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CHENNAI

SWE3001 – Operating Systems Laboratory Manual

Lab - 01

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SWE3001 – Operating Systems
Lab – 01 – Basic Commands

A) UNIX Commands

Lab Contents

Aim : To study and execute the commands in UNIX

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Command	Syntax	Explanation
DATE	$date +%a	Abbreviated Week Day
	$date +%A	Full Week Day
	$date +% b	Abbreviated Month
	$date +%B	Full Month
	$date +%c	Current Day and Time
	$date +%C	Display the Century as a Decimal dated
	$date +%d	Day of the Month
	$date +%D	Day in “mm/dd/yyyy”
	$date +%h	Abbreviated Month Day
	$date +%H	Display the Hour
	$date +%L	Day of the Year
	$date +%m	Month of the Year
	$date +%M	Minute
	$date +%P	Display am or pm
	$date +%p	Display AM or PM
	$date +%S	Seconds
	$date +%T	HH:MM:SS
	$date +%u	Week of the Year
	$date +%y	Display the Year in 2 Digits
	$date +%Y	Display the Full Year
	$date +%Z	Time Zone

	$date "+%H-%M-%S"	To Change the Format

```
samprince@samprince:~$ date +%a
Wed
samprince@samprince:~$ date +%A
Wednesday
samprince@samprince:~$ date +%b
Jul
samprince@samprince:~$ date +%B
July
samprince@samprince:~$ date +%c
Wed 27 Jul 2022 09:15:49 AM UTC
samprince@samprince:~$ date +%C
20
samprince@samprince:~$ date +%d
27
samprince@samprince:~$ date +%D
07/27/22
samprince@samprince:~$ date +%h
Jul
samprince@samprince:~$ date +%H
09
samprince@samprince:~$ date +%l
 9
samprince@samprince:~$ date +%m
07
samprince@samprince:~$ date +%M
17
samprince@samprince:~$ date +%P
am
samprince@samprince:~$ v
v: command not found
samprince@samprince:~$ date +%p
AM
samprince@samprince:~$ date +%S
34
samprince@samprince:~$ date +%T
09:17:41
samprince@samprince:~$ date +%u
3
samprince@samprince:~$ date +%y
22
samprince@samprince:~$ date +%Y
2022
samprince@samprince:~$ date +%Z
UTC
```

Command	Syntax	Explanation
CALENDAR	$cal <year>	Entire Calendar of the Year
	$cal <month> <year>	Particular Month of a Year

```
samprince@samprince:~$ 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         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
samprince@samprince:~$ cal july 2022
     July 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
```

Command	Syntax	Explanation
ECHO	$echo <text>	Echo “welcome >You >all”

```
samprince@samprince:~$ echo Sam Prince Franklin
Sam Prince Franklin
samprince@samprince:~$
```

Command	Syntax	Explanation
BANNER	$banner <text>	Banner WELCOME

```
samprince@samprince:~$ banner 20MIS1115
 #####     ###   #     #   ###    #####     #       #       #    #######
#     #   #   #  ##   ##    #    #     #   ##      ##      ##    #
      #  # #   # # # # #    #    #        # #     # #     # #    #
 #####   #   #  # #  #  #    #     #####     #       #       #     #####
#         #    # # #     #    #          #    #       #       #          #
#          #    #  #     #    #    #     #    #       #       #    #     #
#######    ###   #     #   ###    #####   #####   #####   #####   #####
```

Command	Syntax	Explanation
WHO	$who -H $who -b	Display the Output with Headers Display the Last Booting Date and Time

```
samprince@samprince:~$ who -H
NAME     LINE         TIME             COMMENT
samprince :0           2022-07-27 13:38 (:0)
samprince@samprince:~$ who -b
        system boot  2022-07-27 13:38
```

Command	Syntax	Explanation
Tty	$tty	Display the Terminal Name

```
samprince@samprince:~$ tty
/dev/pts/0
```

Command	Syntax	Explanation
CLEAR	$clear	Clear the Screen

```
samprince@samprince:~$
```

Command	Syntax	Explanation
MAN	$man <text> $man <command name>	Help Manual

```
LS(1)                                   User Commands                                   LS(1)

NAME
       ls - list directory contents

SYNOPSIS
       ls [OPTION]... [FILE]...

DESCRIPTION
       List information about the FILEs (the current directory by default).  Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

       Mandatory arguments to long options are mandatory for short options too.

       -a, --all
              do not ignore entries starting with .

       -A, --almost-all
              do not list implied . and ..

       --author
              with -l, print the author of each file

       -b, --escape
              print C-style escapes for nongraphic characters

       --block-size=SIZE
              with -l, scale sizes by SIZE when printing them; e.g., '--block-size=M'; see SIZE format below

       -B, --ignore-backups
              do not list implied entries ending with ~

       -c     with  -lt:  sort  by,  and show, ctime (time of last modification of file status information); with -l: show ctime and sort by name; otherwise: sort by ctime,
              newest first

       -C     list entries by columns

       --color[=WHEN]
              colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below

       -d, --directory
              list directories themselves, not their contents

       -D, --dired
Manual page ls(1) line 1 (press h for help or q to quit)
```

