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|  | Finolex Academy of Management and Technology, Ratnagiri | | | |
| **Department of Information Technology** | | | |
| **Subject:** | **Unix Lab(**SE ITL402**)** | | | |
| **Class:** | **SE IT / Semester – IV (CBCGS) / Academic year: 2017-18** | | | |
| **Name of Student:** | **Kazi Jawwad A Rahim** | | | |
| **Roll No:** | **28** | | **Date of performance (DOP) :** | **15/03/2018** |
| **Assignment/Experiment No:** | | **07** | **Date of checking (DOC) :** |  |
| **Title: To implement system administrative tasks: Memory Management and User Management** | | | | |
| **Marks:** | |  | **Teacher’s Signature:** |  |

**1. Aim**: To implement system administrative task, memory management and user management.

**2. Prerequisites**:

C Programming Language and Operating System

**3. Hardware Requirements**:

* PC with minimum 2GB RAM

**4. Software Requirements:**

* Fedora installed.

**5. Learning Objectives:**

To learn memory user management and permission granting advanced command

**6.Course Objectives Applicable: LO1, LO2, LO5**

**7. Program Outcomes Applicable: PO2, PO3, PO4**

**8. Program Education Objectives Applicable: PEO2, PEO3, PEO4**

**Theory:**

User Management

User Management is an authentication feature that provides administrators with the ability to identify and control the state of users logged into the network. This includes, but is not limited to, the ability to query and filter users that are currently logged into the network, manually log out users, and control user login counts and login times.

Memory Management

Memory management is a form of resource management applied to computer memory. The essential requirement of memory management is to provide ways to dynamically allocate portions of memory to program at their request., and free it for reuse when no longer needed. This is critical to any advanced computer system where more than a single process might be underway at any time.

