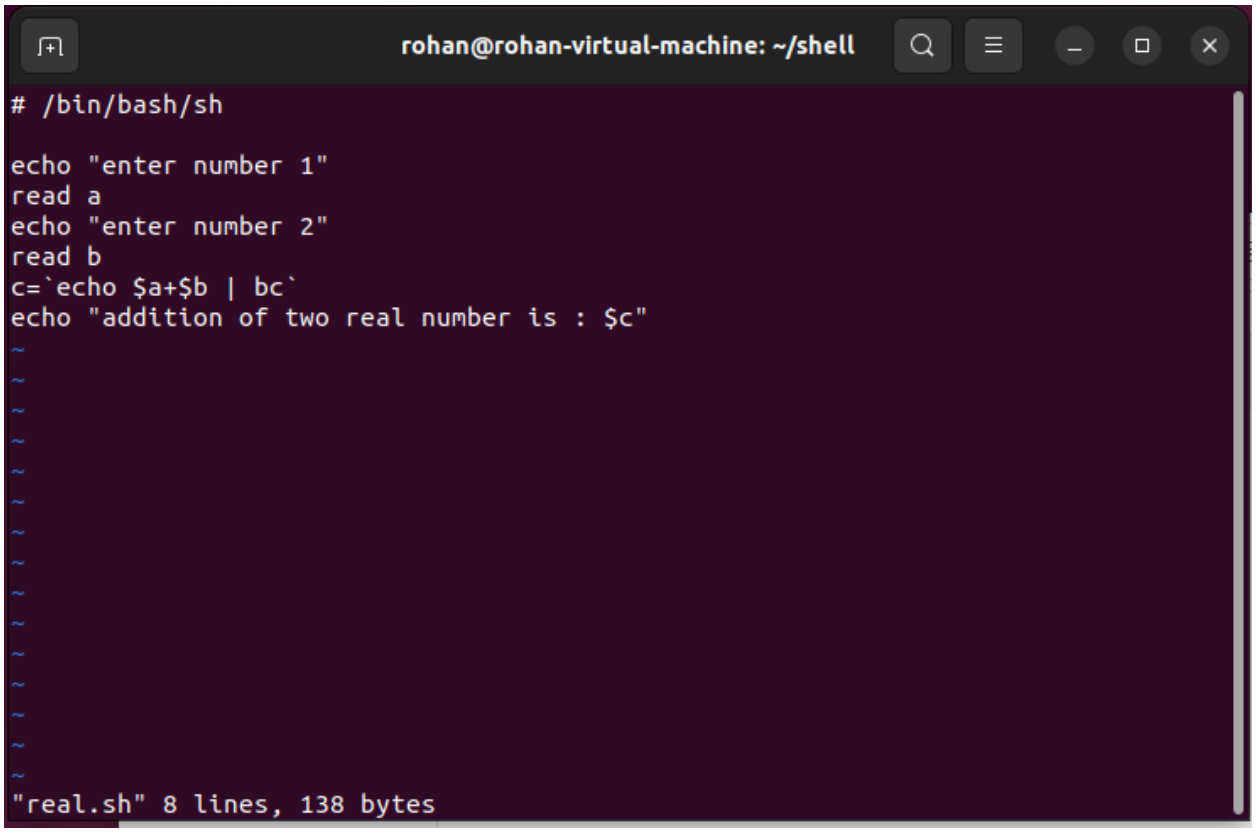
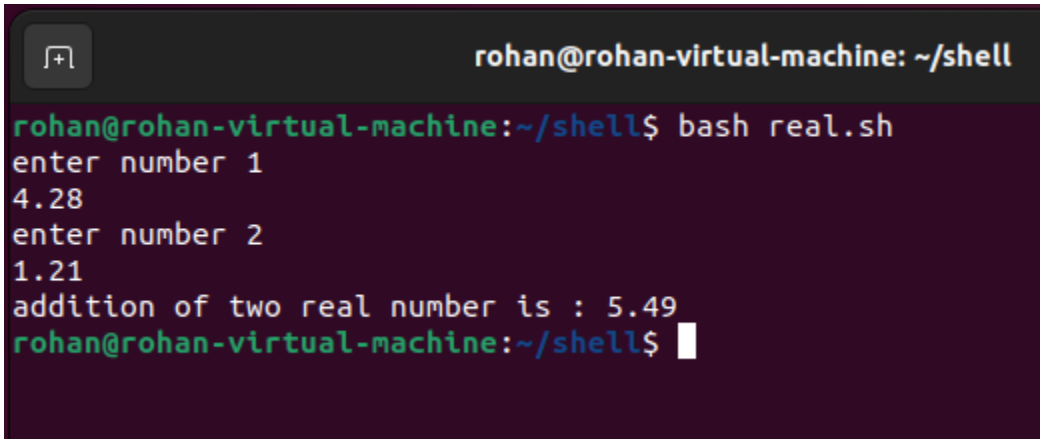
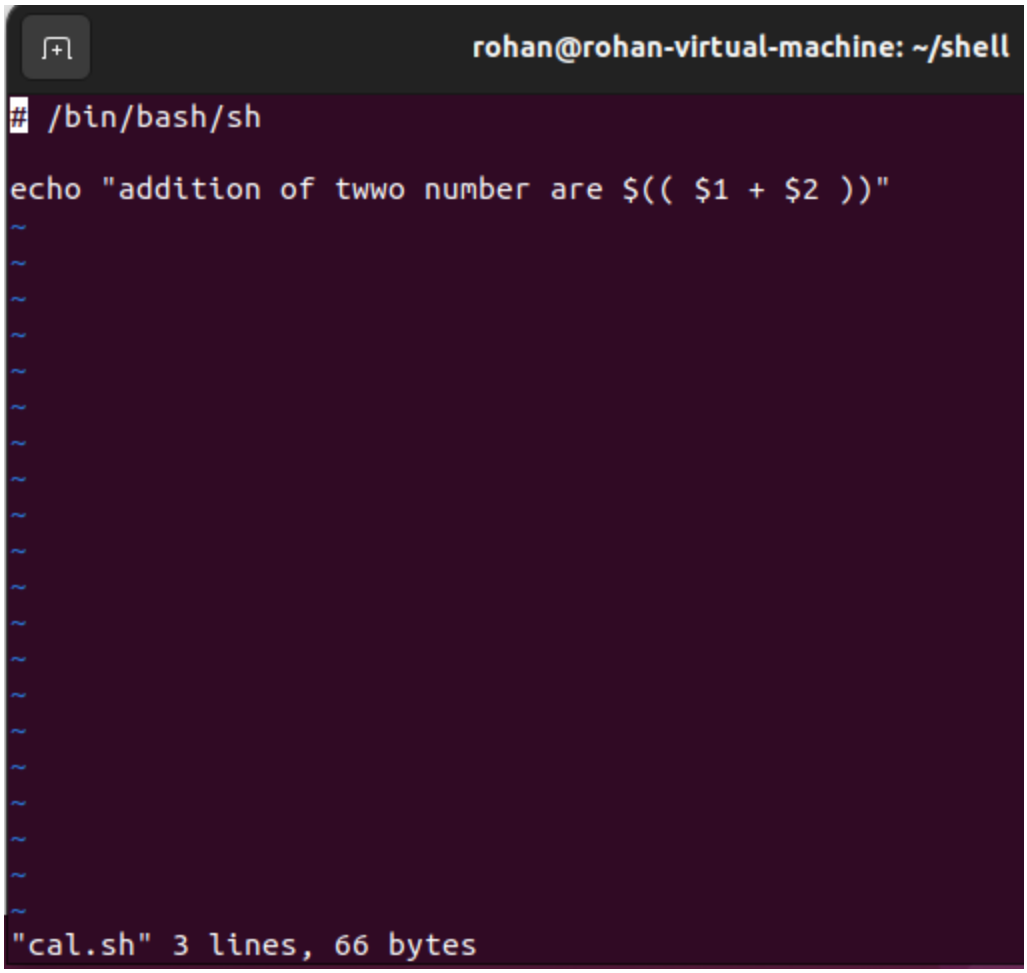
SHELL SCRIPTING PRACTICE QUESTION

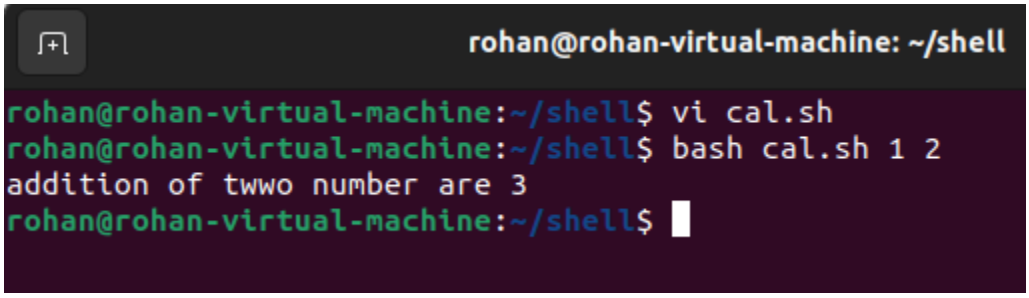
1. Script for addition of two real numbers





2. Script for arithmetic calculator using command line arguments





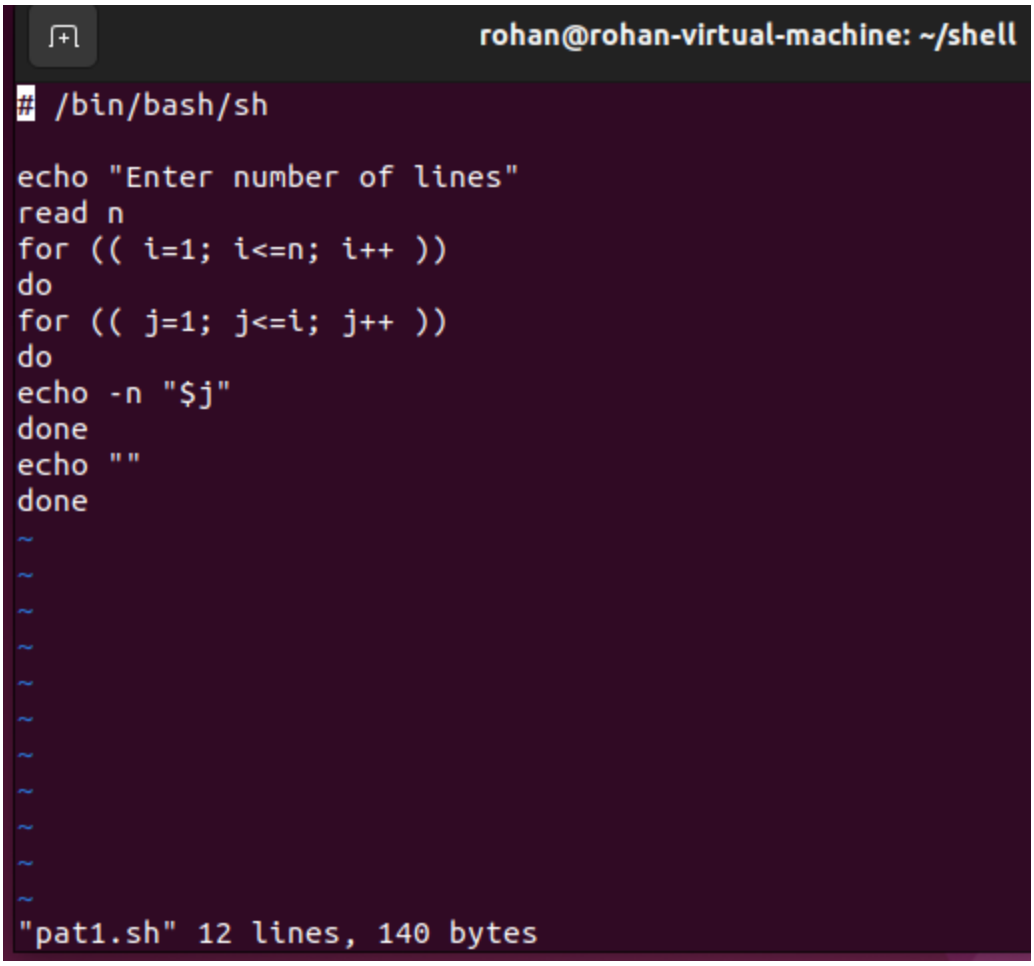
3. To read n and generate a below pattern

