Experiment Number: 2

Problem Statement: **Execution of advance Linux commands**

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CLASS: IT-B BATCH: B3

DATE OF PERFORMANCE: 25-07-2024

Experiment No: 2

**Change your password to a password you would like to use for the remainder of the semester.**

1) manoj@manoj-VirtualBox:~$ passwd

Changing password for manoj.

Current password:

New password:

Retype new password:

passwd: password updated successfully

**Display the system’s date.**

2) manoj@manoj-VirtualBox:~$ date

Thursday 25 July 2024 04:24:54 PM IST

**Count the number of lines in the /etc/passwd file.**

3) manoj@manoj-VirtualBox:~$ wc -l /etc/passwd

48 /etc/passwd

**Find out who else is on the system.**

4) manoj@manoj-VirtualBox:~$ who

manoj tty2 2024-07-25 16:23 (tty2)

**Direct the output of the man pages for the date command to a file named mydate.**

5) manoj@manoj-VirtualBox:~$ man date>mydate

manoj@manoj-VirtualBox:~$ cat mydate

DATE(1) User Commands DATE(1)

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date - print or set the system date and time

SYNOPSIS

date [OPTION]... [+FORMAT]

date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]

DESCRIPTION

Display the current time in the given FORMAT, or set the system date.

Mandatory arguments to long options are mandatory for short options

too.

-d, --date=STRING

display time described by STRING, not 'now'

--debug

annotate the parsed date, and warn about questionable usage to

stderr

-f, --file=DATEFILE

like --date; once for each line of DATEFILE

-I[FMT], --iso-8601[=FMT]

output date/time in ISO 8601 format. FMT='date' for date only

(the default), 'hours', 'minutes', 'seconds', or 'ns' for date

and time to the indicated precision. Example:

2006-08-14T02:34:56-06:00

-R, --rfc-email

output date and time in RFC 5322 format. Example: Mon, 14 Aug

2006 02:34:56 -0600

--rfc-3339=FMT

output date/time in RFC 3339 format. FMT='date', 'seconds', or

'ns' for date and time to the indicated precision. Example:

2006-08-14 02:34:56-06:00

-r, --reference=FILE

display the last modification time of FILE

-s, --set=STRING

set time described by STRING

-u, --utc, --universal

print or set Coordinated Universal Time (UTC)

--help display this help and exit

--version

output version information and exit

FORMAT controls the output. Interpreted sequences are:

%% a literal %

%a locale's abbreviated weekday name (e.g., Sun)

%A locale's full weekday name (e.g., Sunday)

%b locale's abbreviated month name (e.g., Jan)

%B locale's full month name (e.g., January)

%c locale's date and time (e.g., Thu Mar 3 23:05:25 2005)

%C century; like %Y, except omit last two digits (e.g., 20)

%d day of month (e.g., 01)

%D date; same as %m/%d/%y

%e day of month, space padded; same as %\_d

%F full date; like %+4Y-%m-%d

%g last two digits of year of ISO week number (see %G)

%G year of ISO week number (see %V); normally useful only with %V

%h same as %b

%H hour (00..23)

%I hour (01..12)

%j day of year (001..366)

%k hour, space padded ( 0..23); same as %\_H

%l hour, space padded ( 1..12); same as %\_I

%m month (01..12)

%M minute (00..59)

%n a newline

%N nanoseconds (000000000..999999999)

%p locale's equivalent of either AM or PM; blank if not known

%P like %p, but lower case

%q quarter of year (1..4)

%r locale's 12-hour clock time (e.g., 11:11:04 PM)

%R 24-hour hour and minute; same as %H:%M

%s seconds since 1970-01-01 00:00:00 UTC

%S second (00..60)

%t a tab

%T time; same as %H:%M:%S

%u day of week (1..7); 1 is Monday

%U week number of year, with Sunday as first day of week (00..53)

%V ISO week number, with Monday as first day of week (01..53)

%w day of week (0..6); 0 is Sunday

%W week number of year, with Monday as first day of week (00..53)

%x locale's date representation (e.g., 12/31/99)

