**ASSIGNMENT 3**

**Q1. Explore the DVM instructions and prepare a summary of the same atleast for 5 instructions in a detailed format.**

Dalvik is the process virtual machine (VM) in Google's Android operating system. It is the software that runs the apps on Android devices.

Dalvik is thus an integral part of Android, which is typically used on mobile devices such as mobile phones and tablet computers as well as

more recently on embedded devices such as smart TVs and media streamers. Programs are commonly written in Java and compiled to bytecode.

They are then converted from Java Virtual Machine-compatible .class files to Dalvik-compatible .dex (Dalvik Executable) files before installation on a device. DVM bytecode has 257 different instructions and 3 pseudo-instructions.

1) **add-int vx,vy,vz :** Calculates vy+vz and puts the result into vx.

Example:9000 0203 - add-int v0, v2, v3 : Adds v3 to v2 and puts the result into v0.

2) 0**0 10x :** nop.

Example:0000 - nop .

3) **move vx,vy :** Moves the content of vy into vx. Both registers must be in the first 256 register range.

Example:0110 – move v0, v1 : Moves v1 into v0.

4) r**eturn vx :** Return with vx return value.

Example:0F00 – return v0 : Returns with return value in v0.

5) **new-array vx,vy,type\_id :** Generates a new array of type\_id type and vy element size and puts the reference to the array into vx.

Example:2312 2500- new-array v2, v1, char[] : Generates a new array of type@0025 type and v1 size and puts the reference to the new array into v2.

6) **fill-array-data vx,array\_data\_offset :** Fills the array referenced by vx with the static data. The location of the static data is the sum of the position of the current instruction and the offset.

**Q2. Differentiate between mobile and cloud computing.**

**Cloud Computing :** \* It allows you to store your files and folders in a “cloud” area on the Internet, allowing you access to all of your files and folders wherever you are in the world – but you do need a physical device with Internet access to access it.

\* Cloud computing is an expression used to describe a variety of computing concepts that involve a large number of computers connected through a real-time communication network such as the Internet.In science, cloud computing is a synonym for distributed computing over a network, and means the ability to run a program or application on many connected computers at the same time.

\* Privacy:The increased use of cloud computing services such as Gmail and Google Docs has pressed the issue of privacy concerns of cloud computing services to the utmost importance.

\* It is slow and temperamental, difficult to use and often the average user gets confused as to where the files are actually stored and/or where else they are stored.

**Mobile Computing :** \* It is taking a physical device with you. This could be a laptop or a mobile phone or some device which enables you to telework – working wherever you go because of the small size of the device you’re using.

\* Mobile computing involves mobile communication, mobile hardware, and mobile software. Communication issues include ad hoc and infrastructure networks as well as communication properties, protocols, data formats and concrete technologies. Hardware includes mobile devices or device components.Mobile software deals with the characteristics and requirements of mobile applications.

\* The size of the mobile devices, keypad size and limited battery power make mobile computing not always feasible. Physical reconfiguration of the network because of moving between base stations, limited processing power, limited transmission power and low bandwidth also add to the disadvantages.

\* Security issues involved in mobile computing:Different security counter-measures are being developed and applied to smartphones, from security in different layers of software to the dissemination of information to end users. There are good practices to be observed at all levels, from design to use, through the development of operating systems, software layers, and downloadable apps.

**Q3. Give an example of an application simulating an environment of context aware computing and justify.**

Few months ago google search for "who is anna?" would yield information about Anna Kournikova, famous Tennis player. But now Anna Hazare is shown. Ip based location, current activity on internet searches, page ranking, etc influence the search.