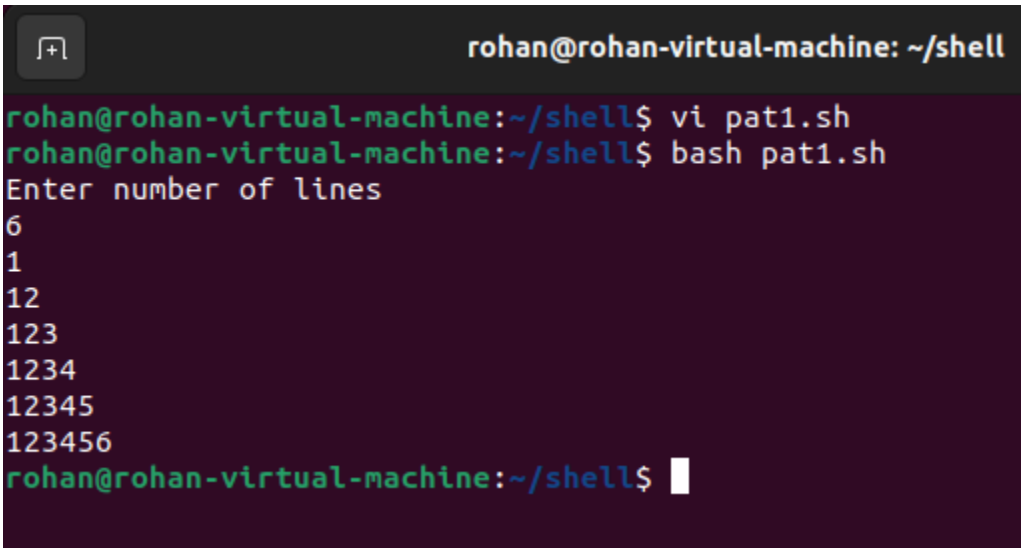
1

1 2

1 2 3

1 2 3 4





4. To read n and generate a below pattern

   1

   2 3

4 5 6

7 8 9 10

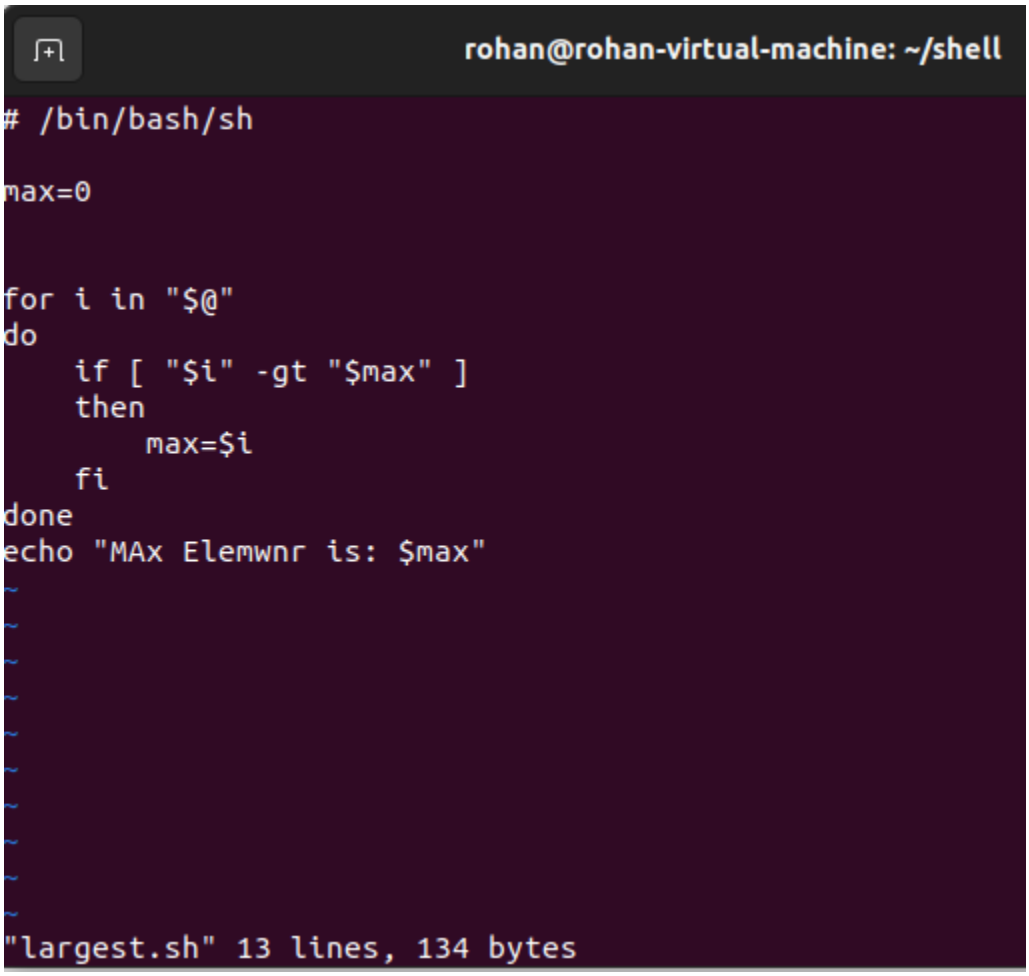
rohan@rohan-virtual-machine: ~/shell

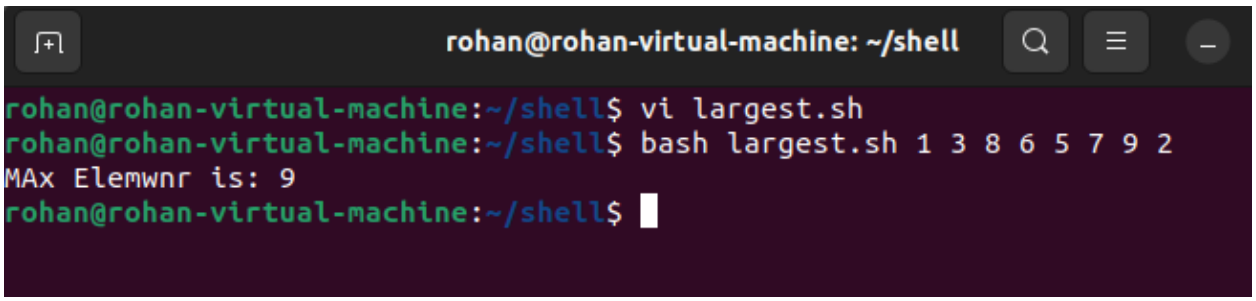
```
# /bin/bash/sh

echo "ENter number of lines you want in patter"
read n
i=1
j=1
while [ $j -le $n ]
do
        for (( k=1; k<=j; k++ ))
        do
                echo -n "$i "
                i=$((i+1))
        done

        echo ""
        j=$((j+1))
done
~
~
~
~
~
~
"pat2.sh" 17 lines, 196 bytes
```

rohan@rohan-virtual-machine: ~/shell

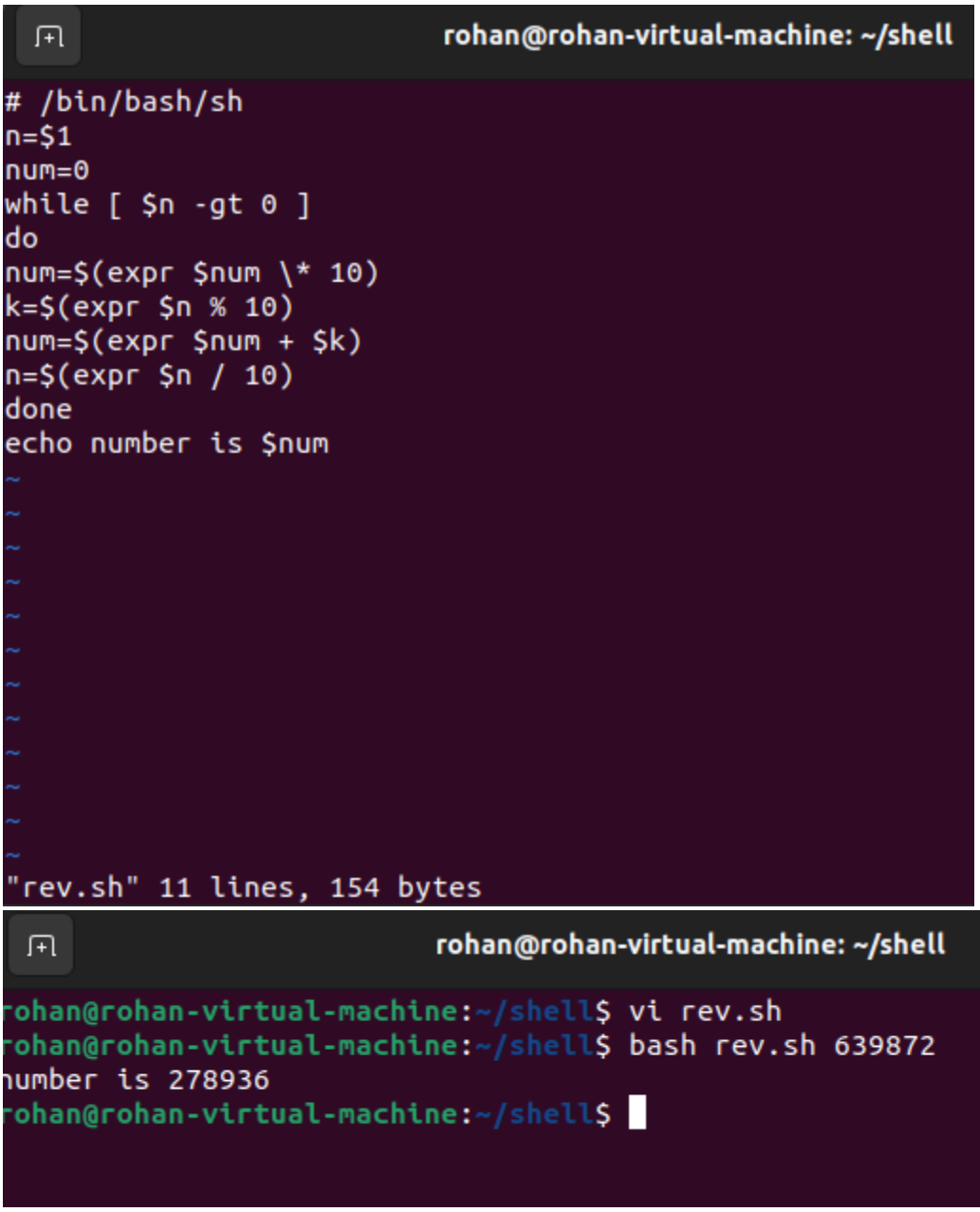
```
rohan@rohan-virtual-machine:~/shell$ vi pat2.sh
rohan@rohan-virtual-machine:~/shell$ bash pat2.sh
ENter number of lines you want in patter
6
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
16 17 18 19 20 21
rohan@rohan-virtual-machine:~/shell$
```