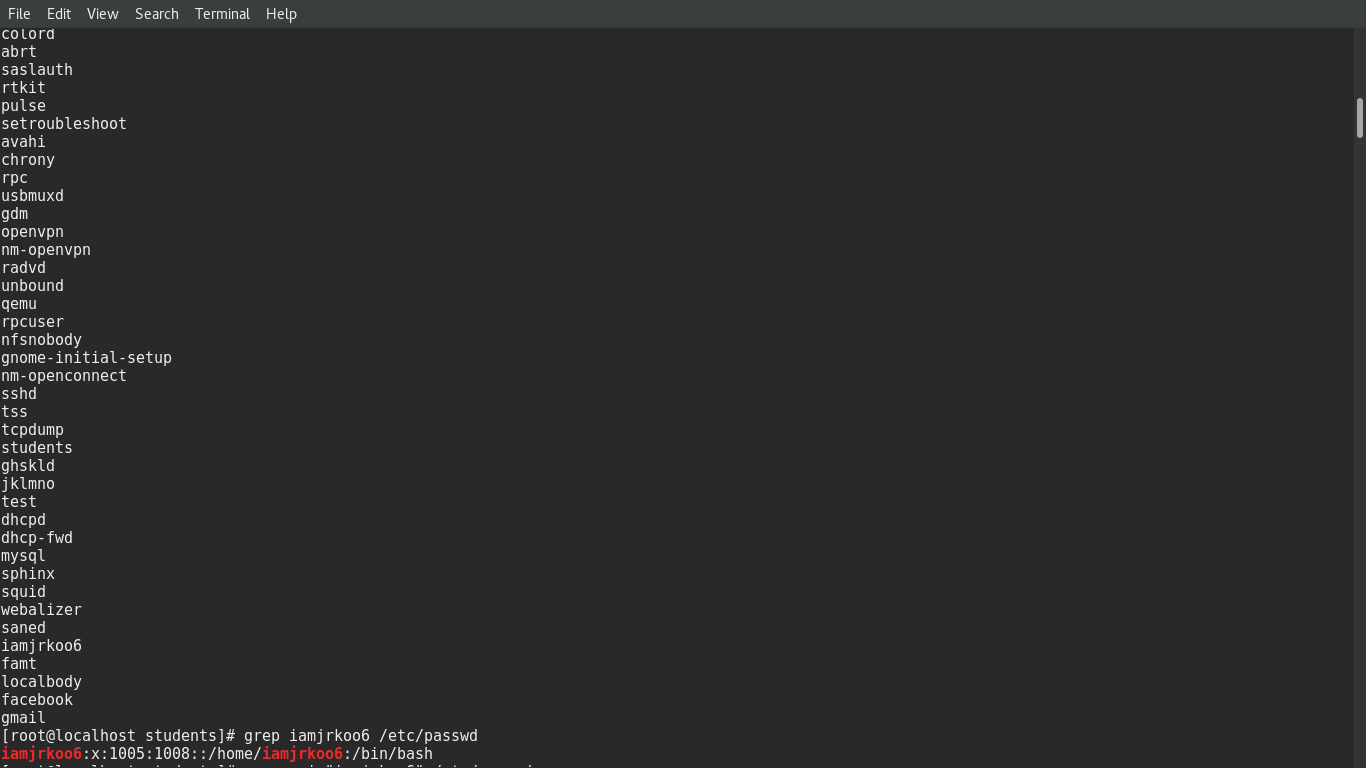
**1. Creating a user**

Description:    It will create new user in the system.

Syntax:    useradd iamjrkoo6

OUTPUT:

