

Activities Terminal Apr 24 15:03

sarthak@sarthak-virtual-machine: ~

GNU nano 6.2 07_delete.sh

```
#!/bin/bash

echo "Before deleting the content of file is"
cat $1

sed -i '/^\s*$/d' "$1"
echo "All empty lines of the file $1 will be deleted"
echo "after deleting the content of file is "
cat $1
```

Read 10 lines

Help Exit Write Out Read File Where Is Replace Cut Paste Execute Justify

Activities Terminal Apr 24 15:08

sarthak@sarthak-virtual-machine: ~

```
sarthak@sarthak-virtual-machine:~$ 
sarthak@sarthak-virtual-machine:~$ nano 07_delete.sh
sarthak@sarthak-virtual-machine:~$ chmod +x 07_delete.sh
sarthak@sarthak-virtual-machine:~$ ./07_delete.sh myfile.txt
Before deleting the content of file is
Hello, I am Siddaling.

I am from belgaum.

I studied B-tech in ECE.
All empty lines of the file myfile.txt will be deleted
after deleting the content of file is
Hello, I am Siddaling.
I am from belgaum.
I studied B-tech in ECE.
sarthak@sarthak-virtual-machine:~$
```

Activities Terminal Apr 24 15:11

sarthak@sarthak-virtual-machine: ~

GNU nano 6.2 08_operators.sh *

```
#!/bin/bash
number=${1%?}
operator=${1: -1}

if ! [[ $number =~ ^[0-9]+$ ]]; then
    echo "Error: $number is not a valid number"
    exit 1
fi

sum=0
c=1
for (( i=0; i<${#number}; i++ ));
do
    digit=${number:i:1}
    case $operator in
        +) sum=$(( sum + digit ));;
        -) sum=$(( sum - digit ));;
        \*) sum=$(( c * digit ));;
        /) if [ $digit -eq 0 ]; then
            echo "Error: division by zero"
            exit 1
        fi
        sum=$(( sum - digit ));;
    *) echo "Error: invalid operator $operator"
        exit 1;;
    esac
done
echo "The $operator of the digits of $number is $sum"
```

```
sarthak@sarthak-virtual-machine:~$
sarthak@sarthak-virtual-machine:~$
sarthak@sarthak-virtual-machine:~$ nano 08_operators.sh
sarthak@sarthak-virtual-machine:~$ chmod +x 08_operators.sh
sarthak@sarthak-virtual-machine:~$ ./08_operators.sh
Error:  is not a valid number
sarthak@sarthak-virtual-machine:~$ ./08_operators.sh 1234+
The + of the digits of 1234 is 10
sarthak@sarthak-virtual-machine:~$ ./08_operators.sh 1234-
The - of the digits of 1234 is -10
sarthak@sarthak-virtual-machine:~$
sarthak@sarthak-virtual-machine:~$
```

Activities Terminal Apr 24 15:13

sarthak@sarthak-virtual-machine: ~

GNU nano 6.2 12_sorting.sh

```
#!/bin/bash

if [ "$1" == "-a" ]; then
    ascending=true
    shift
elif [ "$1" == "-d" ]; then
    ascending=false
    shift
else
    echo "usage: $0 [-a|-d] number1 number2 ..."
    exit 1
fi

if $ascending; then
    sorted_numbers=$(printf "%s\n" "${@}" | sort -n)
    echo "The ascending order of the array is: "
else
    sorted_numbers=$(printf "%s\n" "${@}" | sort -n -r)
    echo "The descending order of the array is: "
fi
echo "$sorted_numbers"
```

Read 21 lines

Help Write Out Where Is Cut Execute Location
Exit Read File Replace Paste Justify Go To Line

Activities Terminal Apr 24 15:14

sarthak@sarthak-virtual-machine: ~

```
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$ nano 12_sorting.sh  
sarthak@sarthak-virtual-machine:~$ chmod +x 12_sorting.sh  
sarthak@sarthak-virtual-machine:~$ ./12_sorting.sh -a 9 49 85 62 15 3 78  
The ascending order of the array is:  
3  
9  
15  
49  
62  
78  
85  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$ ./12_sorting.sh -d 9 49 85 62 15 3 78  
The descending order of the array is:  
85  
78  
62  
49  
15  
9  
3  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$
```