5. Script to compare larger integer values from a 'n' number of arguments using command line arguments

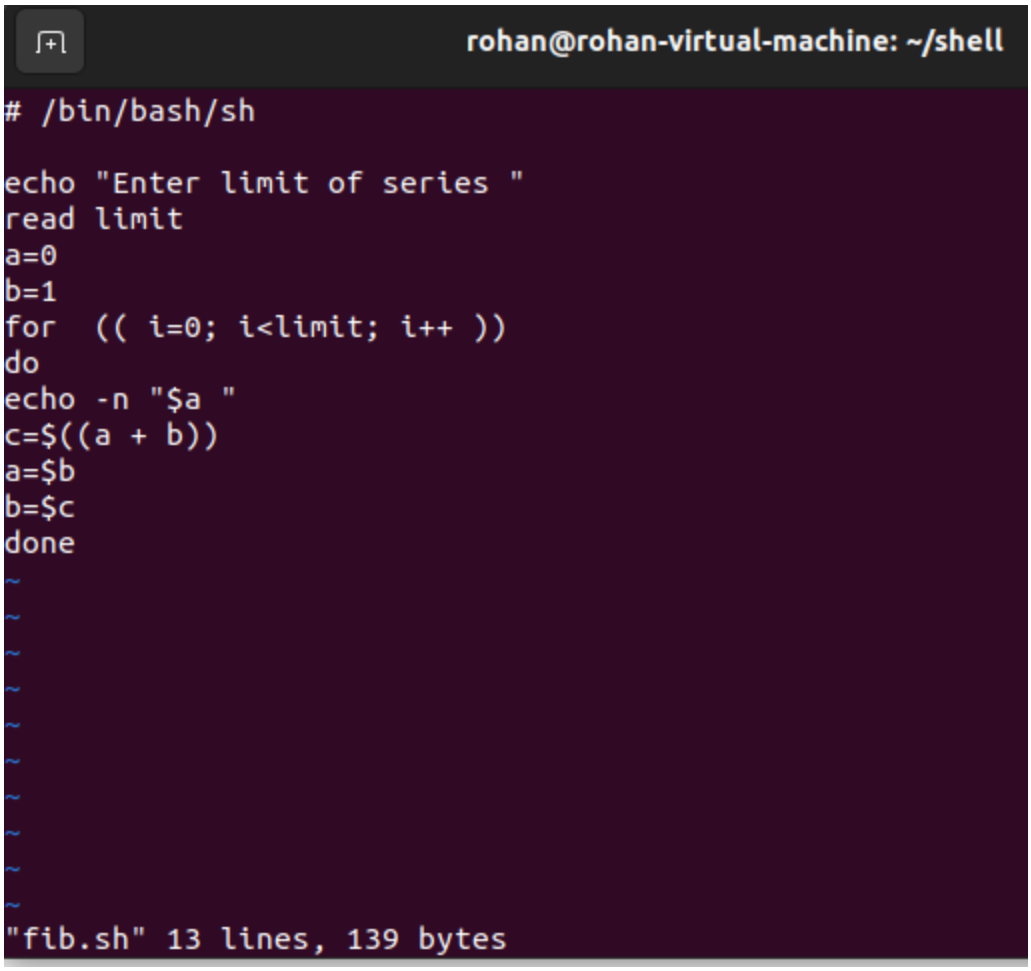


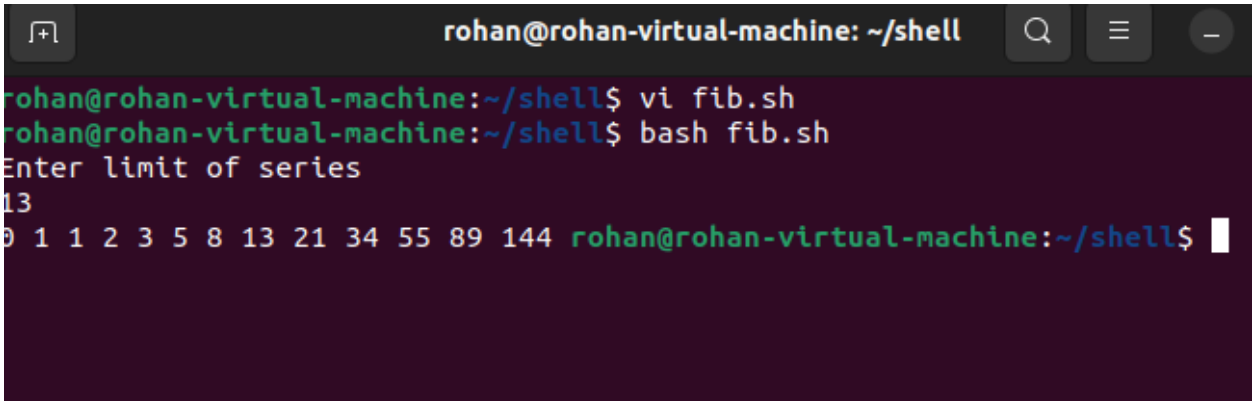


6. Script to print a given number in reverse order

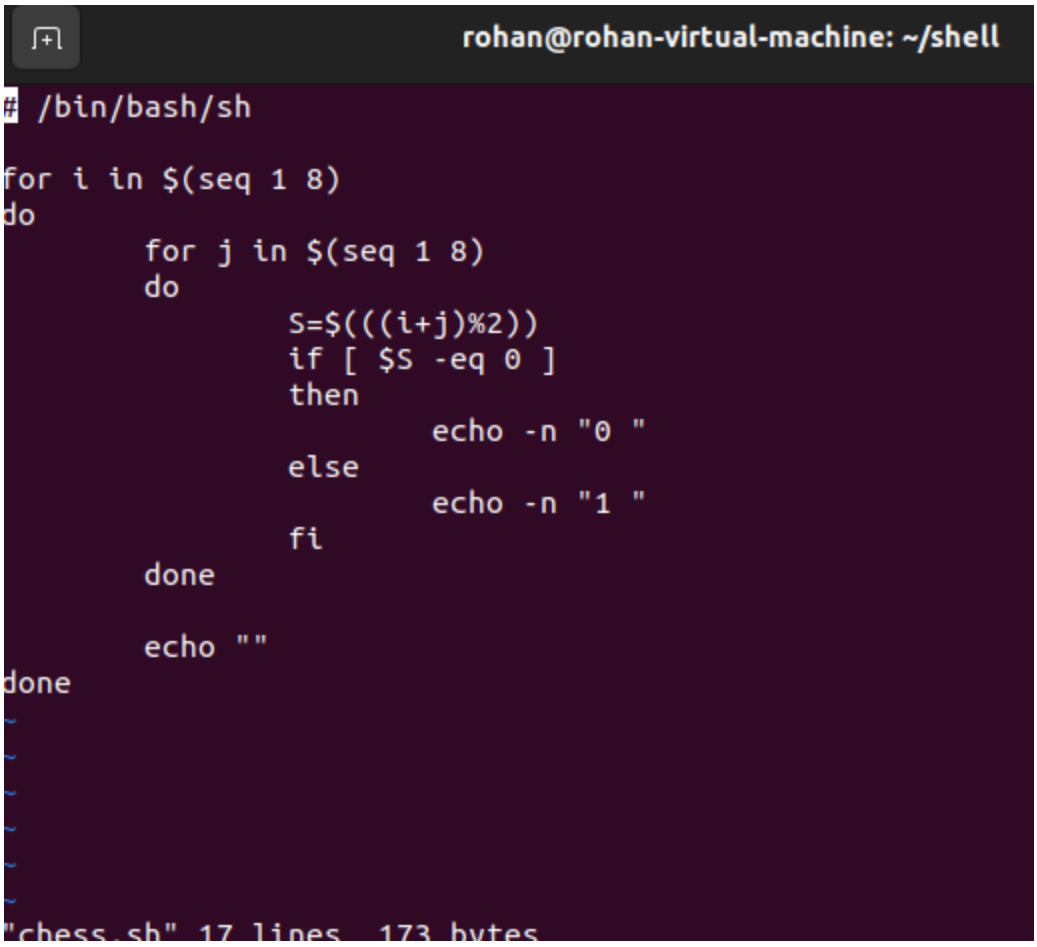


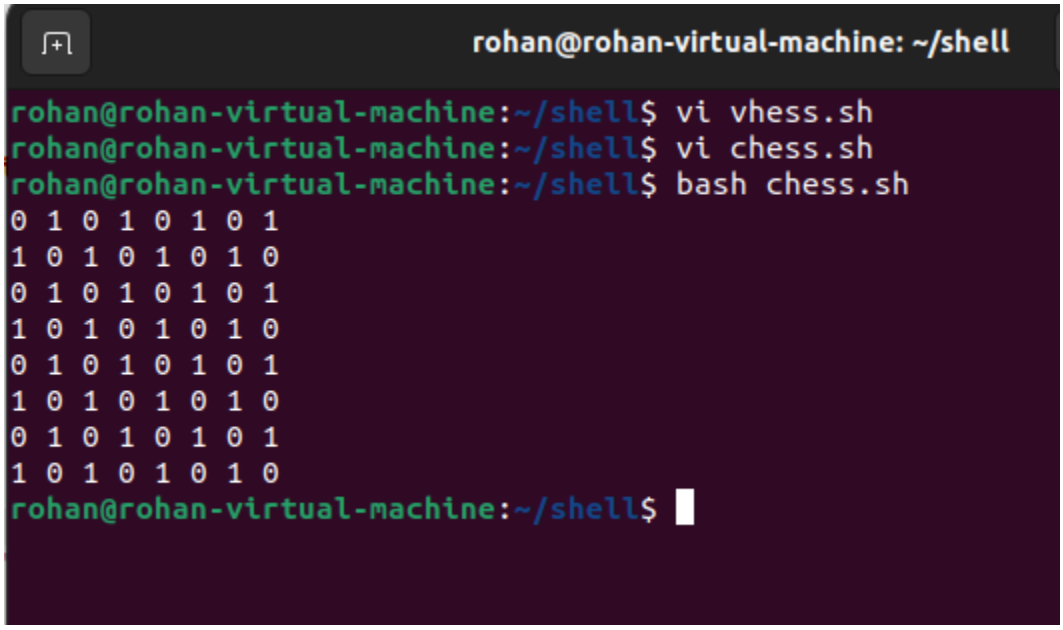
7. script to read 'n' and generate Fibonacci numbers <= n