Command	Syntax	Explanation
MANIPULATION	$tput longname	Display the Complete Name of the Terminal
	$tput smso	Background – White, Foreground – Black
	$tput rmso	Background – Black, Foreground – White
	$tput cup r c	Move the Cursor Position to the Specified Location
	$tput cols	Display the Number of Columns in our Terminal

```
samprince@samprince:~$ tput longname
samprince@samprince:~$ mprince@samprince:~$ tput smso
samprince@samprince:~$ tput rmso
samprince@samprince:~$ tput cup r c
samprince@samprince:~$ tput cols
177
samprince@samprince:~$
```

Command	Syntax	Explanation
LIST	ls -a	Used to List all the Files
	ls -c	List all the Files Column-wise
	ls -d	List all the Directories
	ls -m	List the Files Separated by Commas
	ls -p	List Files Include / to all tlhe Directories
	ls -r	List the Files in Reverse Alphabetical Order
	ls -f	List the Files based on the List Modification Date
	ls -x	List in Column-wise Sorted Order

```
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -a
.                           A           .cmp3num.sh.swp   .sam.sh.swo
..                          B           palindrome.sh     .sam.sh.swp
20MIS1115_SWE3001_Lab1.odt  cmp3num.sh  sam.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -c
A  B  cmp3num.sh  palindrome.sh  sam.sh  20MIS1115_SWE3001_Lab1.odt
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -d
.
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -m
20MIS1115_SWE3001_Lab1.odt, A, B, cmp3num.sh, palindrome.sh, sam.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -p
20MIS1115_SWE3001_Lab1.odt  A/  B/  cmp3num.sh  palindrome.sh  sam.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -r
sam.sh  palindrome.sh  cmp3num.sh  B  A  20MIS1115_SWE3001_Lab1.odt
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -f
cmp3num.sh    .cmp3num.sh.swp  .       20MIS1115_SWE3001_Lab1.odt
.sam.sh.swp  palindrome.sh     A       B
..            .sam.sh.swo      sam.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls -x
20MIS1115_SWE3001_Lab1.odt  A  B  cmp3num.sh  palindrome.sh  sam.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$
```

Command	Syntax	Explanation
DIRECTORY	$pwd	Print the Complete Path of the Current Working Directory
	$mkdir <directory name>	To Create or Make a few Directory in a Current Directory
	$cd <directory name>	To Change or Move the Directory
	$rmdir	To Remove a Directory in the Current Directory

```
samprince@samprince:~/Desktop/SWE3001/Lab1$ pwd
/home/samprince/Desktop/SWE3001/Lab1
samprince@samprince:~/Desktop/SWE3001/Lab1$ mkdir Report
samprince@samprince:~/Desktop/SWE3001/Lab1$ cd Report
samprince@samprince:~/Desktop/SWE3001/Lab1/Report$ cd ..
samprince@samprince:~/Desktop/SWE3001/Lab1$ rmdir Report
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls
20MIS1115_SWE3001_Lab1.odt  A  B  cmp3num.sh  palindrome.sh  sam.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$
```

Command	Syntax	Explanation
FILE	$cat > filename	Create a New File in the Current Directory
	$cat filename	To Create or Make a few Directory in a Current Directory
	$cat <Source filename> >> <Destination Filename>	To Copy the Content of One File to Another File
	$cat -n <filename>	Content of File with Numbers included with Blank Lines
	$sort <filename>	Sort the Contents
	$sort -r <filename>	Sort the Contents in Alphabetical Order in Reverse Order
	mv <source filename> <Destination filename>	Move the Contents of One to Another
	$rm <filename)	Remove the File

```
samprince@samprince:~/Desktop/SWE3001/Lab1$ cat > Sam
Happy Coding
samprince@samprince:~/Desktop/SWE3001/Lab1$
samprince@samprince:~/Desktop/SWE3001/Lab1$ cat ~Desktop >> ~Desktop/SWE3001
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1$ sort palindrome.sh
        # current digit in reverse
do
done
        echo "Number is NOT palindrome"
        echo "Number is palindrome"
else
fi
        # Get next digit
        # Get Remainder
if [ $temp -eq $rev ];
# in another variable
        num=$(( $num / 10 ))
# order
rev=""
        rev=$( echo ${rev}${s} )
        s=$(( $num % 10 ))
s=0
# Store number in reverse
# Store original number
        # Store previous number and
# Storing the remainder
temp=$num
then
vvnum=545
while [ $num -gt 0 ]
samprince@samprince:~/Desktop/SWE3001/Lab1$ rm palindrome.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$ ls
20MIS1115_SWE3001_Lab1.odt  A  B  cmp3num.sh  sa  Sam  sam.sh
samprince@samprince:~/Desktop/SWE3001/Lab1$
```