%X locale's time representation (e.g., 23:13:48)

%y last two digits of year (00..99)

%Y year

%z +hhmm numeric time zone (e.g., -0400)

%:z +hh:mm numeric time zone (e.g., -04:00)

%::z +hh:mm:ss numeric time zone (e.g., -04:00:00)

%:::z numeric time zone with : to necessary precision (e.g., -04,

+05:30)

%Z alphabetic time zone abbreviation (e.g., EDT)

By default, date pads numeric fields with zeroes. The following op‐

tional flags may follow '%':

**Create a subdirectory called mydir.**

6) manoj@manoj-VirtualBox:~$ mkdir mydir

manoj@manoj-VirtualBox:~$ ls

a.out demo4.txt f1.txt lab2 Public

capitals demonew.txt f2.txt link1.txt snap

capitals1 Desktop f3.txt list symlink1

capitals2 dir2 f4.txt Music symlink11

capitals3 Documents f6.txt mydate symlink.txt

clientserverprogram Downloads f7.txt mydir Templates

demo1.txt error home ourdate test

demo2.txt f1 lab1 Pictures Videos

demo3.txt f1\_c.txt.gz lab1.txt project

manoj@manoj-VirtualBox:~$

**Move the file mydate into the new subdirectory.**

7) manoj@manoj-VirtualBox:~$ mv mydate mydir/

manoj@manoj-VirtualBox:~$ cd mydir

**Go to the subdirectory mydir and copy the file mydate to a new file called ourdate**

8) manoj@manoj-VirtualBox:~/mydir$ cp mydate ourdate

**List the contents of mydir.**

9) manoj@manoj-VirtualBox:~/mydir$ ls

mydate ourdate

10**) Do a long listing on the file ourdate and note the permissions.**

manoj@manoj-VirtualBox:~/mydir$ ls -l ourdate

-rw-rw-r-- 1 manoj manoj 6516 Jul 25 16:26 ourdate

**11) Display the name of the current directory starting from the root.**

manoj@manoj-VirtualBox:~/mydir$ pwd

/home/manoj/mydir

**12) Move the files in the directory mydir back to the HOME directory.**

manoj@manoj-VirtualBox:~/mydir$ mv mydate ourdate ~

13) **List all the files in your HOME directory.**

manoj@manoj-VirtualBox:~/mydir$ ls ~

a.out Desktop f1.txt lab1 ourdate symlink.txt

clientserverprogram dir2 f2.txt lab1.txt Pictures Templates

demo1.txt Documents f3.txt lab2 project test

demo2.txt Downloads f4.txt link1.txt Public Videos

demo3.txt error f6.txt Music snap

demo4.txt f1 f7.txt mydate symlink1

demonew.txt f1\_c.txt.gz home mydir symlink11

**14) Display the first 5 lines of mydate.**

manoj@manoj-VirtualBox:~/mydir$ head -n 5 ~/mydate

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date - print or set the system date and time

15) **Display the last 8 lines of mydate.**

manoj@manoj-VirtualBox:~/mydir$ tail -n 8 ~/mydate

This is free software: you are free to change and redistribute it.

There is NO WARRANTY, to the extent permitted by law.

SEE ALSO

Full documentation <https://www.gnu.org/software/coreutils/date>

or available locally via: info '(coreutils) date invocation'

GNU coreutils 8.32 February 2022 DATE(1)

16) **Remove the directory mydir.**

manoj@manoj-VirtualBox:~/mydir$ cd ..