[root@localhost students]# compgen -u



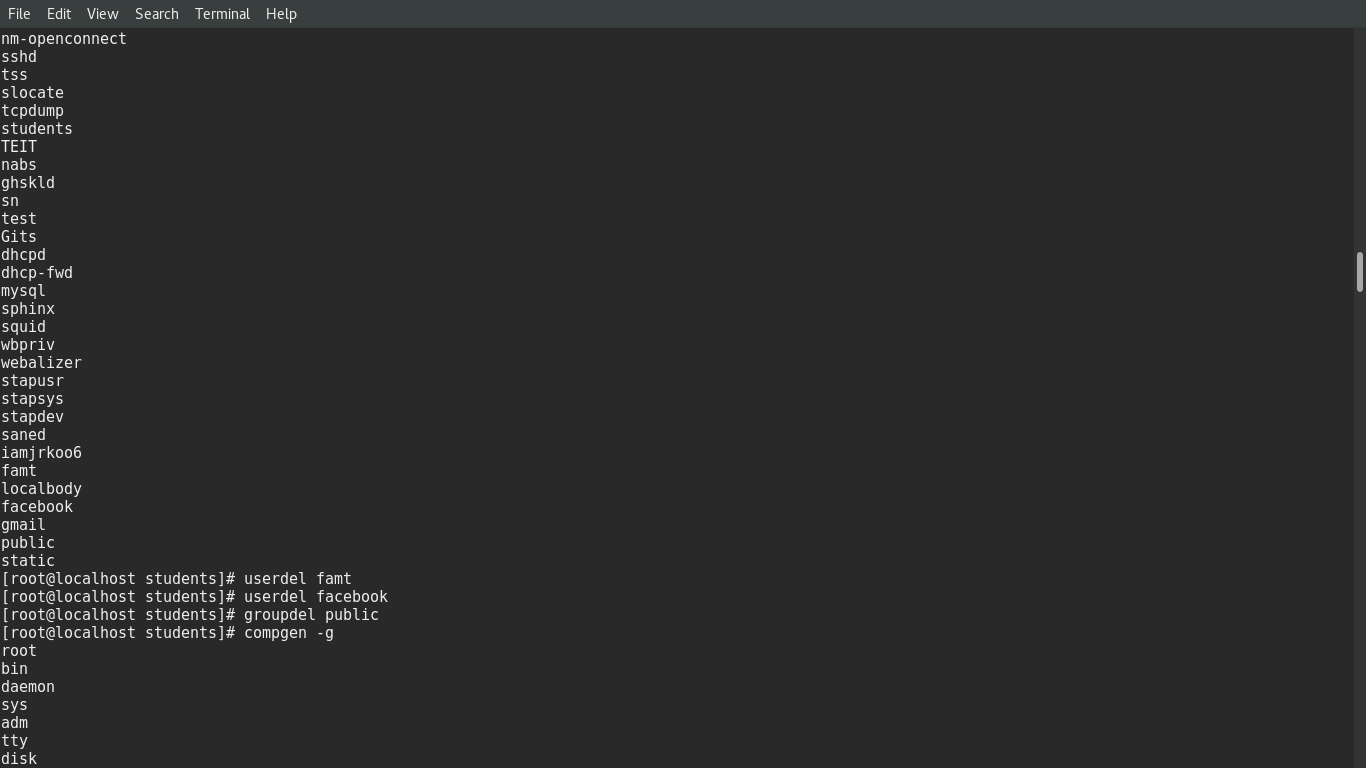
**2.Create a group**

Description:    It will create new group in the system.

Syntax:    groupadd public

OUTPUT:

[root@localhost students]# compgen -g



**3. Adding user to the groups**

Description:    It will add specific to specific group.

Syntax:    usermod -a -G public facebook

**4.Display all users**

Description:    It will show alll the users present on system.

Syntax:    cat /etc/passwd

OUTPUT:

root:x:0:0:root:/root:/bin/bash

bin:x:1:1:bin:/bin:/sbin/nologin

daemon:x:2:2:daemon:/sbin:/sbin/nologin

adm:x:3:4:adm:/var/adm:/sbin/nologin

lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin

sync:x:5:0:sync:/sbin:/bin/sync

shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown

halt:x:7:0:halt:/sbin:/sbin/halt

mail:x:8:12:mail:/var/spool/mail:/sbin/nologin

operator:x:11:0:operator:/root:/sbin/nologin

games:x:12:100:games:/usr/games:/sbin/nologin

ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin

nobody:x:99:99:Nobody:/:/sbin/nologin

apache:x:48:48:Apache:/usr/share/httpd:/sbin/nologin

systemd-timesync:x:999:997:systemd Time Synchronization:/:/sbin/nologin

systemd-network:x:998:996:systemd Network Management:/:/sbin/nologin

systemd-resolve:x:997:995:systemd Resolver:/:/sbin/nologin

systemd-bus-proxy:x:996:994:systemd Bus Proxy:/:/sbin/nologin

dbus:x:81:81:System message bus:/:/sbin/nologin

polkitd:x:995:993:User for polkitd:/:/sbin/nologin

geoclue:x:994:992:User for geoclue:/var/lib/geoclue:/sbin/nologin

colord:x:993:991:User for colord:/var/lib/colord:/sbin/nologin

abrt:x:173:173::/etc/abrt:/sbin/nologin

saslauth:x:992:76:Saslauthd user:/run/saslauthd:/sbin/nologin

rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin

pulse:x:171:171:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin

setroubleshoot:x:991:987::/var/lib/setroubleshoot:/sbin/nologin

avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin

chrony:x:990:986::/var/lib/chrony:/sbin/nologin

rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin

usbmuxd:x:113:113:usbmuxd user:/:/sbin/nologin

gdm:x:42:42::/var/lib/gdm:/sbin/nologin

openvpn:x:989:985:OpenVPN:/etc/openvpn:/sbin/nologin

nm-openvpn:x:988:984:Default user for running openvpn spawned by NetworkManager:/:/sbin/nologin

radvd:x:75:75:radvd user:/:/sbin/nologin

unbound:x:987:983:Unbound DNS resolver:/etc/unbound:/sbin/nologin

qemu:x:107:107:qemu user:/:/sbin/nologin

rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin

nfsnobody:x:65534:65534:Anonymous NFS User:/var/lib/nfs:/sbin/nologin

gnome-initial-setup:x:986:980::/run/gnome-initial-setup/:/sbin/nologin

nm-openconnect:x:985:979:NetworkManager user for OpenConnect:/:/sbin/nologin

sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin

tss:x:59:59:Account used by the trousers package to sandbox the tcsd daemon:/dev/null:/sbin/nologin

