

CSB 302: Operating System

Lab1: Introduction to Unix commands

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Aim: To study Basic UNIX Commands and various UNIX editors such as vi, ed, ex and EMACS.

Commands:

1. date

```
[sh-3.2$ date  
Sun Aug 28 10:36:29 IST 2022  
[sh-3.2$ date +%m  
08  
[sh-3.2$ date +%h  
Aug  
[sh-3.2$ date +%d  
28  
[sh-3.2$ date +%y  
22  
[sh-3.2$ date +%H  
10  
[sh-3.2$ date +%M  
37  
[sh-3.2$ date +%S  
17  
sh-3.2$
```

2. cal

```
[sh-3.2$ cal  
      August 2022  
Su Mo Tu We Th Fr Sa  
    1  2  3  4  5  6  
  7  8  9 10 11 12 13  
14 15 16 17 18 19 20  
21 22 23 24 25 26 27  
28 29 30 31
```

```
[sh-3.2$ cal 2022
```

```

                2022
      January      February      March
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
                1 2 3 4 5        1 2 3 4 5        1 2 3 4 5
  2  3  4  5  6  7  8    6  7  8  9 10 11 12    6  7  8  9 10 11 12
  9 10 11 12 13 14 15    13 14 15 16 17 18 19    13 14 15 16 17 18 19
 16 17 18 19 20 21 22    20 21 22 23 24 25 26    20 21 22 23 24 25 26
 23 24 25 26 27 28 29    27 28                27 28 29 30 31
 30 31

      April      May      June
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
                1 2    1  2  3  4  5  6  7        1  2  3  4
  3  4  5  6  7  8  9    8  9 10 11 12 13 14    5  6  7  8  9 10 11
 10 11 12 13 14 15 16    15 16 17 18 19 20 21    12 13 14 15 16 17 18
 17 18 19 20 21 22 23    22 23 24 25 26 27 28    19 20 21 22 23 24 25
 24 25 26 27 28 29 30    29 30 31                26 27 28 29 30

      July      August      September
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
                1 2    1  2  3  4  5  6        1  2  3
  3  4  5  6  7  8  9    7  8  9 10 11 12 13    4  5  6  7  8  9 10
 10 11 12 13 14 15 16    14 15 16 17 18 19 20    11 12 13 14 15 16 17
 17 18 19 20 21 22 23    21 22 23 24 25 26 27    18 19 20 21 22 23 24
 24 25 26 27 28 29 30    28 29 30 31                25 26 27 28 29 30
 31

      October      November      December
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
                1    1  2  3  4  5        1  2  3
  2  3  4  5  6  7  8    6  7  8  9 10 11 12    4  5  6  7  8  9 10
  9 10 11 12 13 14 15    13 14 15 16 17 18 19    11 12 13 14 15 16 17
 16 17 18 19 20 21 22    20 21 22 23 24 25 26    18 19 20 21 22 23 24
 23 24 25 26 27 28 29    27 28 29 30                25 26 27 28 29 30 31
 30 31
```

```
[sh-3.2$ cal 8 2022
```

```

      August 2022
Su Mo Tu We Th Fr Sa
    1  2  3  4  5  6
  7  8  9 10 11 12 13
 14 15 16 17 18 19 20
 21 22 23 24 25 26 27
 28 29 30 31
```

