

process management in Unix

a process is created when a command is executed in Unix.

Unix assigns a unique id (pid) to each process

foreground process when runs, it makes user to wait, no other command can run, when command completes it shows output.

ex. `$ firefox`

opens a firefox web browser

background process takes command, frees user to run another command, waits if any keyboard input is required, then shows output.

ex. `$ firefox &`

opens a firefox tab but keeps you on terminal

to see running process write 'ps'

it will show four column result (PID process ID, TTY terminal type, TIME time taken to execute, CMD excuted)

to see running process with more details write 'ps -f'

it will show eight column result (UID user id, PID process ID, PPID parent process ID, C cpu utilization, STIME start time, TTY terminal type, TIME time taken to execute, CMD excuted)

also try `ps -a` to see information of all users,

`ps -x` to see process without terminals,

`ps -u` and `ps -e` to see additional information

to stop or terminate any process write

`kill <pid>`

a process can be parent process PID, child process of some PPID.

the init is parent of all processes.

when child process is killed parent is informed, and parent takes some action

when parent is killed but child is not, then such a child is orphan, whose PPID becomes init process, and their state is Z (zombie)

the process which runs with permission of root in background without terminal (TTY=?) are daemon process

top command works like taskmgr of windows

nice command can start a process with given priority (-20 to 19, lower nice - higher priority

`nice -n NiceValue process`

ex. `nice -n 10 dpkg`

renice command can change proirity value of a process

`renice niceValue -p PID`

user management in Unix

to create user write

```
sudo adduser newUserName
```

it will ask to set a password, and details of new user, then press Y

to remove password of user write

```
sudo passwd -l userName
```

to delete a user write

```
sudo userdel -r userName
```

to see details of current user write

```
finger
```

to see details of particular user write

```
finger userName
```

to view all user names write

```
tail /etc/passwd
```

to change name of user write

```
sudo usermod -c newName oldName
```

memory management in Unix

to check RAM usage in MB write

```
free -m
```

more details of RAM write

```
sudo cat /proc/meminfo
```

to display memory usage statistics write

```
vmstat -s
```

top and htop commands works like taskmgr of windows

to see information about RAM installed

```
sudo dmidecode
```

to see top memory using process write

```
ps aux --sort -rss | head
```