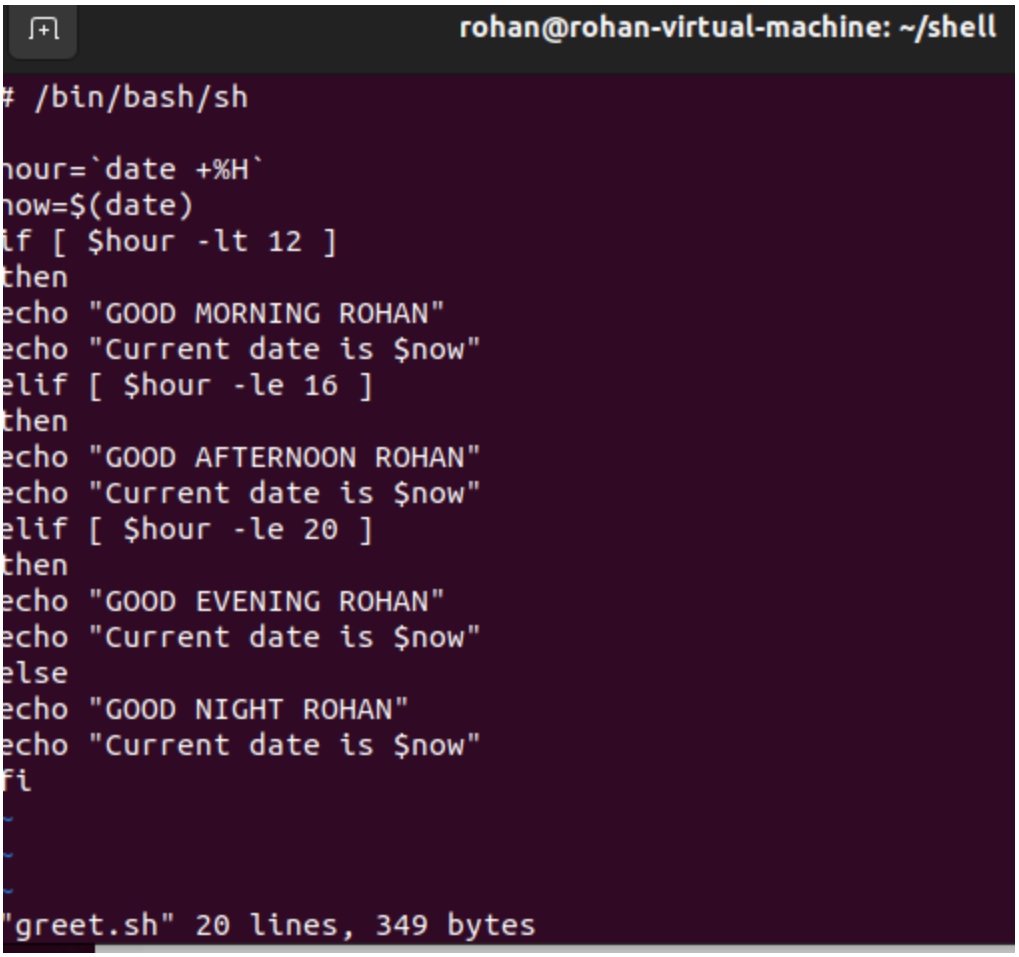


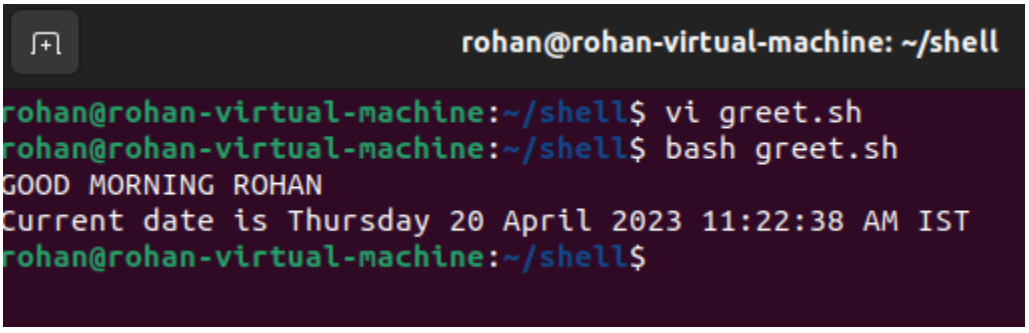
8. script to print chess board , black as 1 , white as 0



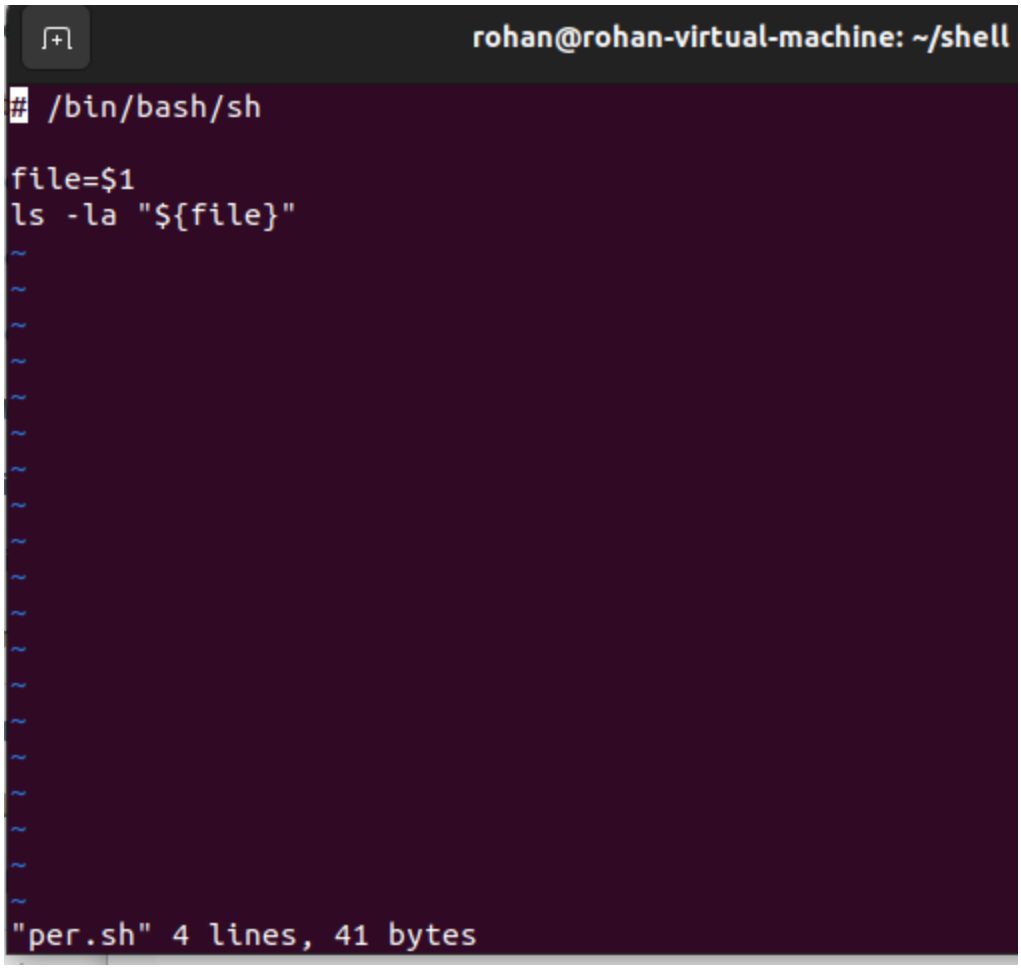


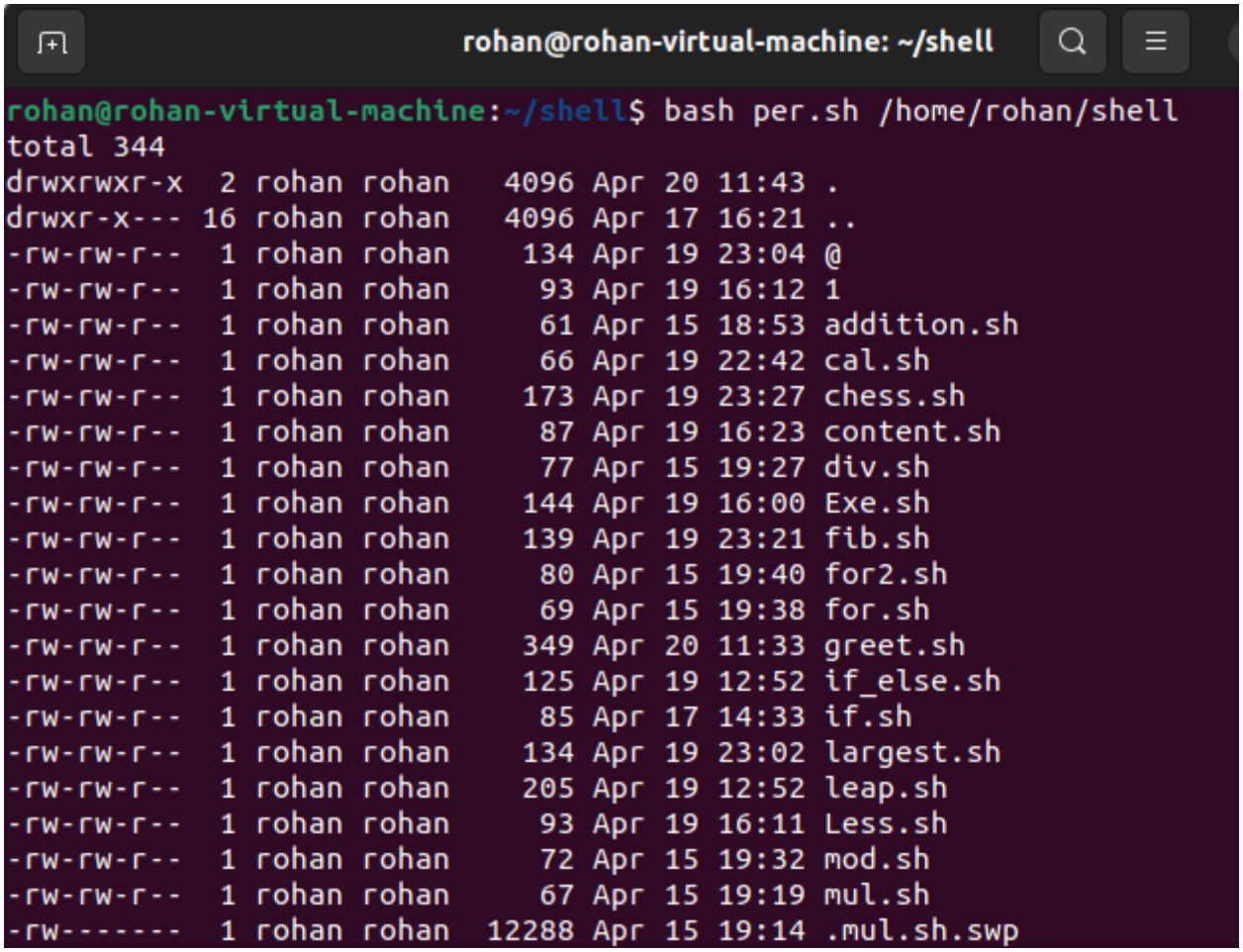
9. Script called say hello, which will print greetings based on time and to provide date information.