Command	Syntax	Explanation
WORD	$WC	Print the Complete Path of the Current Working Directory c to Display Number of Characters l to display only the lines w to display the number of words

```
samprince@samprince:~/Desktop/SWE3001/Lab1$ wc cmp3num.sh
 16  55 278 cmp3num.sh
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1$ head sample.txt
What is Lorem Ipsum?
Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lore
m Ipsum has been the industry's standard dummy text ever since the 1500s, when
an unknown printer took a galley of type and scrambled it to make a type specim
en book. It has survived not only five centuries, but also the leap into electr
onic typesetting, remaining essentially unchanged. It was popularised in the 19
60s with the release of Letraset sheets containing Lorem Ipsum passages, and mo
re recently with desktop publishing software like Aldus PageMaker including ver
sions of Lorem Ipsum.

Why do we use it?
It is a long established fact that a reader will be distracted by the readable
content of a page when looking at its layout. The point of using Lorem Ipsum is
 that it has a more-or-less normal distribution of letters, as opposed to using
 'Content here, content here', making it look like readable English. Many deskt
op publishing packages and web page editors now use Lorem Ipsum as their defaul
t model text, and a search for 'lorem ipsum' will uncover many web sites still
in their infancy. Various versions have evolved over the years, sometimes by ac
cident, sometimes on purpose (injected humour and the like).


Where does it come from?
Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots
 in a piece of classical Latin literature from 45 BC, making it over 2000 years
 old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virgin
ia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ip
sum passage, and going through the cites of the word in classical literature, d
iscovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1
.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Ci
cero, written in 45 BC. This book is a treatise on the theory of ethics, very p
opular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolo
r sit amet..", comes from a line in section 1.10.32.
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1$ tail sample.txt
There are many variations of passages of Lorem Ipsum available, but the majorit
y have suffered alteration in some form, by injected humour, or randomised word
s which don't look even slightly believable. If you are going to use a passage
of Lorem Ipsum, you need to be sure there isn't anything embarrassing hidden in
 the middle of text. All the Lorem Ipsum generators on the Internet tend to rep
eat predefined chunks as necessary, making this the first true generator on the
 Internet. It uses a dictionary of over 200 Latin words, combined with a handfu
l of model sentence structures, to generate Lorem Ipsum which looks reasonable.
 The generated Lorem Ipsum is therefore always free from repetition, injected h
umour, or non-characteristic words etc.

5
        paragraphs
        words
        bytes
        lists
        Start with 'Lorem
ipsum dolor sit amet...'
```

Sam Prince Franklin K **20MIS1115**

1) B. Basic Shell Programming

Lab Contents

1	Comparison of 3 numbers and finding the greatest
2	Find the Factorial of a Number
3	Find whether a number is palindrome
4	Find Fibonacci Number
5	Find whether a number is prime or not

Aim : To study and execute the Shell Programming

1) Comparison Of 3 Numbers And Finding The Greatest:

```
echo "Enter Num1"
read num1
echo "Enter Num2"
read num2
echo "Enter Num3"
read num3

if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]
then
    echo "Greater : "$num1
elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ]
then
    echo "Greater : "$num2
else
    echo "Greater : "$num3
fi
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1/B$ sh comp3num.sh
Enter Num1
12
Enter Num2
45
Enter Num3
23
Greater : 45
```

---

2) Find The Factorial of A Number:

```
echo "Enter a number"
read num

fact=1

while [ $num -gt 1 ]
do
  fact=$((fact * num))
  num=$((num - 1))
done

echo $fact
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1/B$ sh fact.sh
Enter a number
3
6
```

---

3) Find whether a number is palindrome or not:

```
read num
s=0
rev=""
temp=$num
while [ $num -gt 0 ]
do

        s=$(( $num % 10 ))

        num=$(( $num / 10 ))

        rev=$( echo ${rev}${s} )
done

if [ $temp -eq $rev ];
then
        echo "Number is palindrome"
else
        echo "Number is NOT palindrome"
fi
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1/B$ sh palindrome.sh
34
Number is NOT palindrome
```

---

4) Find Fibonacci Number:

```
echo "Enter the value of n"
read n
a=0
b=1
count=2
echo "Fibonacci series:"
echo $a
echo $b
while [ $count -le $n ]
do
fib=`expr $a + $b`
a=$b
b=$fib
echo $fib
count=`expr $count + 1`
done
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1/B$ sh fib.sh
Enter the value of n
5
Fibonacci series:
0
1
1
2
3
5
```

5) Find whether a number is prime or not:

```
echo "Enter a number: "
read num
i=2
f=0
while [ $i -le `expr $num / 2` ]
do
if [ `expr $num % $i` -eq 0 ]
then
f=1
fi
i=`expr $i + 1`
done
if [ $f -eq 1 ]
then
echo "The number is composite"
else
echo "The number is Prime"
fi
```

```
samprince@samprince:~/Desktop/SWE3001/Lab1/B$ sh prime.sh
Enter a number:
23
The number is Prime
```