

Subject: Operating system concepts using Unix/Linux

LAB ASSIGNMENT 3

1. Write a command that sort a list of names in names.txt alphabetically and remove duplicates

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ sort -u names.txt
akash
arjun
navdip
prakash
vijay
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$
```

2. Write a command to convert all lowercase letters to uppercase in a file (textfile.txt)

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat output.txt
navdip
akash
prakash
vijay
arjun
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ tr 'a-z' 'A-Z' < textfile.txt > output.txt
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat output.txt
NAVDIP
AKASH
PRAKASH
VIJAY
ARJUN
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$
```

3. Write a command to remove only even numbers (0,2,4,6,8) from data.txt.

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat data.txt
1234567890
2468
13579
1111111111
22222
564789123
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ sed 's/[02468]//g' data.txt > output.txt
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat output.txt
13579

13579
1111111111

57913
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$
```

4. Write a command to remove all special characters (@, #, \$, %, &, *) from symbols.txt.

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat symbols.txt
c#
good @fternoon
$100
red & black
100 %
100*100
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ sed 's/[@#$$%*]//g' symbols.txt > output.txt
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat output.txt
c
good fternoon
100
red black
100
100100
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$
```

5. Write a command to compare only the first 1000 bytes of the files.

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cmp -n 1000 file1.txt file2.txt
file1.txt file2.txt differ: byte 2, line 1
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |
```

6. Write a cmp command to display the byte positions and display output of 10 differences.

```
12 164 162
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cmp -l -n 1000 file1.txt file2.txt | head -10
cmp: EOF on file2.txt after byte 49
 2  43  15
 3  15  12
 4  12 147
 5 147 157
 7 157 144
 8 144  40
 9  40 146
10 100 164
11 146 145
12 164 162
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |
```

7. Write a command to find the number of similar lines in two sorted files file1.txt and file2.txt and count the lines.

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ comm -12 file1.txt file2.txt | wc -l
2
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat file1.txt
Apple
Banana
Grapes
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat file2.txt
Apple
Banana
Mango
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |
```

8. Write a command to displays file contents in hexadecimal format and show only first 10 lines

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ od -ax file1.txt | head -10
00000000  h e l l o  s p w o r l d
          6568  6c6c  206f  6f77  6c72  0064
00000013
```

9. Calculate compound interest using the formula with two decimal points:

$$A = P(1 + r/n)^{nt}$$

Where:

P= 5000 (Principal Amount)

r=5% (Annual Interest Rate)

t=3 years

n=4 (compounded Quarterly)

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ echo "scale=2; 5000 * (1 + 0.05/4)^(4*3)" | bc -l
5600.00
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |
```

10. Write a command that redirects the content of inputfile.txt to the sort command to sort the lines in ascending order.

```

navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat names.txt
navdip
akash
prakash
vijay
arjun
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ sort < names.txt > output.txt
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat output.txt
akash
arjun
navdip
prakash
vijay

```

11. Write a command to find lines containing the word "error" from the last 1000 lines of sys.txt.

```

navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ tail -1000 sys.txt | grep "error"
error: File not found
System error: Connection lost
error:file is not exist
error:not space enough
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$

```

12. Write a command to Factorize a Number Stored in a Variable

```

navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ num=100; factor $num
100: 2 2 5 5
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |

```

13. Write a command to append to multiple files without overwriting

```

navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ echo "New content" | tee -a file1.txt file2.txt
New content
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat file1.txt
hello worldNew content
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat file2.txt
Apple
Banana
Mango
Apple
Banana
Mango
Apple
Banana
Mango
navdip
New content
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |

```

14. Write a command to join two files if the common key is in different columns (e.g., first column in students.txt, second column in marks.txt)

```

navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat students.txt
101 Ajay
102 Bipin
103 Navdip
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat marks.txt
101 78
102 85
103 90
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ join students.txt marks.txt
78 Ajay
85 Bipin
90 Navdip
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |

```

15. Count the number of unique lines in data.txt.

```

navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat data.txt
apple
banana
apple
cherry
banana
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ sort data.txt | uniq | wc -l
3
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |

```

16. Write a command that replace a Word only if it appears at the start of a line.

```
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat file1.txt
morning
new content
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ sed 's/^morning/afternoon/' file1.txt > output.txt
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ cat output.txt
afternoon
new content
navdip@LAPTOP-0N09VP88:/mnt/c/Users/navdip/documents/NAVDIP$ |
```

17. Run script without leaving a trace in history.

```
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ cat abc.txt
echo "Running the script"
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ unset HISTFILE; ./abc.txt
Running the script
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ |
```