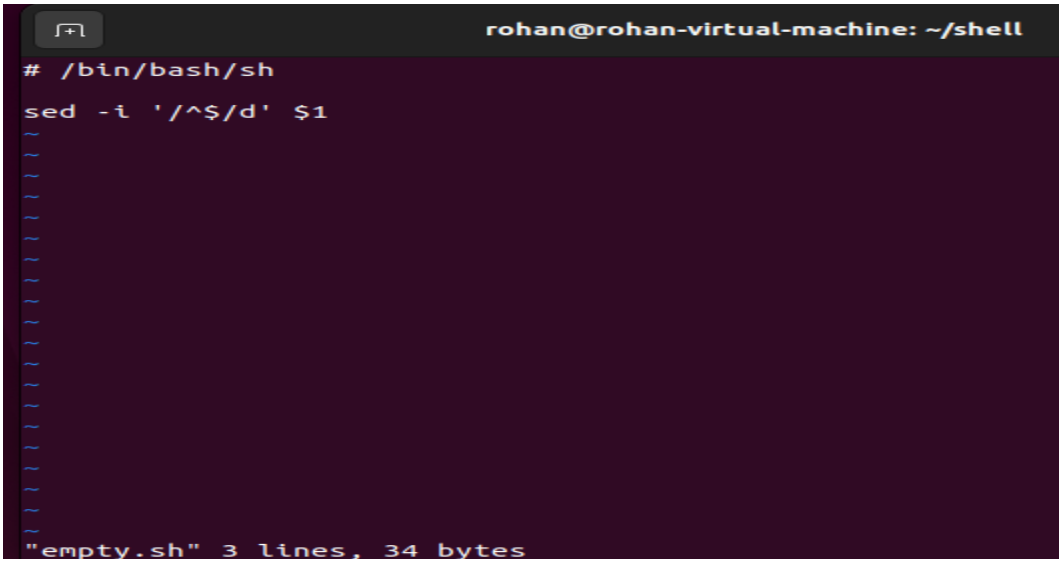


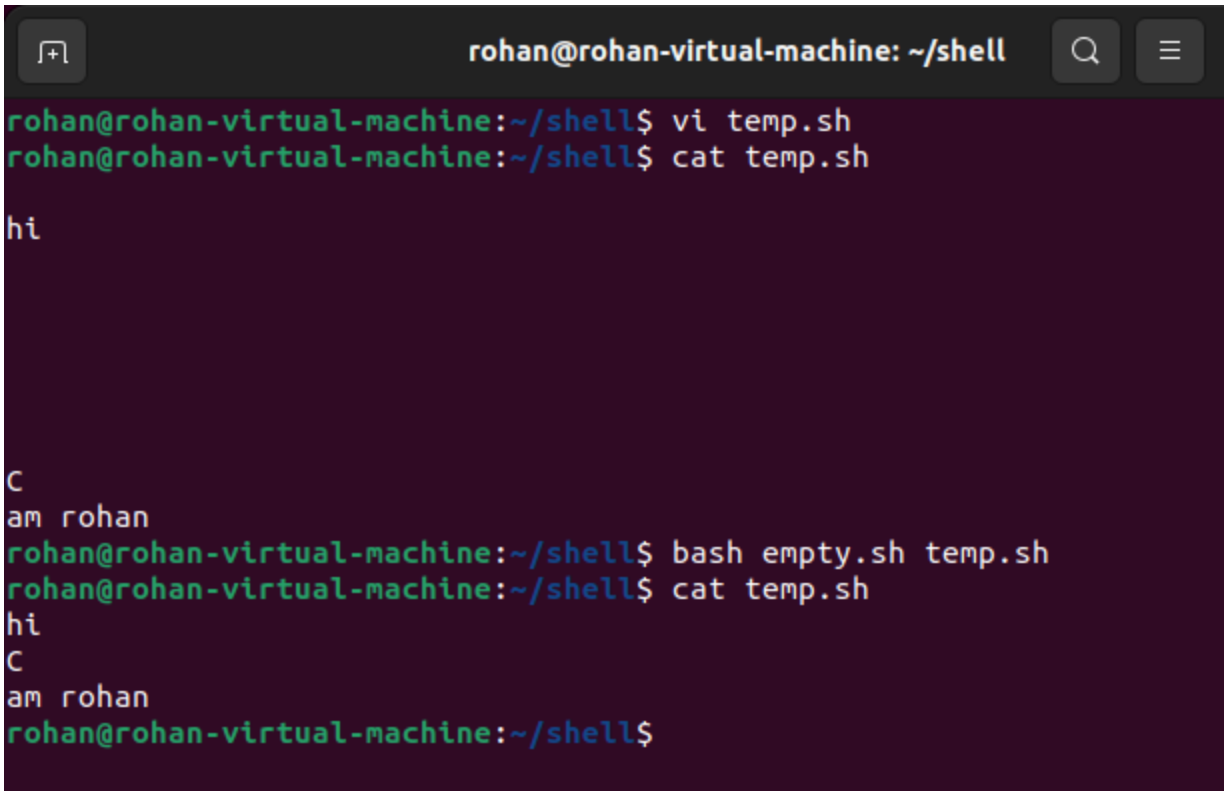
10. Script to locks file permissions for a particular directory for groups and others


rohan@rohan-virtual-machine: ~/shell
# /bin/bash/sh
file=$1
ls -la "${file}"
"per.sh" 4 lines, 41 bytes



11. Script to delete empty lines from a file





12. Script to perform arithmetic operation on digits of a given number depending upon the operator.

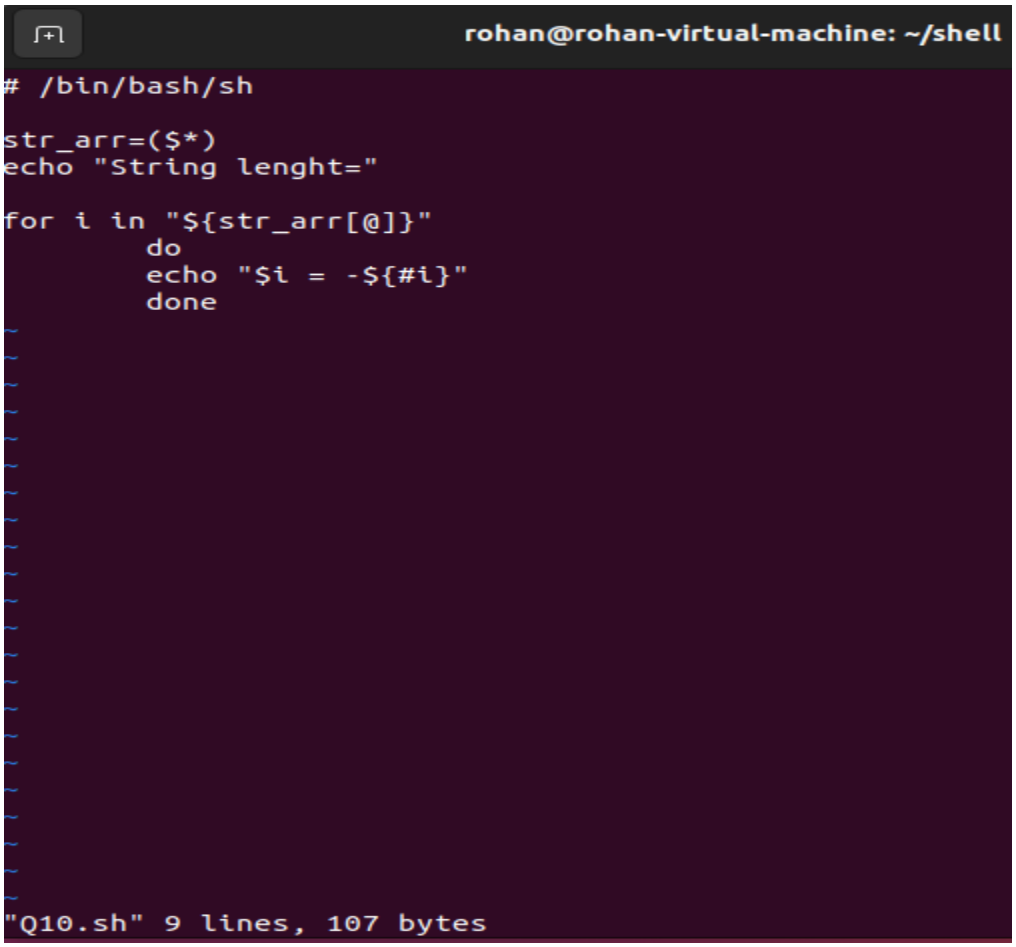
rohan@rohan-virtual-machine: ~/shell

```
#!/bin/bash

if [ $# -eq 0 ];
        then
                echo "Usage: $0 string"
exit 1
fi

number=${1%[-+*/]}
operator=${1:${#number}:1}

if [[ ! $operator =~ [-+*/] ]];
        then
                echo "Error: Invalid operator."
exit 1
fi
result=0
for ((i=0; i<${#number}; i++));
        do
                digit=${number:$t:1}
                case $operator in
                        +) result=$((result + digit)) ;;
                        -) result=$((result - digit)) ;;
                        \*) result=$((result * digit)) ;;
                        /) result=$((result / digit)) ;;
                esac
done
echo "The $operator of the digits in $number is $result"
~
~
~
```