manoj@manoj-VirtualBox:~$ rmdir mydir

17) **Redirect the output of the long listing of files to a file named list.**

manoj@manoj-VirtualBox:~$ cat list

total 196

-rwxrwxr-x 1 manoj manoj 15968 Nov 19 2023 a.out

-r-------- 1 manoj manoj 159 Jul 25 16:37 capitals

-rw-rw-r-- 1 manoj manoj 40 Jul 25 16:34 capitals1

-rw-rw-r-- 1 manoj manoj 39 Jul 25 16:35 capitals2

-rw-rw-r-- 1 manoj manoj 41 Jul 25 16:36 capitals3

drwxrwxr-x 2 manoj manoj 4096 Nov 26 2023 clientserverprogram

-rw-rw-r-- 3 manoj manoj 61 Jul 11 16:30 demo1.txt

-rw-rw-r-- 1 manoj manoj 61 Jul 19 22:37 demo2.txt

-rw-rw-r-- 1 manoj manoj 12 Jul 18 16:36 demo3.txt

-rw-rw-r-- 1 manoj manoj 11 Jul 18 16:36 demo4.txt

-rw-rw-r-- 1 manoj manoj 61 Jul 18 16:12 demonew.txt

drwxr-xr-x 5 manoj manoj 4096 Nov 21 2023 Desktop

drwxrwxr-x 2 manoj manoj 4096 Jul 20 15:19 dir2

drwxr-xr-x 2 manoj manoj 4096 Jul 27 14:35 Documents

drwxr-xr-x 2 manoj manoj 4096 Jul 20 17:46 Downloads

-rw-rw-r-- 1 manoj manoj 35 Jul 11 15:30 error

-rw-rw-r-- 1 manoj manoj 38 Jul 11 15:29 f1

-rw-rw-r-- 1 manoj manoj 39 Jul 20 16:13 f1\_c.txt.gz

-rw-rw-r-- 1 manoj manoj 11 Jul 20 16:14 f1.txt

-rw-rw-r-- 1 manoj manoj 6 Jul 20 16:10 f2.txt

-rw-rw-r-- 1 manoj manoj 13 Jul 20 15:50 f3.txt

-rw-rw-r-- 1 manoj manoj 14 Jul 20 15:50 f4.txt

-rw-rw-r-- 1 manoj manoj 18 Jul 20 15:57 f6.txt

-rw-rw-r-- 1 manoj manoj 14 Jul 20 15:58 f7.txt

drwxrwxr-x 6 manoj manoj 4096 Jul 20 15:38 home

drwxrwxr-x 2 manoj manoj 4096 Jul 19 22:51 lab1

-rw-rw-r-- 1 manoj manoj 26 Jul 18 16:19 lab1.txt

drwxrwxr-x 2 manoj manoj 4096 Jul 19 22:51 lab2

-rw-rw-r-- 3 manoj manoj 61 Jul 11 16:30 link1.txt

-rw-rw-r-- 1 manoj manoj 0 Jul 27 14:51 list

drwxr-xr-x 2 manoj manoj 4096 Dec 16 2023 Music

-rw-rw-r-- 1 manoj manoj 6516 Jul 27 14:41 mydate

drwxrwxr-x 2 manoj manoj 4096 Jul 27 14:42 newdir

-rw-rw-r-- 1 manoj manoj 6516 Jul 25 16:26 ourdate

drwxr-xr-x 2 manoj manoj 4096 Dec 16 2023 Pictures

drwxrwxr-x 2 manoj manoj 4096 Dec 13 2023 project

drwxr-xr-x 2 manoj manoj 4096 Nov 2 2023 Public

drwx------ 4 manoj manoj 4096 Nov 26 2023 snap

lrwxrwxrwx 1 manoj manoj 4 Jul 20 17:10 symlink1 -> dir1

-rw-rw-r-- 3 manoj manoj 61 Jul 11 16:30 symlink11

lrwxrwxrwx 1 manoj manoj 9 Jul 20 17:08 symlink.txt -> demo1.txt

drwxr-xr-x 2 manoj manoj 4096 Nov 21 2023 Templates

-rwxrwxr-x 1 manoj manoj 15968 Nov 19 2023 test

drwxr-xr-x 2 manoj manoj 4096 Dec 18 2023 Videos

manoj@manoj-VirtualBox:~$

**18) Select any 5 capitals of states in India and enter them in a file named capitals1. Choose 5 more capitals and enter them in a file named capitals2. Choose 5 more capitals and enter them in a file named capitals3. Concatenate all 3 files and redirect the output to a file named capitals.**

manoj@manoj-VirtualBox:~$ echo -e "new delhi\nchennai\nkolkatta\npune\nmumabai" >capitals1