tcpdump:x:72:72::/:/sbin/nologin

students:x:1000:1000:students:/home/students:/bin/bash

ghskld:x:1001:1003::/home/ghskld:/bin/bash

jklmno:x:1003:1005::/home/jklmno:/bin/bash

test:x:1004:1004::/home/test:/bin/bash

dhcpd:x:177:177:DHCP server:/:/sbin/nologin

dhcp-fwd:x:984:978:DHCP Forwarder user:/var/lib/dhcp-fwd:/sbin/nologin

mysql:x:27:27:MySQL Server:/var/lib/mysql:/sbin/nologin

sphinx:x:983:977:Sphinx Search:/usr/lib/tmpfiles.d/lib/sphinx:/bin/bash

squid:x:23:23::/var/spool/squid:/sbin/nologin

webalizer:x:67:67:Webalizer:/var/www/usage:/sbin/nologin

saned:x:982:976:SANE scanner daemon user:/usr/share/sane:/sbin/nologin

localbody:x:1007:1009::/home/localbody:/bin/bash

gmail:x:1009:1011::/home/gmail:/bin/bash

jawwadkazi:x:1005:1008::/home/iamjrkoo6:/bin/bash

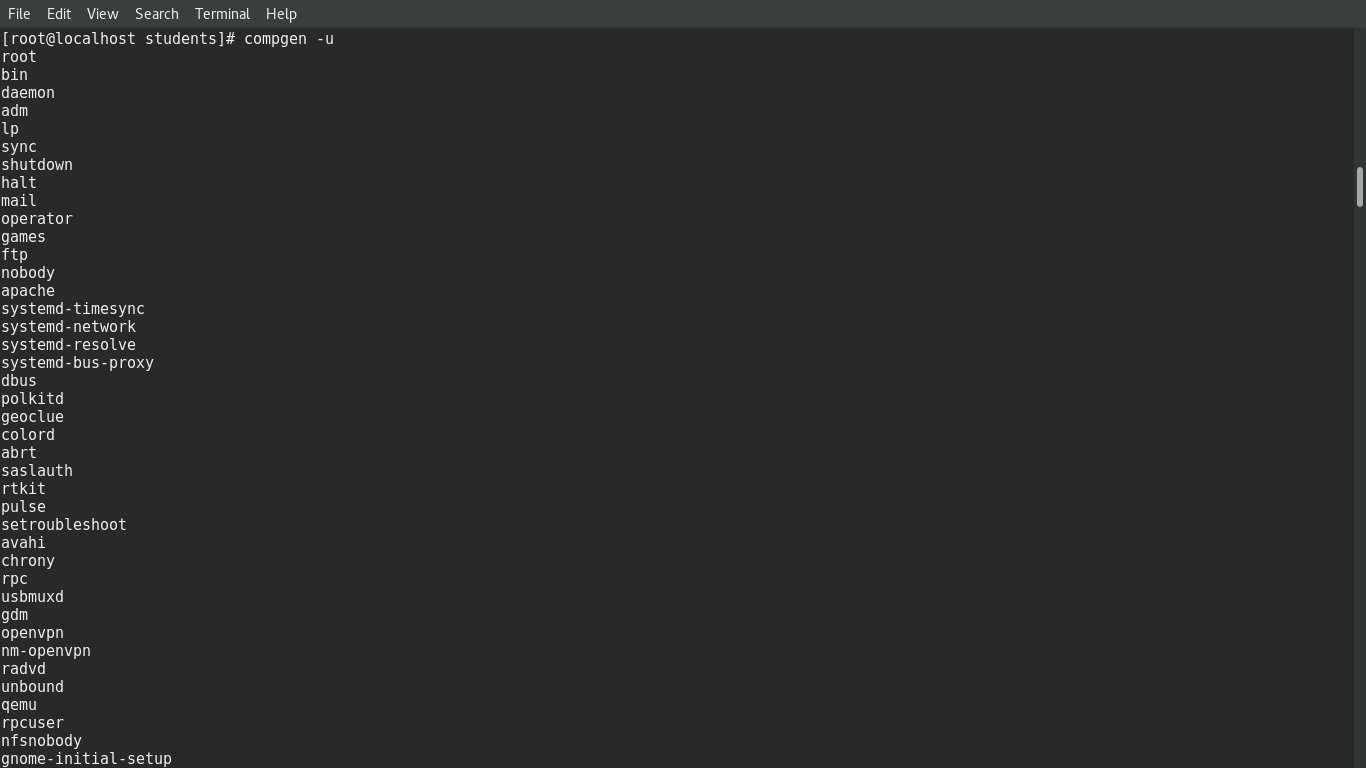
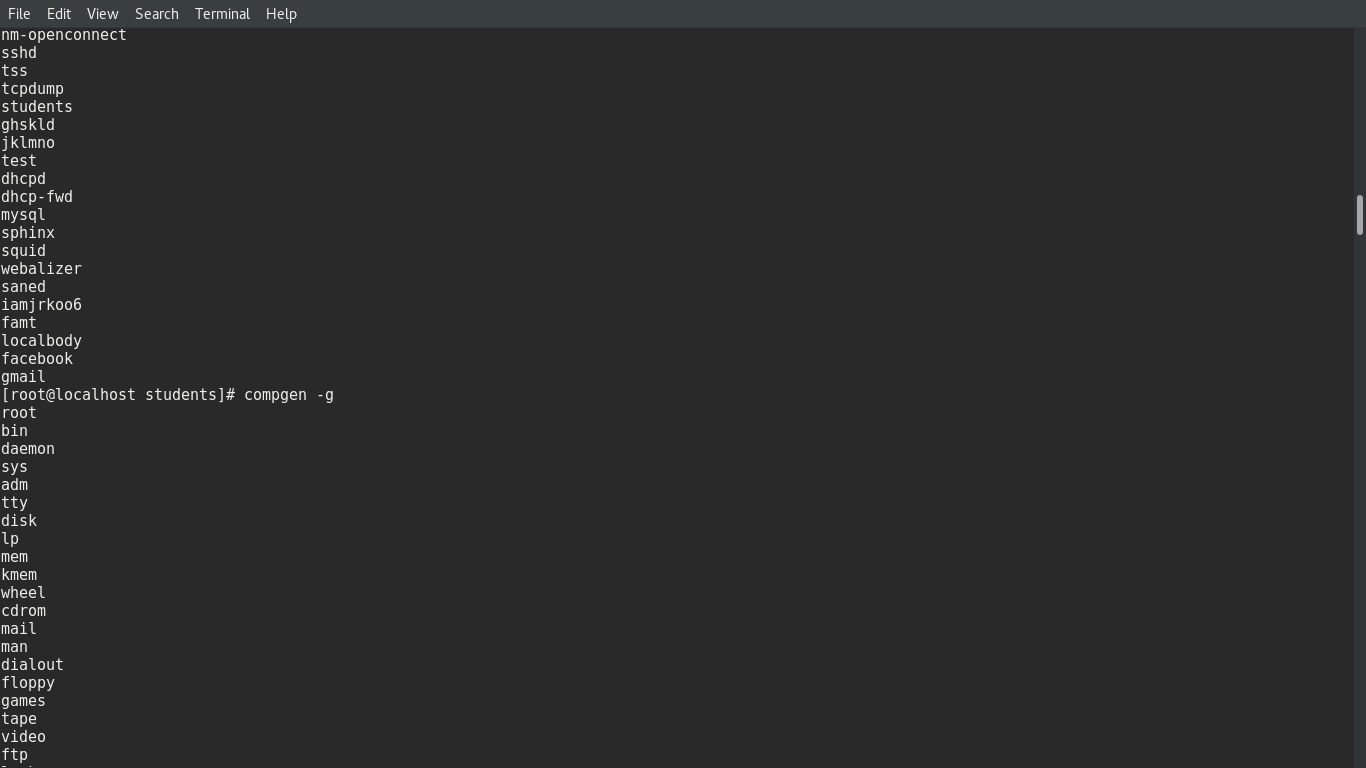
**5. Display name of user and group.**