Activities Terminal Apr 24 15:15

sarthak@sarthak-virtual-machine: ~

GNU nano 6.2 13_system_info.sh *

```
#!/bin/bash

echo "1. Currently logged users"
echo "2. Your shell directory"
echo "3. Home directory"
echo "4. OS name & version"
echo "5. Current working directory"
echo "6. Number of users logged in"
echo "7. Available shells in my system"
echo "8. Hard disk information"
echo "9. CPU information"
echo "10. Memory information"
echo "11. File system information"
echo "12. Currently running process"

echo -n "Enter your choice: "

read choice

case $choice in
1) who;;
2) echo $SHELL;;
3) echo $HOME;;
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^_ Replace ^U Paste ^J Justify ^_ Go To Line

Activities Terminal Apr 24 15:16

sarthak@sarthak-virtual-machine: ~

GNU nano 6.2 13_system_info.sh

```
echo "12. Currently running process"

echo -n "Enter your choice: "

read choice

case $choice in
1) who;;
2) echo $SHELL;;
3) echo $HOME;;
4) uname -a;;
5) pwd;;
6) who | wc -l;;
7) cat /etc/shells;;
8) df -h;;
9) lscpu;;
10) free -h;;
11) lsblk;;
12) ps -aux;;
*) echo "invalid option";;