manoj@manoj-VirtualBox:~$ cat capitals1

new delhi

chennai

kolkatta

pune

mumabai

manoj@manoj-VirtualBox:~$ echo -e "new mumbai\nbengli\nassam\namerica\ndubaii" >capitals2

manoj@manoj-VirtualBox:~$ echo -e "bhopal\nmanipur\nshilong\nlucknow\nbanglorei" >capitals3

manoj@manoj-VirtualBox:~$ cat capitals1 capitals2 capitals3 > capitals

manoj@manoj-VirtualBox:~$ cat capitals

new delhi

chennai

kolkatta

pune

mumabai

new mumbai

bengli

assam

america

dubaii

bhopal

manipur

shilong

lucknow

banglorei

**19) Concatenate the file capitals2 at the end of file capitals.**

manoj@manoj-VirtualBox:~$ cat capitals2>>capitals

manoj@manoj-VirtualBox:~$ cat capitals

new delhi

chennai

kolkatta

pune

mumabai

new mumbai

bengli

assam

america

dubaii

bhopal

manipur

shilong

lucknow

banglorei

new mumbai

bengli

assam

america

dubaii

**20) Redirect the file capitals as an input to the command “wc –l”.**

manoj@manoj-VirtualBox:~$ wc -l < capitals

20

**21) Give read and write permissions to all users for the file capitals.**

manoj@manoj-VirtualBox:~$ chmod u+r,u+w capitals

manoj@manoj-VirtualBox:~$ ls -l capitals

-rw------- 1 manoj manoj 159 Jul 25 16:37 capitals

manoj@manoj-VirtualBox:~$

**22) Give read permissions only to the owner of the file capitals. Open the file, make some changes and try to save it. What happens ?**

manoj@manoj-VirtualBox:~$ chmod 400 capitals

manoj@manoj-VirtualBox:~$ ls -l capitals

-r-------- 1 manoj manoj 159 Jul 25 16:37 capitals

manoj@manoj-VirtualBox:~$ cat> capitals

bash: capitals: Permission denied

manoj@manoj-VirtualBox:~$

**23) Create an alias to concatenate the 3 files capitals1, capitals2, capitals3 and redirect the output to a file named capitals. Activate the alias and make it run.**

manoj@manoj-VirtualBox:~$ chmod 642 capitals

manoj@manoj-VirtualBox:~$ alias concat3='cat capitals1 capitals2 capitals3'>capitals

manoj@manoj-VirtualBox:~$ concat3

new delhi

chennai

kolkatta

pune

mumabai

new mumbai

bengli

assam

america

dubaii

bhopal

manipur

shilong

lucknow

banglorei

manoj@manoj-VirtualBox:~$

**24) What are the environment variables PATH, HOME and TERM set to on your terminal ?**

manoj@manoj-VirtualBox:~$ echo $PATH

/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin

manoj@manoj-VirtualBox:~$ echo $HOME

/home/manoj

manoj@manoj-VirtualBox:~$ echo $TERM

xterm-256color

manoj@manoj-VirtualBox:~$

**25) Find out the number of times the string “the” appears in the file mydate.**

manoj@manoj-VirtualBox:~$ grep -o "the" mydate | wc -l

27

**26) Find out the line numbers on which the string “date” exists in mydate.**

manoj@manoj-VirtualBox:~$ grep -n "date" mydate

4: date - print or set the system date and time

7: date [OPTION]... [+FORMAT]

8: date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]

11: Display the current time in the given FORMAT, or set the system date.

