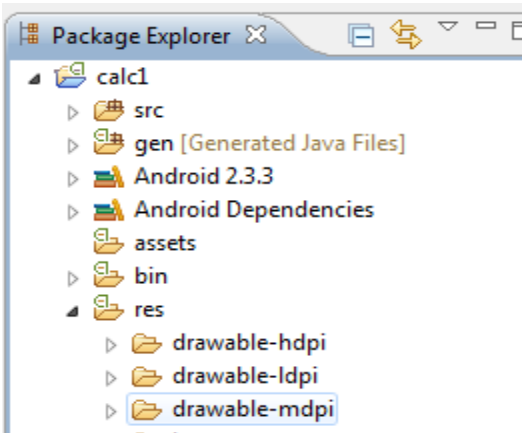
It is an integrated development environment (a software used to create , compile and run the application) which we have used to write android applications . It can be downloaded from http://www.eclipse.org/downloads/ (download eclipse classic from that webpage).

3. Android SDK and ADT plugin

Android SDK is a software package which contains Android libraries, emulators and all the other related stuffs that we needed to make Android applications. It can be downloaded from http://developer.android.com/sdk/index.html . The .exe file should be run in no proxy while installing the required components . Finally we should install ADT plugin which provides a link between android SDK and eclipse IDE.

Some important components of an android project in eclipse

1.Layout- The layout of our android app is designed in main.xml file.
2.Java coding- The java coding is done in .java file present inside the src file.
3. The images used in the app can be saved in drawable-(hdpi,ldpi,mdpi) in the res folder.



4. Finally when the app is created , the .apk file generated in the bin folder is copied to the mobile phone and it is installed .

5. The android manifest file- This file contains the fact that which activity is running at the moment.

GpsfinalActivity.java | gpsfinal Manifest

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.hello"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk android:minSdkVersion="8" />
    <uses-permission android:name="android.permission.INTERNET" />
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />


    <application
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name" >
        <activity
            android:name=".GpsfinalActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <uses-library android:name="com.google.android.maps" />

    </application>

</manifest>
```

6. The activity file- This contains the Java code.

7.API key- The API key is unique for a computer and is obtained to make Google maps accessible for an app.

Activity file of the app containing the Java code

The Java code is contained in the activity file of the app. The link to our Java code is

- The first line is the package in which our app is contained.
- The lines with import keyword at the beginning mention the packages which have to be imported so that their classes and functions can be used in the code.
- Rest of the content is in the class which is in fact a map activity and it implements the functions of the Location Listener.
- After this we have declared objects of a class as we normally declare variables.
- The onCreate method can be seen. This method is characteristic of an activity.
- Then we initialize the various objects declared.

- Rest of the code contains other necessary functions.

Keywords in the class

- this- The this keyword represents the object of the same class.
- new- The new keyword allocates space for an instance of a class.
- public- It declares that a class or a member of a class is publicly available everywhere.
- static- This specifies that the value of the member is same for every instance of that class.
- final- This specifies that the value of the member cannot change.
- void- Used before a function which returns no datatype.
- @override- Used before a function to tell the compiler that a function of the same name exists in the superclass and we need to overwrite it with the following function.
- super- If a method of it's superclass is overridden by a method of the class then the overridden method can be invoked using the super keyword.
- protected- It ensures that the member of a class is available only to the classes of the same package.
- try & catch- The statements in the try block if contain an error, the error is identified in the catch block without any error in the program.

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