Description:    It wil;l display all uusers and groups.

Syntax: 1. compgen -u

        2. compgen -g

OUTPUT:

**6.To check a user exist or not.**

Description:    It shows a particular user exist or not.

Syntax:    grep iamjrkoo6 /etc/passwd            or

        egrep -i "iamjrkoo6" /etc/passwd

OUTPUT:

iamjrkoo6:x:1005:1008::/home/iamjrkoo6:/bin/bash

**7.Assigning a password to a group**

Description:    It will assign a password to any group.

Syntax:    gpasswd groupname

OUTPUT:

Changing the password for group public

New Password:

Re-enter new password:

**8.Change group and username**

Description: It will change group name and username.

Syntax:    1.    usermod -l newname oldname

        2.    groupmod -n newname oldname

OUTPUT:

jawwadkazi

static

**9.Delete user and group.**

Description:    It will delete particular user and group.

Syntax:    userdel username

        groupdel groupname

**10.Creating a group assigning a group id**

Description:    It will assign a group id to a group.

Syntax:    groupadd -g groupid groupname

**11.Changing group id of group**

Description:    It will change group id of a group.

Syntax:    groupmod -g 122 static

**12.Remove password of group.**

Description:    It will remove password of any group

Syntax:    gpasswd -r groupname

**13.Change ownership of file**

Description:    It will change ownership of any file.

Syntax:    ls -l filename.extension

        chown username filename.extension

OUTPUT:

[root@localhost students]# ls -l new.txt

-rw-r--r--. 1 root root 78 Mar 15 12:08 new.txt

[root@localhost students]# chown iamjrkoo6 new.txt

[root@localhost students]# ls -l new.txt

-rw-r--r--. 1 iamjrkoo6 root 78 Mar 15 12:08 new.txt

**14.Set group ownership**

Description:    It will set ownership of file.

Syntax:    chown username:groupname filname.extension

OUTPUT:

[root@localhost students]# chown iamjrkoo6:static new.txt

[root@localhost students]# ls -l new.txt

-rw-r--r--. 1 iamjrkoo6 static 78 Mar 15 12:08 new.txt

**15.Change groupname of file.**

Description: It will change the groupname of file.

Syntax:    sudo chgrp groupname filename.extension

OUTPUT:

[root@localhost students]# sudo chgrp public new.txt

[root@localhost students]# ls -l new.txt

-rw-r--r--. 1 iamjrkoo6 public 78 Mar 15 12:08 new.txt

````

**16.Change group name of file.**

Description:    It will change group name of any file.

Syntax:    mkdir foldername

        ls -l

        sudo chgrp groupname foldername

        ls-l  
OUTPUT:

[root@localhost students]# mkdir trial

[root@localhost students]# ls -l

drwxr-xr-x. 2 root root 4096 Mar 15 12:19 trial

[root@localhost students]# sudo chgrp public trial

[root@localhost students]# ls -l

drwxr-xr-x. 2 root public 4096 Mar 15 12:19 trial

**17.Show all logged user**

Deascription:    It will show all the users who are logged in

Syntax:    who -q

OUTPUT:

[root@localhost students]# who -q

students

# users=1

**18.Show Statics**

Description:    It will show the statics of memory

Syntax:    vmstat

    vmstat -s

        cat /proc/meminfo

OUTPUT:

[root@localhost students]# vmstat

procs -----------memory---------- ---swap-- -----io---- -system-- ------cpu-----

r b swpd free buff cache si so bi bo in cs us sy id wa st

1 0 0 1672820 46844 1047704 0 0 48 4 59 191 0 0 98 1 0

[root@localhost students]# vmstat -s

3865024 K total memory

1098344 K used memory

1236832 K active memory

741680 K inactive memory

1654468 K free memory

46852 K buffer memory

1065360 K swap cache

3932156 K total swap

0 K used swap

3932156 K free swap

6626 non-nice user cpu ticks

60 nice user cpu ticks

3077 system cpu ticks

1639088 idle cpu ticks

16360 IO-wait cpu ticks

849 IRQ cpu ticks

1048 softirq cpu ticks

0 stolen cpu ticks

788249 pages paged in

62740 pages paged out

0 pages swapped in

0 pages swapped out

978837 interrupts

3193121 CPU context switches

1521093455 boot time

3208 forks

[root@localhost students]# cat /proc/meminfo

MemTotal: 3865024 kB

MemFree: 1584980 kB

MemAvailable: 2265104 kB

Buffers: 46868 kB

Cached: 1032776 kB

SwapCached: 0 kB

Active: 1244940 kB

Inactive: 798840 kB

Active(anon): 969852 kB

Inactive(anon): 216316 kB

Active(file): 275088 kB

Inactive(file): 582524 kB

Unevictable: 0 kB

Mlocked: 0 kB

SwapTotal: 3932156 kB

SwapFree: 3932156 kB

Dirty: 592 kB

Writeback: 0 kB

AnonPages: 964136 kB

Mapped: 392124 kB

Shmem: 222040 kB

Slab: 101956 kB

SReclaimable: 50068 kB

SUnreclaim: 51888 kB

KernelStack: 9184 kB

PageTables: 47332 kB

NFS\_Unstable: 0 kB

Bounce: 0 kB

WritebackTmp: 0 kB

CommitLimit: 5864668 kB

Committed\_AS: 5257848 kB

VmallocTotal: 34359738367 kB

VmallocUsed: 0 kB

VmallocChunk: 0 kB

HardwareCorrupted: 0 kB

AnonHugePages: 2048 kB

ShmemHugePages: 0 kB

ShmemPmdMapped: 0 kB

CmaTotal: 0 kB

CmaFree: 0 kB

HugePages\_Total: 0

HugePages\_Free: 0

HugePages\_Rsvd: 0

HugePages\_Surp: 0

Hugepagesize: 2048 kB

DirectMap4k: 128620 kB

DirectMap2M: 3883008 kB

DirectMap1G: 0 kB

**Learning Outcomes Achieved**

Learned memory user management and permission granting advanced command

**Conclusion:**

Thus we have studied to implement system administrative task, memory management and user management.

**13. Experiment/Assignment Evaluation**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **SR** | **Parameters** | **Weight** | **Excellent** | **Good** | **Average** | **Poor** | **Not as per requirement** |
| **Scale Factor ->** | 5 | 4 | 3 | 2 | 0 |
| 1 | Technical Understanding | 25 |  |  |  |  |  |
| 2 | Performance / Execution | 25 |  |  |  |  |  |
| 3 | Question Answers | 20 |  |  |  |  |  |
| 4 | Punctuality | 20 |  |  |  |  |  |
| 5 | Presentation | 10 |  |  |  |  |  |
|  | Total out of 100 -->  #(to be converted as per term-work evaluation applicable to the subject) | | **∑ (Weight \* Scale Factor)/5 = \_\_\_\_\_\_\_\_** | | | | |

**References**:

[1] Unix, concepts and applications by Sumitabha Das, McGraw-Hill

[2] Mastering Shell Scripting, Randal. K. Michael, Second Edition, Wiley Publication

**Viva Questions**

* What are the system administrative tasks?
* What are the memory management tasks?
* What are the user management tasks?