16: -d, --date=STRING

20: annotate the parsed date, and warn about questionable usage to

24: like --date; once for each line of DATEFILE

27: output date/time in ISO 8601 format. FMT='date' for date only

28: (the default), 'hours', 'minutes', 'seconds', or 'ns' for date

33: output date and time in RFC 5322 format. Example: Mon, 14 Aug

37: output date/time in RFC 3339 format. FMT='date', 'seconds', or

38: 'ns' for date and time to the indicated precision. Example:

67: %c locale's date and time (e.g., Thu Mar 3 23:05:25 2005)

73: %D date; same as %m/%d/%y

77: %F full date; like %+4Y-%m-%d

131: %x locale's date representation (e.g., 12/31/99)

150: By default, date pads numeric fields with zeroes. The following op‐

171: Convert seconds since the epoch (1970-01-01 UTC) to a date

173: $ date --date='@2147483647'

177: $ TZ='America/Los\_Angeles' date

181: $ date --date='TZ="America/Los\_Angeles" 09:00 next Fri'

184: The --date=STRING is a mostly free format human readable date string

186: even "next Thursday". A date string may contain items indicating cal‐

187: endar date, time of day, time zone, day of week, relative time, rela‐

188: tive date, and numbers. An empty string indicates the beginning of the

189: day. The date string format is more complex than is easily documented

206: Full documentation <https://www.gnu.org/software/coreutils/date>

207: or available locally via: info '(cor

**27) Print all lines of mydate except those that have the letter “i” in them**

manoj@manoj-VirtualBox:~$ grep -v "i" mydate

DATE(1) User Commands DATE(1)

NAME

SYNOPSIS

date [OPTION]... [+FORMAT]

DESCRIPTION

too.

-d, --date=STRING

--debug

stderr

2006-08-14T02:34:56-06:00

2006 02:34:56 -0600

--rfc-3339=FMT

2006-08-14 02:34:56-06:00

-r, --reference=FILE

-s, --set=STRING

FORMAT controls the output. Interpreted sequences are:

%A locale's full weekday name (e.g., Sunday)

%B locale's full month name (e.g., January)

%d day of month (e.g., 01)

%D date; same as %m/%d/%y

%e day of month, space padded; same as %\_d

%h same as %b

%H hour (00..23)

%I hour (01..12)

%j day of year (001..366)

%k hour, space padded ( 0..23); same as %\_H

%l hour, space padded ( 1..12); same as %\_I

%m month (01..12)

%N nanoseconds (000000000..999999999)

%q quarter of year (1..4)

%S second (00..60)

%t a tab

**28) Create the file monotonic as follows: ^a?b?b?c?…………..x?y?z$ Run the egrep command for monotonic against /usr/dict/words and search for all 4 letter words.**

manoj@manoj-VirtualBox:~$ echo 'a?b?c?...x?y?z$'> monotonic

manoj@manoj-VirtualBox:~$ egrep '^....$' /user/dict/words

manoj@manoj-VirtualBox:~$ cat monotonic

a?b?c?...x?y?z$

**29) . List 5 states in north east India in a file mystates. List their corresponding capitals in a file mycapitals. Use the paste command to join the 2 files.**

manoj@manoj-VirtualBox:~$ echo -e "Arunachal predesh\nAssam\nManipur\nMeghalaya\Mizoram"> mystates

manoj@manoj-VirtualBox:~$ echo -e "Itanagr\nDispur\nImphal\nShilong\Aizwal"> mycapitals

manoj@manoj-VirtualBox:~$ paste mystates mycapitals

Arunachal predesh Itanagr

Assam Dispur

Manipur Imphal

Meghalaya\Mizoram Shilong\Aizwal

manoj@manoj-VirtualBox:~$

30).**Use the cut command to print the 1st and 3rd columns of the /etc/passwd file for all students in this class.**

manoj@manoj-VirtualBox:~$ cat > students

stu1

stu2

stu3

manoj@manoj-VirtualBox:~$ grep -Ff students /etc/passwd | cut -d: -f1,3

root:0  
daemon:1  
bin:2  
sys:3  
sync:4  
games:5  
man:6  
lp:7  
mail:8  
news:9  
uucp:10  
proxy:13  
www-data:33  
backup:34  
list:38  
irc:39  
gnats:41  
nobody:65534

manoj:1000

**31) Count the number of people logged in and also trap the users in a file using the tee command.**

manoj@manoj-VirtualBox:~$ who | tee users\_logged\_in.txt | wc -l

1

manoj@manoj-VirtualBox:~$ ^C