esac
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^_ Replace ^U Paste ^J Justify ^_ Go To Line

```
sarthak@sarthak-virtual-machine: ~
sarthak@sarthak-virtual-machine:~$ nano 13_system_info.sh
sarthak@sarthak-virtual-machine:~$ chmod +x 13_system_info.sh
sarthak@sarthak-virtual-machine:~$ ./13_system_info.sh
1. Currently logged users
2. Your shell directory
3. Home directory
4. OS name & version
5. Current working directory
6. Number of users logged in
7. Available shells in my system
8. Hard disk information
9. CPU information
10. Memory information
11. File system information
12. Currently running process
Enter your choice: 4
Linux sarthak-virtual-machine 5.19.0-40-generic #41~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Fri Mar 31
16:00:14 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
sarthak@sarthak-virtual-machine:~$ ./13_system_info.sh
1. Currently logged users
2. Your shell directory
3. Home directory
4. OS name & version
5. Current working directory
6. Number of users logged in
7. Available shells in my system
8. Hard disk information
9. CPU information
```

```
sarthak@sarthak-virtual-machine: ~
GNU nano 6.2 15_rename_curdir.sh
#!/bin/bash

read -p "Enter new directory name: " name

current_dir=$(basename "$PWD")

mv "$current_dir" "$name"

[ Read 7 lines ]
```



```
sarthak@sarthak-virtual-machine: ~
GNU nano 6.2 16_rename_album.sh
#!/bin/bash

ls
read -p "Enter the new prefix: " new_prefix

for file in *.jpg;
do
    mv "$file" "${new_prefix}_${file#*_}"
done

echo "All .jpg files have been renamed with the new prefix."
ls

[ Read 12 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location
^X Exit      ^R Read File  ^_ Replace    ^U Paste      ^J Justify    ^_/ Go To Line
```

```
sarthak@sarthak-virtual-machine: ~
sarthak@sarthak-virtual-machine: ~
sarthak@sarthak-virtual-machine: ~
sarthak@sarthak-virtual-machine: ~
sarthak@sarthak-virtual-machine: ~
sarthak@sarthak-virtual-machine: ~$ nano 16_rename_album.sh
sarthak@sarthak-virtual-machine: ~$ chmod +x 16_rename_album.sh
sarthak@sarthak-virtual-machine: ~$ ./16_rename_album.sh
07_delete.sh      17_printlines.sh  Desktop          my1.sh           snap
08_operators.sh   18_longest_username.sh  dir1            myfile.tar       table.sh
09_fibonacci.sh   19_delete_display_swp.sh Documents        myfile.txt       Templates
10_string_length.sh 20_random_paswd.sh  Downloads       number.sh        test.txt
11_chess_board.sh  21_say_hello.sh     evenodd.sh      pattern.sh       until.sh
12_sorting.sh      case.sh             ifelif.sh       Pictures         Videos
13_system_info.sh  chmod              if.sh           posneg.sh        vita1.sh
14_lowerupper.sh   circle.sh           leapyear.sh     Public           while.sh
15_rename_curdir.sh commandline.sh      Music           reader.sh        zip.tar
16_rename_album.sh demo.txt            my1next.sh      sam_img1.jpg
Enter the new prefix: dell
All .jpg files have been renamed with the new prefix.
07_delete.sh      16_rename_album.sh  commandline.sh  if.sh           Pictures        Videos
08_operators.sh   17_printlines.sh   dell_img1.jpg   leapyear.sh     posneg.sh      vita1.sh
09_fibonacci.sh   18_longest_username.sh  demo.txt       Music           Public         while.sh
10_string_length.sh 19_delete_display_swp.sh Desktop        my1next.sh     reader.sh      zip.tar
11_chess_board.sh  20_random_paswd.sh  dir1           my1.sh         snap
12_sorting.sh      21_say_hello.sh     Documents      myfile.tar     table.sh
13_system_info.sh  case.sh             Downloads     myfile.txt     Templates
14_lowerupper.sh   chmod              evenodd.sh     number.sh      test.txt
15_rename_curdir.sh circle.sh         ifelif.sh      pattern.sh     until.sh
sarthak@sarthak-virtual-machine: ~$
```

```
sarthak@sarthak-virtual-machine: ~  
GNU nano 6.2 17_printlines.sh  
#!/bin/bash  
  
if [[ $# -ne 3 ]]; then  
    echo "Usage: $0 <filename> <start line number> <number of lines to print>"  
    exit 1  
fi  
  
file="$1"  
start_line="$2"  
n_line="$3"  
  
tail -n +$start_line "$file" | head -n $n_line  
  
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location  
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line
```

```
sarthak@sarthak-virtual-machine: ~  
15_rename_cudir.sh      dell_img1.jpg  myfile.tar     Videos  
16_rename_album.sh      demo.txt       myfile.txt     vita1.sh  
17_printlines.sh        Desktop        number.sh      while.sh  
18_longest_username.sh  dir1           pattern.sh     zip.tar  
19_delete_display_swp.sh Documents       Pictures  
20_random_paswd.sh      Downloads      posneg.sh  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$ nano 17_printlines.sh  
sarthak@sarthak-virtual-machine:~$ chmod +x 17_printlines.sh  
sarthak@sarthak-virtual-machine:~$ ./17_printlines.sh  
Usage: ./17_printlines.sh <filename> <start line number> <number of lines to print>  
sarthak@sarthak-virtual-machine:~$ ./17_printlines.sh 2 4  
Usage: ./17_printlines.sh <filename> <start line number> <number of lines to print>  
sarthak@sarthak-virtual-machine:~$ ./17_printlines.sh 2  
Usage: ./17_printlines.sh <filename> <start line number> <number of lines to print>  