3. echo

```
[sh-3.2$ echo "A.M.S.S.U"
A.M.S.S.U
sh-3.2$ _
```

4. ls

```
[sh-3.2$ ls
README.md          package.json        src
node_modules       postcss.config.js  tailwind.config.js
package-lock.json  public             yarn.lock
[sh-3.2$ ls -s
total 3232
   8 README.md          8 package.json      0 src
   0 node_modules       8 postcss.config.js 8 tailwind.config.js
2304 package-lock.json 0 public            896 yarn.lock
[sh-3.2$ ls -l
total 3232
-rw-r--r--   1 umangkumar  staff   3359 Aug  9 07:35 README.md
drwxr-xr-x  87 umangkumar  staff 26464 Aug 21 19:34 node_modules
-rw-r--r--   1 umangkumar  staff 1177194 Aug  9 07:35 package-lock.json
-rw-r--r--   1 umangkumar  staff   1049 Aug  9 10:57 package.json
-rw-r--r--   1 umangkumar  staff    82 Aug  9 07:55 postcss.config.js
drwxr-xr-x   8 umangkumar  staff   256 Aug  9 07:35 public
drwxr-xr-x  11 umangkumar  staff   352 Aug 10 14:20 src
-rw-r--r--   1 umangkumar  staff   389 Aug 11 19:28 tailwind.config.js
-rw-r--r--   1 umangkumar  staff 456815 Aug  9 10:57 yarn.lock
[sh-3.2$
[sh-3.2$ ls -t
node_modules      package.json      package-lock.json
tailwind.config.js yarn.lock          public
src               postcss.config.js README.md
[sh-3.2$
[sh-3.2$ ls -u
README.md          package.json        src
node_modules       postcss.config.js  tailwind.config.js
package-lock.json  public             yarn.lock
[sh-3.2$
[sh-3.2$ ls -s
total 3232
   8 README.md          8 package.json      0 src
   0 node_modules       8 postcss.config.js 8 tailwind.config.js
2304 package-lock.json 0 public            896 yarn.lock
[sh-3.2$
[sh-3.2$ ls -r
yarn.lock          public             package-lock.json
tailwind.config.js postcss.config.js  node_modules
src                package.json       README.md
[sh-3.2$

[sh-3.2$ ls -f
.          README.md        package.json
..         yarn.lock        .env
tailwind.config.js public          .git
.DS_Store  .gitignore      postcss.config.js
node_modules package-lock.json src
[sh-3.2$ ls -s
total 3232
   8 README.md          8 package.json      0 src
   0 node_modules       8 postcss.config.js 8 tailwind.config.js
2304 package-lock.json 0 public            896 yarn.lock
[sh-3.2$ ls -h
README.md          package.json        src
node_modules       postcss.config.js  tailwind.config.js
package-lock.json  public             yarn.lock
sh-3.2$
```

5. lp

```
[sh-3.2$ lp words.txt
lp: Error - No default destination.
sh-3.2$ _
```

6. man

```
[sh-3.2$ man lp
[sh-3.2$ man xxd
sh-3.2$
```

XXD(1) General Commands Manual XXD(1)

NAME

xxd - make a hexdump or do the reverse.

SYNOPSIS

```
xxd -h[elp]
xxd [options] [infile [outfile]]
xxd -r[evert] [options] [infile [outfile]]
```

DESCRIPTION

xxd creates a hex dump of a given file or standard input. It can also convert a hex dump back to its original binary form. Like uuencode(1) and uudecode(1) it allows the transmission of binary data in a 'mail-safe' ASCII representation, but has the advantage of decoding to standard output. Moreover, it can be used to perform binary file patching.

OPTIONS

If no infile is given, standard input is read. If infile is specified as a '-' character, then input is taken from standard input. If no outfile is given (or a '-' character is in its place), results are sent to standard output.

Note that a "lazy" parser is used which does not check for more than the first option letter, unless the option is followed by a parameter. Spaces between a single option letter and its parameter are optional. Parameters to options can be specified in decimal, hexadecimal or octal notation. Thus -c8, -c 8, -c 010 and -cols 8 are all equivalent.

-a | -autoskip

Toggle autoskip: A single '*' replaces nul-lines. Default off.

-b | -bits

Switch to bits (binary digits) dump, rather than hexdump. This option writes octets as eight digits "1"s and "0"s instead of a normal hexadecimal dump. Each line is preceded by a line number in hexadecimal and followed by an ascii (or ebcdic) representation. The command line switches -r, -p, -i do not work with this mode.

-c cols | -cols cols

Format <cols> octets per line. Default 16 (-i: 12, -ps: 30, -b: 6). Max 256. No maximum for -ps. With -ps, 0 results in one long line of output.

7. who & whoami

```
[sh-3.2$ who
umangkumar console   Aug 28 07:15
umangkumar ttys003   Aug 28 10:19
[sh-3.2$ whoami
umangkumar
sh-3.2$ _
```

8. uptime

```
[sh-3.2$ uptime
11:15 up 4 hrs, 2 users, load averages: 2.07 1.95 1.68
sh-3.2$
```

9. uname

```
[sh-3.2$ uname
Darwin
[sh-3.2$ uname -a
Darwin Umangs-MacBook-Air.local 21.4.0 Darwin Kernel Version 21.4.0: Fri Mar 18
00:45:05 PDT 2022; root:xnu-8020.101.4~15/RELEASE_X86_64 x86_64
sh-3.2$ _
```

10. hostname

```
[sh-3.2$ hostname
Umangs-MacBook-Air.local
sh-3.2$ _
```

11. bc

```
[sh-3.2$ bc
bc 1.06
Copyright 1991-1994, 1997, 1998, 2000 Free Software Foundation, Inc.
This is free software with ABSOLUTELY NO WARRANTY.
For details type `warranty'.
[10/2*3
15

[scale = 1
[2.25 + 1
3.25
[quit
sh-3.2$
```

```
[sh-3.2$ bc
bc 1.06
Copyright 1991-1994, 1997, 1998, 2000 Free Software Foundation, Inc.
This is free software with ABSOLUTELY NO WARRANTY.
For details type `warranty'.

[sqrt(196)
14

[for(i = 1; i < 3; i = i + 1) i
1
2
[quit
sh-3.2$
```