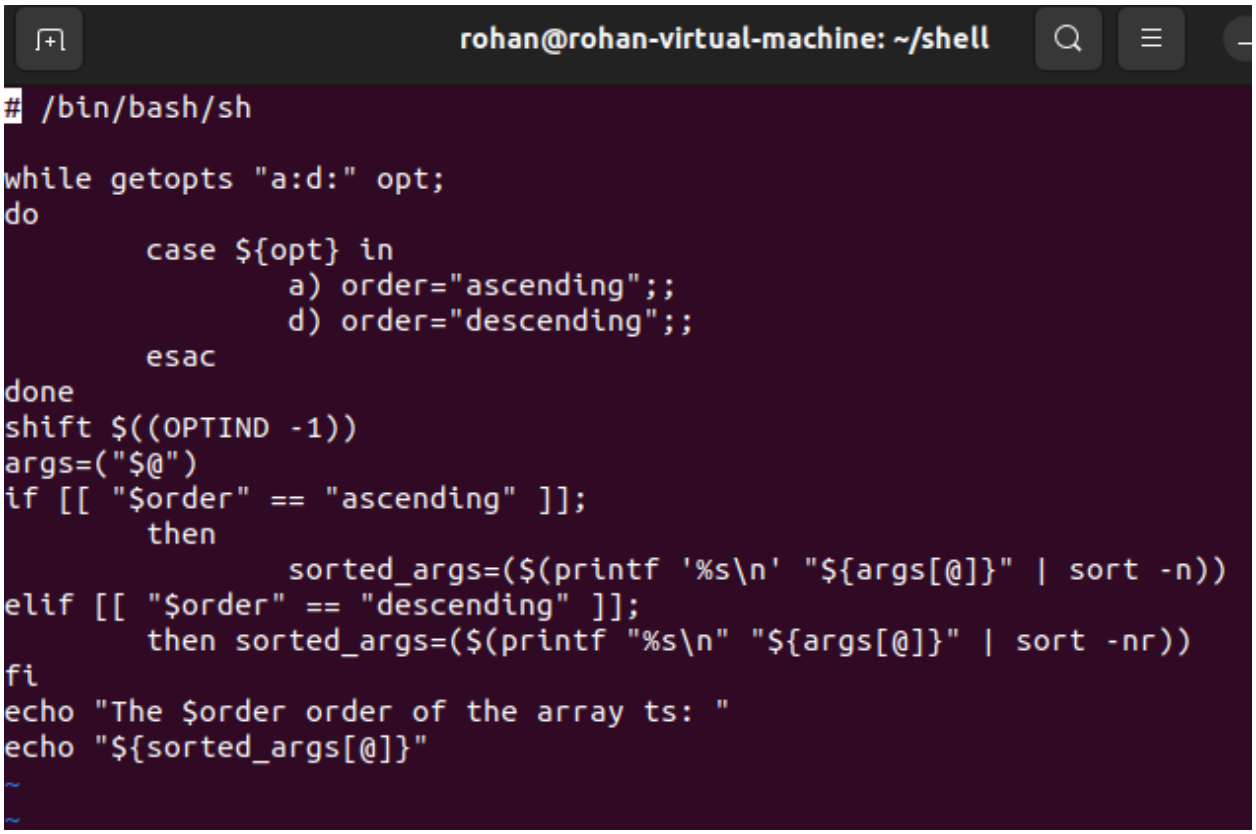
rohan@rohan-virtual-machine: ~/shell

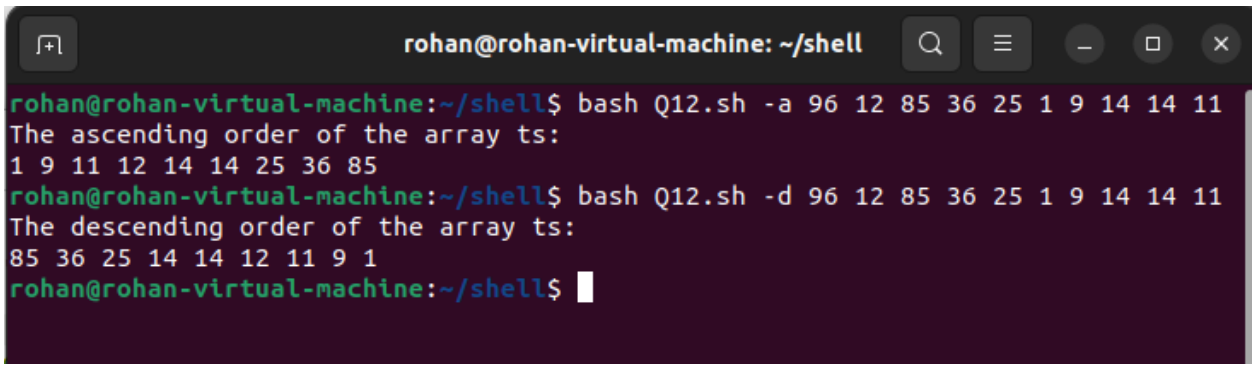
```
rohan@rohan-virtual-machine:~/shell$ vi Q8.sh
rohan@rohan-virtual-machine:~/shell$
rohan@rohan-virtual-machine:~/shell$ bash Q8.sh 12345+
The + of the digits in 12345 is 5
rohan@rohan-virtual-machine:~/shell$ bash Q8.sh 12345
Error: Invalid operator.
rohan@rohan-virtual-machine:~/shell$ bash Q8.sh 12345-
The - of the digits in 12345 is -5
rohan@rohan-virtual-machine:~/shell$
```

Q13. Script to print the length of each and every string using arrays



Q14. Script to sort a given number in ascending or descending order.

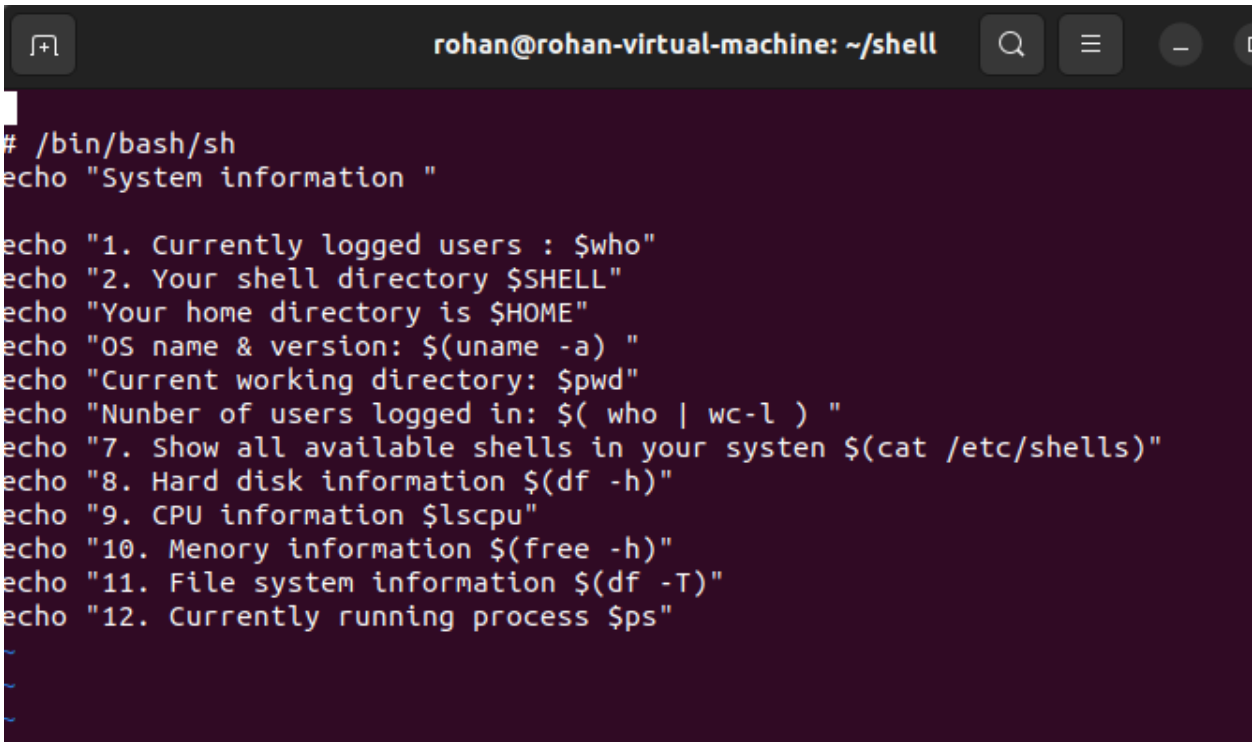


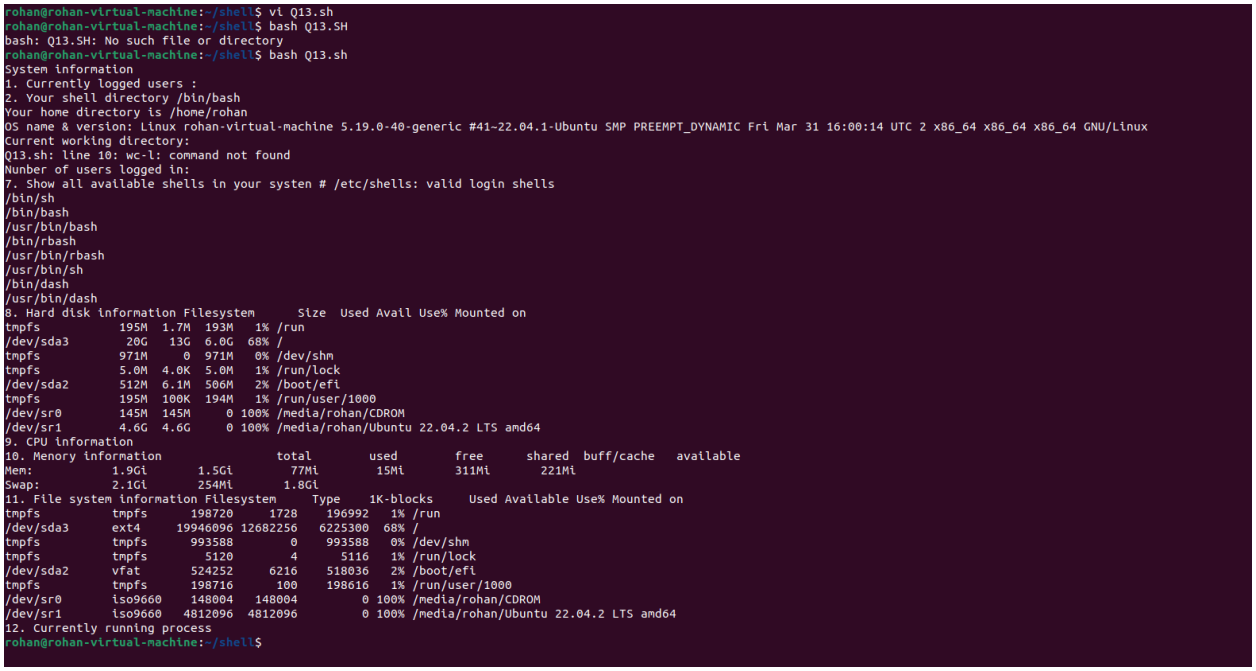


Q15. Script to print the following:

- Currently logged users
- Your shell directory
- Home directory
- OS name & version
- Current working directory
- Number of users logged in

- Show all available shells in your system
- Hard disk information
- CPU information.
- Memory information.
- File system information.
- Currently running process





Q16. Script to rename a file/directory replaced by lower/upper case letters.


rohan@rohan-virtual-machine: ~/shell
#!/bin/bash
echo "Enter the directory path:"
read directory
if [["$file" == "${file^^}"]];
then
for file in "$directory"/*;
do
if [[-f "$file"]];
then
mv "$file" "${file,,}"
elif [[-d "$file"]];
then
mv "$file" "${file,,}"
fi
done
elif [["$file" == "${file,,}"]];
then
for file in "$directory"/*;
do
if [[-f "$file"]];
then
mv "$file" "${file^^}"
elif [[-d "$file"]];
then
mv "$file" "${file^^}"
fi
done
fi
echo "After running the script:"
ls "$directory"

```
rohan@rohan-virtual-machine:~$ cd shell
rohan@rohan-virtual-machine:~/shell$ vi Q14.sj
rohan@rohan-virtual-machine:~/shell$ vi Q14.sh
rohan@rohan-virtual-machine:~/shell$ bash Q14.sh
Enter the directory path:
/home/rohan/shell
mv: '/home/rohan/shell/:' and '/home/rohan/shell/:' are the same file
mv: '/home/rohan/shell/@' and '/home/rohan/shell/@' are the same file
mv: '/home/rohan/shell/1' and '/home/rohan/shell/1' are the same file
mv: '/home/rohan/shell/addition.sh' and '/home/rohan/shell/addition.sh' are the same file
mv: '/home/rohan/shell/arr2.sh' and '/home/rohan/shell/arr2.sh' are the same file
mv: '/home/rohan/shell/arr3.sh' and '/home/rohan/shell/arr3.sh' are the same file
mv: '/home/rohan/shell/arr.sh' and '/home/rohan/shell/arr.sh' are the same file
mv: '/home/rohan/shell/cal.sh' and '/home/rohan/shell/cal.sh' are the same file
mv: '/home/rohan/shell/chess.sh' and '/home/rohan/shell/chess.sh' are the same file
mv: '/home/rohan/shell/content.sh' and '/home/rohan/shell/content.sh' are the same file
mv: '/home/rohan/shell/div.sh' and '/home/rohan/shell/div.sh' are the same file
mv: '/home/rohan/shell/empty.sh' and '/home/rohan/shell/empty.sh' are the same file
mv: '/home/rohan/shell/exe.sh' and '/home/rohan/shell/exe.sh' are the same file
mv: '/home/rohan/shell/fib.sh' and '/home/rohan/shell/fib.sh' are the same file
mv: '/home/rohan/shell/for2.sh' and '/home/rohan/shell/for2.sh' are the same file
mv: '/home/rohan/shell/for.sh' and '/home/rohan/shell/for.sh' are the same file
mv: '/home/rohan/shell/greet.sh' and '/home/rohan/shell/greet.sh' are the same file
mv: '/home/rohan/shell/if_else.sh' and '/home/rohan/shell/if_else.sh' are the same file
mv: '/home/rohan/shell/if.sh' and '/home/rohan/shell/if.sh' are the same file
mv: '/home/rohan/shell/largest.sh' and '/home/rohan/shell/largest.sh' are the same file
mv: '/home/rohan/shell/leap.sh' and '/home/rohan/shell/leap.sh' are the same file
mv: '/home/rohan/shell/less.sh' and '/home/rohan/shell/less.sh' are the same file
mv: '/home/rohan/shell/mod.sh' and '/home/rohan/shell/mod.sh' are the same file
mv: '/home/rohan/shell/mul.sh' and '/home/rohan/shell/mul.sh' are the same file
mv: '/home/rohan/shell/no_file.sh' and '/home/rohan/shell/no_file.sh' are the same file
mv: '/home/rohan/shell/pat1.sh' and '/home/rohan/shell/pat1.sh' are the same file
mv: '/home/rohan/shell/pat2.sh' and '/home/rohan/shell/pat2.sh' are the same file
mv: '/home/rohan/shell/per.sh' and '/home/rohan/shell/per.sh' are the same file
mv: '/home/rohan/shell/prime.sh' and '/home/rohan/shell/prime.sh' are the same file
mv: '/home/rohan/shell/q10.sh' and '/home/rohan/shell/q10.sh' are the same file
mv: '/home/rohan/shell/q12.sh' and '/home/rohan/shell/q12.sh' are the same file
mv: '/home/rohan/shell/q13.sh' and '/home/rohan/shell/q13.sh' are the same file
mv: '/home/rohan/shell/q14.sh' and '/home/rohan/shell/q14.sh' are the same file
mv: '/home/rohan/shell/q15' and '/home/rohan/shell/q15' are the same file
mv: '/home/rohan/shell/q8.sh' and '/home/rohan/shell/q8.sh' are the same file
mv: '/home/rohan/shell/real.sh' and '/home/rohan/shell/real.sh' are the same file
mv: '/home/rohan/shell/rev.sh' and '/home/rohan/shell/rev.sh' are the same file
mv: '/home/rohan/shell/sub.sh' and '/home/rohan/shell/sub.sh' are the same file
mv: '/home/rohan/shell/switch1.sh' and '/home/rohan/shell/switch1.sh' are the same file
mv: '/home/rohan/shell/switch2.sh' and '/home/rohan/shell/switch2.sh' are the same file
mv: '/home/rohan/shell/switch.sh' and '/home/rohan/shell/switch.sh' are the same file
mv: '/home/rohan/shell/temp.sh' and '/home/rohan/shell/temp.sh' are the same file
mv: '/home/rohan/shell/until1.sh' and '/home/rohan/shell/until1.sh' are the same file
```

Q17. Script to rename current working directory with given name

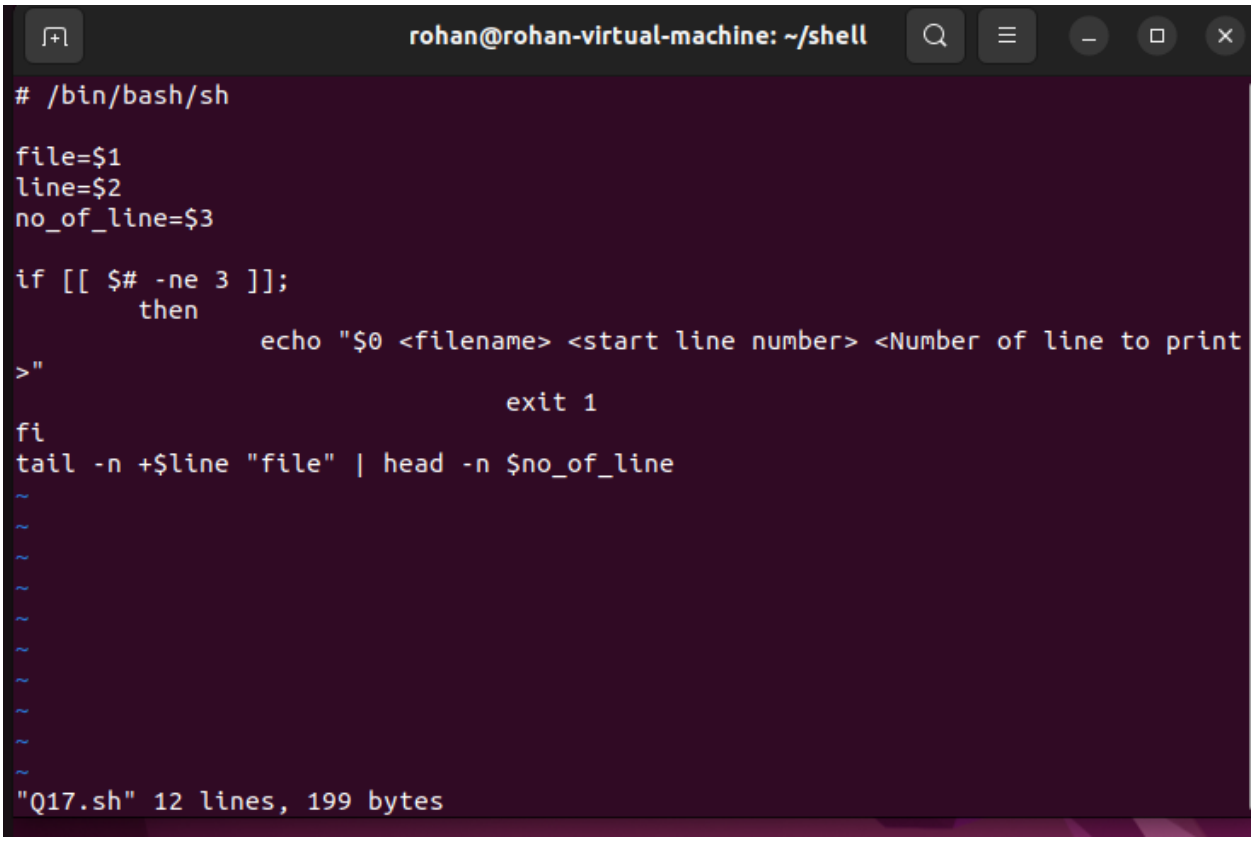
```
rohan@rohan-virtual-machine: ~/shell
#!/bin/bash
current_dir=$(basename "$PWD")
new_name=$1
echo "$current_dir"
mv "$pwd" "$new_name"
~
~
```