sarthak@sarthak-virtual-machine:~$ nano 17_printlines.sh  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$ ./17_printlines.sh myfile.txt 2 4  
I am from belgaum.  
I studied B-tech in ECE.  
sarthak@sarthak-virtual-machine:~$
```

```
sarthak@sarthak-virtual-machine: ~
GNU nano 6.2 18_longest_username.sh
#!/bin/bash

username=( $(cut -d: -f1 /etc/passwd) )
shortest=${usernames[0]}
longest=${username[0]}

for u in "${usernames[@]}"
do
if [ ${#u} -lt ${#shortest} ]
then
shortest=$u
fi
if [ ${#u} -gt ${#longest} ]
then
longest=$u
fi
done
echo "Shortest user name: $shortest"
echo "Longest user name: $longest"

[ Read 20 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location
^X Exit      ^R Read File  ^\ Replace    ^U Paste       ^J Justify    ^_ Go To Line
```

```
sarthak@sarthak-virtual-machine: ~$
sarthak@sarthak-virtual-machine: ~$
sarthak@sarthak-virtual-machine: ~$
sarthak@sarthak-virtual-machine: ~$ nano 18_longest_username.sh
sarthak@sarthak-virtual-machine: ~$ chmod +x 18_longest_username.sh
sarthak@sarthak-virtual-machine: ~$ ./18_longest_username.sh
Shortest user name:
Longest user name: root
sarthak@sarthak-virtual-machine: ~$
```



```
sarthak@sarthak-virtual-machine: ~
GNU nano 6.2 19_delete_display_swp.sh
#!/bin/bash
find . -name "*.swp" -delete
sarthak@sarthak-virtual-machine:~$
```

```
sarthak@sarthak-virtual-machine: ~
Longest user name: root
sarthak@sarthak-virtual-machine:~$
sarthak@sarthak-virtual-machine:~$
sarthak@sarthak-virtual-machine:~$ nano 19_delete_display_swp.sh
sarthak@sarthak-virtual-machine:~$ chmod +x 19_delete_display_swp.sh
sarthak@sarthak-virtual-machine:~$ ./19_delete_display_swp.sh
sarthak@sarthak-virtual-machine:~$ touch dir.swp
sarthak@sarthak-virtual-machine:~$ ls
07_delete.sh      16_rename_album.sh      commandline.sh  ifelif.sh      pattern.sh      until.sh
08_operators.sh   17_printlines.sh         dell_img1.jpg   if.sh           Pictures        Videos
09_fibonacci.sh   18_longest_username.sh   demo.txt        leapyear.sh     posneg.sh       vita1.sh
10_string_length.sh 19_delete_display_swp.sh Desktop         Music           Public          while.sh
11_chess_board.sh 20_random_paswd.sh       dir1            mylnext.sh      reader.sh       zip.tar
12_sorting.sh     21_say_hello.sh         dir.swp         my1.sh          snap           table.sh
13_system_info.sh case.sh                  Documents       myfile.tar      test.txt
14_lowerupper.sh  chmod                   Downloads      myfile.txt      Templates
15_rename_curdir.sh circle.sh               evenodd.sh     number.sh       test.txt
sarthak@sarthak-virtual-machine:~$ ./19_delete_display_swp.sh
sarthak@sarthak-virtual-machine:~$ ls
07_delete.sh      16_rename_album.sh      commandline.sh  if.sh           Pictures        Videos
08_operators.sh   17_printlines.sh         dell_img1.jpg   leapyear.sh     posneg.sh       vita1.sh
09_fibonacci.sh   18_longest_username.sh   demo.txt        Music           Public          while.sh
10_string_length.sh 19_delete_display_swp.sh Desktop         mylnext.sh      reader.sh       zip.tar
11_chess_board.sh 20_random_paswd.sh       dir1            my1.sh          snap           table.sh
12_sorting.sh     21_say_hello.sh         Documents       myfile.tar      Templates
13_system_info.sh case.sh                  Downloads      myfile.txt      test.txt
14_lowerupper.sh  chmod                   evenodd.sh     number.sh       test.txt
15_rename_curdir.sh circle.sh               ifelif.sh      pattern.sh      until.sh
sarthak@sarthak-virtual-machine:~$
```

```
sarthak@sarthak-virtual-machine: ~  
GNU nano 6.2 20_random_paswd.sh  
#!/bin/bash  
  
c='abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789'  
  
for i in 1  
do  
paswd=$(cat /dev/urandom | tr -dc $c | fold -w 8 | head -n 1)  
echo $paswd  
done  
  
[ Read 10 lines ]  
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location  
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line
```

```
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$ nano 20_random_paswd.sh  
sarthak@sarthak-virtual-machine:~$ chmod +x 20_random_paswd.sh  
sarthak@sarthak-virtual-machine:~$ ./20_random_paswd.sh  
VYiZcxq1  
sarthak@sarthak-virtual-machine:~$
```

```
sarthak@sarthak-virtual-machine: ~  
GNU nano 6.2 21_say_hello.sh  
#!/bin/bash  
  
hour=$(date +%H)  
  
if (( hour>=0 && hour < 12 )); then  
    greeting="Good morning"  
elif ((hour >= 12 && hour < 18 )); then  
    greeting="Good afternoon"  
else greeting="Good evening"  
fi  
  
date=$(date +"%A %d in %B of %Y")  
time=$(date +"(%r)")  
  
echo "$greeting $USER, have a nice day!"  
echo "This is $date $time"  
  
[ Read 16 lines ]  
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location  
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line
```

```
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$  
sarthak@sarthak-virtual-machine:~$ nano 21_say_hello.sh  
sarthak@sarthak-virtual-machine:~$ chmod +x 21_say_hello.sh  
sarthak@sarthak-virtual-machine:~$ ./21_say_hello.sh  
Good afternoon sarthak, have a nice day!  
This is Monday 24 in April of 2023 (03:27:54 PM IST)  
sarthak@sarthak-virtual-machine:~$
```