**Environment Variables:**

An important concept in Unix is the **environment**, which is defined by values stored in a set of predefined variables called environment variables.

Values of some of these variables are set by the system, some can be set by the user, some of them by the shell, or any program that loads another program.

When a user logs in to the system, the shell undergoes a twostep process called **initialization** to set up the environment. This process involves the shell reading two files −/etc/profile and .profile in the home directory of the user.

The file **/etc/profile** is maintained by the system administrator of the Unix machine and contains shell initialization information required by all users on a system.

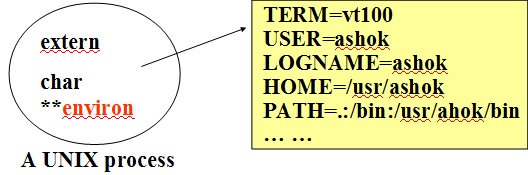
The file **.profile** is under the control of the user. User can add as much shell customization information as he/she wants to this file. The minimum set of information that a user need to configure includes −

* The type of terminal user is using.
* A list of directories in which to locate the commands.
* A list of variables affecting the look and feel of the terminal.

**Environment around the UNIX Process:**

When a process is created, UNIX opens 3 streams stdin/stdout/stderr for basic communication with respect to the process control terminal. In addition, it knows the current working directory for performing file I/O.

Each login shell maintains a description of the environment as a table of pointers to strings.



A global shell environment pointer called environ is maintained by UNIX kernel and it can be used by a process to access its own table

The shell does not directly use this table, but it creates a child process and calls exec() system call to execute a command program that uses the table inherited from the shell parent. Children inherit the entire execution environment from the parent.

Some examples of  the environment variables are the USER, LOGNAME, HOME, PATH, PS1, PS2, TERM MAIL, etc.

**The HOME Variable**

It specifies an associated directory with every user in a UNIX system. If the HOME variable for the user Sita contains /usr/sita/stores, every time Sita logs in, she is taken to the directory stores.

The variable HOME is referenced the same way:

$ echo ${HOME}

**The PATH Variable**

contains a list of all full path-names (separated by a colon) of directories that are to be searched for an executable program. For example, the command

$PATH=.:/usr/bin:/bin specifies directories to be searched for any executable file or a command file (current directory, /usr/bin and /bin, in that order).

**The PS1 Variable**

The system prompt may be changed by setting the value of this variable to the desired prompt:

$ PS1=“Hello>”

Hello>   #can be changed only at the UNIX command line, not within a shell script.

The PS2 Variable: prompt string for continued command line (default ‘> ‘).

**The LOGNAME Variable**

contains user’s login name. Its contents cannot be changed by the user, but can be displayed:

echo “${LOGNAME}”

**The TERM Variable**

Names the kind of terminal you are using; setting it helps to manage your screen more effectively, say,

$ TERM=vt100

**The PWD Variable**

The current working directory can be displayed:

echo “${PWD}”

In fact the whole environment table can be displayed.

$IFS: String of characters which are used as word separators in command line ( space, tab, newline chars).

**The MAIL Variable**

Names the standard file where your mail is kept

**The .profile File**

Some of above variables like HOME and LOGNAME are set automatically each time the user logs in. The others, however, have to be set. The .profile is used for this purpose as it is executed as soon the user logs in. A sample .profile  file would look like:

PATH=.:/bin:/usr/bin

export HOME PATH PS1 MAIL