

Institute Of Engineering and Management
Department of Computer Science
Operating System Lab CS693

Date : - 30.01.2019

1. Provide a short write-up (1 or 2 paragraphs) on the following:

- > History of Unix and Linux
- > Kernel of an Operating System
- > Multi-Tasking OS
- > Multi-User OS

⇒ **History of Unix and Linux :**

The Unix operating system is a set of programs that act as a link between the computer and the user.

The computer programs that allocate the system resources and coordinate all the details of the

computer's internals is called the operating system or the kernel.

> Unix was originally developed in 1969 by a group of AT&T employees Ken Thompson, Dennis Ritchie, Douglas McIlroy, and Joe Ossanna at Bell Labs.

> There are various Unix variants available in the market. Solaris Unix, AIX, HP Unix and

BSD are a few examples. Linux is also a flavor of Unix which is freely available.

> **Kernel Of an Operating System :**

The kernel is the heart of the operating system. It interacts with the hardware and most of the tasks like memory management, task scheduling and file management.

> **Multi Tasking OS :**

As the name itself suggests, multi tasking refers to execution of multiple tasks (say processes, programs, threads etc.) at a time. In the modern operating systems, we are able to play MP3 music, edit documents in Microsoft Word, surf the Google Chrome all simultaneously, this is accomplished by means of multi tasking.

Multitasking is a logical extension of multi programming. The major way in which multitasking differs from multi programming is that multi programming works solely on the concept of context switching whereas multitasking is based on time sharing alongside the concept of context switching.

> **Multi User OS :**

A multi-user is a OS that allows multiple users on different computers or terminals to access a single system with one OS on it.

2. List all the files and directories of '/bin' with detail information from your current directory.

⇒

Name :- Swapnil Raj
Sec. :- A Roll :- 09

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```
admin1@admin1-SMBIOS: /bin
admin1@admin1-SMBIOS:~$ cd /bin
admin1@admin1-SMBIOS:/bin$ ls
bash          fgconsole    nc            sed
bunzip2       fgrep        nc.openbsd   setfacl
busybox       findmnt      netcat       setfont
bzip2         fuser       netstat      setupcon
bzdiff        fusermount  nisdomainname sh
bzegrep       getfacl     ntfs-3g      sh.distrib
bzexe         grep        ntfs-3g.probe sleep
bzfgrep       gunzip      ntfs-3g.secaudit ss
bzgrep        gzexe       ntfs-3g.usermap static-sh
bzip2         gzip        ntfs-3g      stty
bzip2recover  hostname    ntfs-3g      su
bzless        ip          ntfs-3g      sync
bzmore        kbd_mode   ntfs-3g      tailf
cat           kill        ntfs-3g      tar
chacl         kmod        ntfs-3g      tempfile
chgrp         less        ntfs-3g      touch
chmod         lessecho   ntfs-3g      true
chown         lessfile   ntfs-3g      udevadm
chvt          lesskey    ntfs-3g      ulockmgr_server
cp           lesspipe   ntfs-3g      umount
             ln         ntfs-3g      uname
```

First : cd /bin to enter that folder

Second : ls to view all the files

3. List all the files including hidden files in your parent directory.

⇒

```
admin1@admin1-SMBIOS: ~
admin1@admin1-SMBIOS:~$ ls -a
.          execl.c      pDo??
..         execl.c~    pdu??
a.c        execv       Pictures
a.c~       execv.c     .pki
a.java     execv.c~    po.c
a.out      exist.sh    post.c
back.sh    exist.sh~   pSq??
back.sh~   fibo.c      process
backup.sh  fifo1.c     process.c
backup.sh~ fifo1.c~    .profile
.bash_history fifo2.c     project related documents.odt
.bash_logout fifo2.c~    project syn.odt
.bashrc    file.sh     pSt??
b.java     file.sh~    Public
.cache     .gconf      p?w??
cal.sh     .gstreamer-0.10 quick.c
cal.sh~    host.sh     quick.c~
cl.sh      .i2p        reader.c
cl.sh~     .ICEauthority reader.c~
.compiz    katoolin    shell.sh
.config    knap.c      shell.sh~
create     knap.c~     Templates
create.c   .local      .thunderbird
```

All we have to do is to just enter ls -a, it will list all the files hidden along with the unhidden ones.

4. List only the directory files in your current directory.

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⇒

```
admin1@admin1-SMBIOS:~$ ls -d */
Desktop/   Downloads/ Music/     Public/   Videos/
Documents/ katoolin/  Pictures/  Templates/
admin1@admin1-SMBIOS:~$
```

Command := `ls -d */` will list all the directories in the current folder.

5. Create a file 'text 1' by taking input from the keyboard.

⇒

```
admin1@admin1-SMBIOS: ~/Desktop
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt
cat: file.txt: No such file or directory
admin1@admin1-SMBIOS:~/Desktop$ cat > file.txt
In this file we have
written successfully.
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt
In this file we have
written successfully.
admin1@admin1-SMBIOS:~/Desktop$
```

Command := In this we create the file using `cat > file.txt` then we write our text then Ctrl + D to save.

6. Copy the contents of file 'text1' to another file 'text2'.

⇒

```
admin1@admin1-SMBIOS: ~/Desktop
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt
In this file we have
written successfully.
admin1@admin1-SMBIOS:~/Desktop$ cat temp.txt
file number 2 to be copied
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt > temp.txt
admin1@admin1-SMBIOS:~/Desktop$ cat temp.txt
In this file we have
written successfully.
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt
In this file we have
written successfully.
admin1@admin1-SMBIOS:~/Desktop$
```

Command := In this we used `cat sourcefile > destinationfile` to copy the contents.

7. Append the contents of file 'text2' to file 'text1'.

⇒

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```
admin1@admin1-SMBIOS: ~/Desktop
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt
File1 text file
admin1@admin1-SMBIOS:~/Desktop$ cat temp.txt
File2 text file
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt >> temp.txt
admin1@admin1-SMBIOS:~/Desktop$ cat temp.txt
File2 text file
File1 text file
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt
File1 text file
admin1@admin1-SMBIOS:~/Desktop$
```

Command : `cat [Source File] >> [Destination File]`

8. Count the number of lines in the file 'text1'.

⇒

```
admin1@admin1-SMBIOS: ~/Desktop
admin1@admin1-SMBIOS:~/Desktop$ wc -l file.txt
6 file.txt
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt | wc -l
6
admin1@admin1-SMBIOS:~/Desktop$ cat file.txt
File1 text file
sdhuhj
hjaskjg
hjdskj
dskjskljds
dhjeshjskj
admin1@admin1-SMBIOS:~/Desktop$
```

Command := We can use either `wc -l file.txt` or use `cat file.txt | wc -l`

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