File Manipulation Commands:

1. cat

```
[sh-3.2$ cat > words.txt
This is a test file.

Cat command can create and view file in terminal.
We can edit text to any existing file also.
[sh-3.2$ cat words.txt
This is a test file.

Cat command can create and view file in terminal.
We can edit text to any existing file also.
sh-3.2$
```

```
[sh-3.2$ cat > file2.txt
This is the second file.
[sh-3.2$ cat words.txt file2.txt > file3.txt
[sh-3.2$ cat file3.txt
This is a test file.

Cat command can create and view file in terminal.
We can edit text to any existing file also.
This is the second file.
sh-3.2$
```

2. grep

```
[sh-3.2$ grep second file3.txt
This is the second file.
[sh-3.2$ cat file3.txt
This is a test file.

Cat command can create and view file in terminal.
We can edit text to any existing file also.
This is the second file.
sh-3.2$
```

3. rm

```
[sh-3.2$ rm file2.txt  
sh-3.2$ _
```

4. touch

```
[sh-3.2$ touch newFile.txt  
[sh-3.2$ ls  
C3301                Resume_.pdf          restaurantapp  
DBMS_PROJECT_2021    Resume_Umang_kumar.pdf  test  
DSA Day-wise.numbers Umang_Kumar.pdf      tutorialpoints  
H                    Untitled             words.txt  
HR                   file3.txt             zLessons.txt  
NITD                 newFile.txt  
sh-3.2$
```

5. cp

```
[sh-3.2$ cp file3.txt file4.txt  
[sh-3.2$ cat file4.txt  
This is a test file.  
  
Cat command can create and view file in terminal.  
We can edit text to any existing file also.  
This is the second file.  
sh-3.2$
```

6. mv

```
[sh-3.2$ mv file3.txt file5.txt  
sh-3.2$ _
```

7. cut

```
[sh-3.2$ cut -c 1-10 file4.txt  
This is a  
  
Cat comman  
We can edi  
This is th  
sh-3.2$ _
```


8. Head

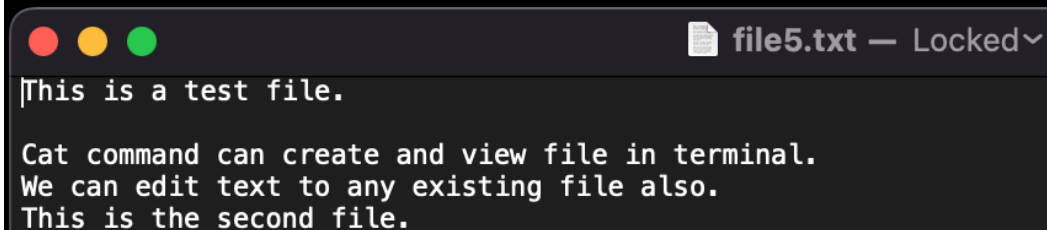
```
[sh-3.2$ head -3 file5.txt  
This is a test file.  
  
Cat command can create and view file in terminal.  
sh-3.2$
```

9. tail

```
[sh-3.2$ tail -3 file5.txt  
Cat command can create and view file in terminal.  
We can edit text to any existing file also.  
This is the second file.  
sh-3.2$
```

10. chmod

```
[sh-3.2$ chmod u-wx file5.txt  
sh-3.2$
```



The screenshot shows a window titled "file5.txt — Locked" with a dark background. The window contains the following text:

```
[This is a test file.  
  
Cat command can create and view file in terminal.  
We can edit text to any existing file also.  
This is the second file.
```

11. wc

```
[sh-3.2$ wc -l file5.txt  
5 file5.txt  
[sh-3.2$ wc -w file5.txt  
28 file5.txt  
[sh-3.2$ wc -c file5.txt  
142 file5.txt  
sh-3.2$
```

Different Unix Editors:

Vim:

```
This is vim editor. This editor is widely popular in linux/unix user.
```

```
~  
~  
~  
~  
~  
~
```

```
[sh-3.2$ vim file6.txt
```

```
[sh-3.2$ cat file6.txt
```

```
This is vim editor. This editor is widely popular in linux/unix user.
```

```
sh-3.2$ _
```

Emacs

```
root@DESKTOP-ZGTQCVE: ~
```

```
# emacs umang.txt
```