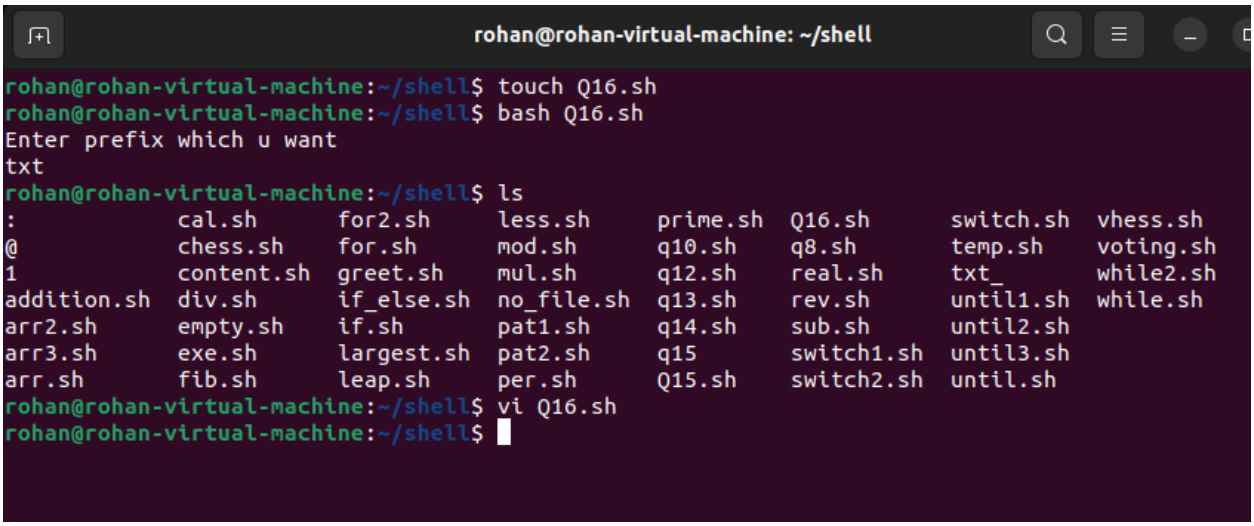
```
rohan@rohan-virtual-machine:~/shell$ bash Q15.sh SHELL
shell
shell SHELL
rohan@rohan-virtual-machine:~/shell$
```

Q18. cript to rename all .jpg files by replacing prefix which is given by user

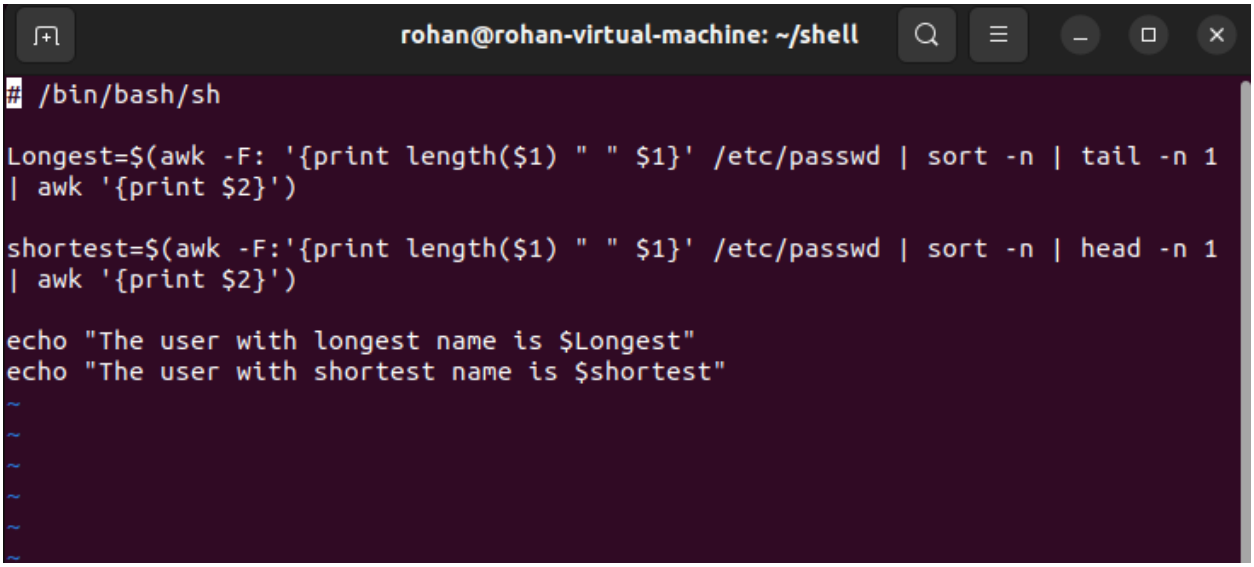
```
rohan@rohan-virtual-machine: ~/shell
# /bin/bash/sh

echo "Enter prefix which u want"
read n


for i in *jpg;
do
        mv "$i" "${n}_${file#*_}"
done
~
~
~
~
~
```

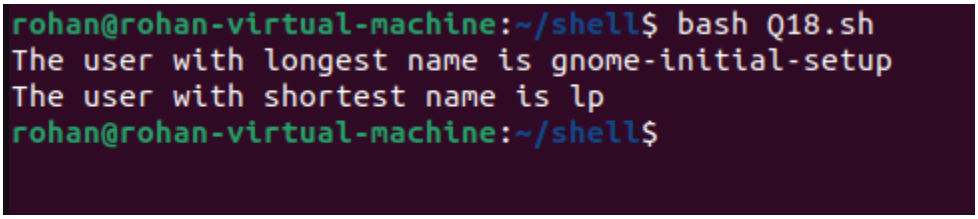
Q19. Script to print contents of file from given line number to next given number of lines.



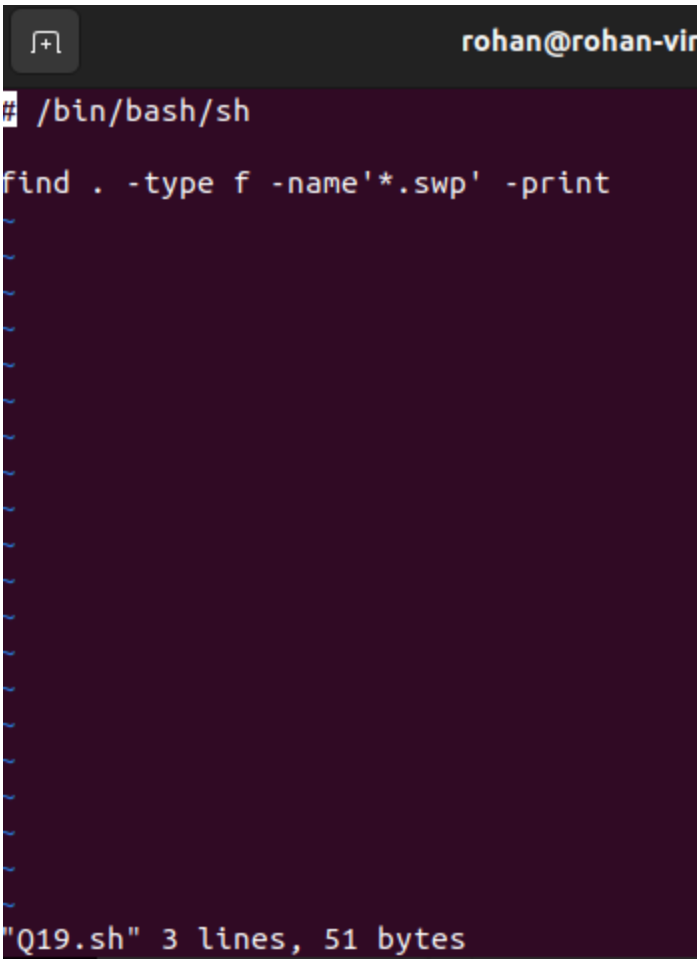


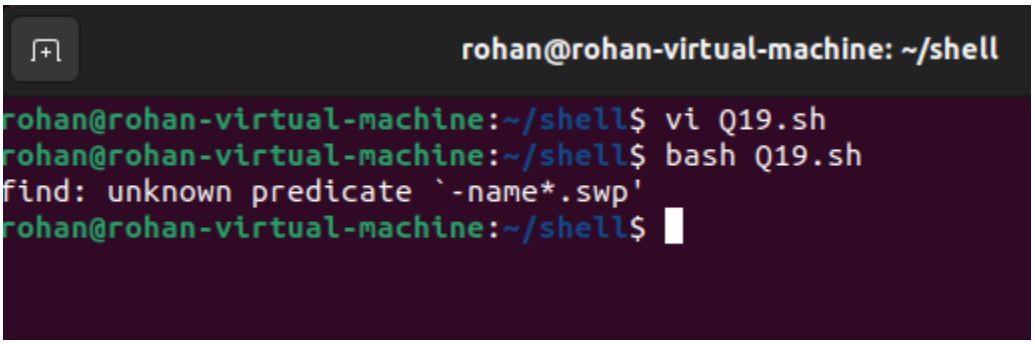
Q20. Script to display the longest and shortest user-names on the system.



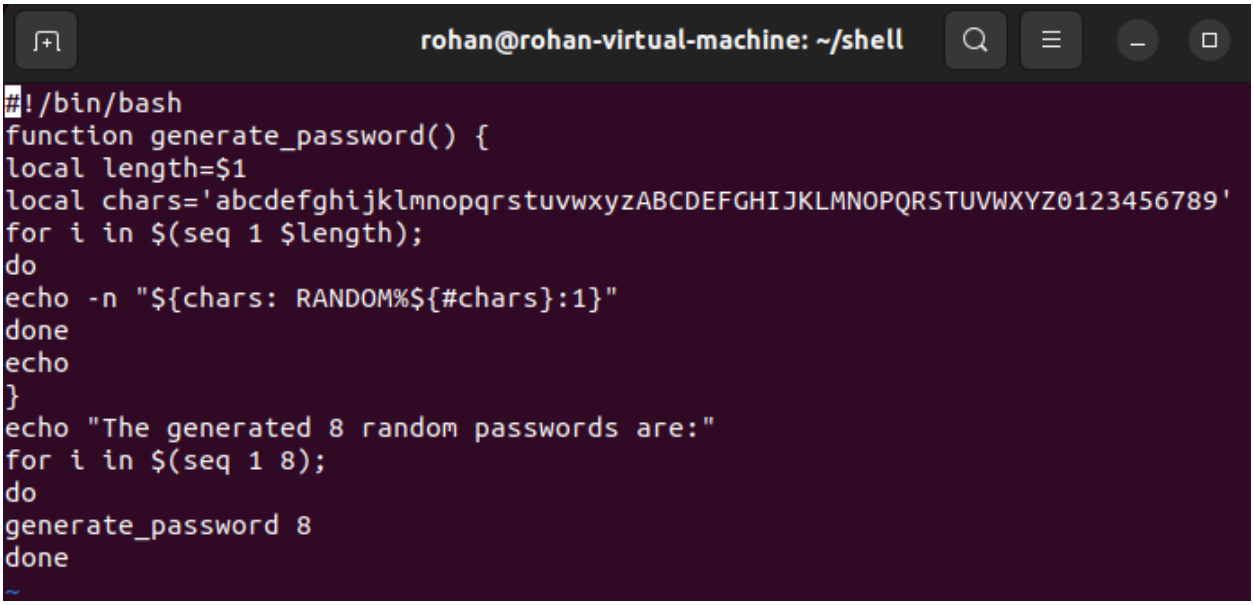


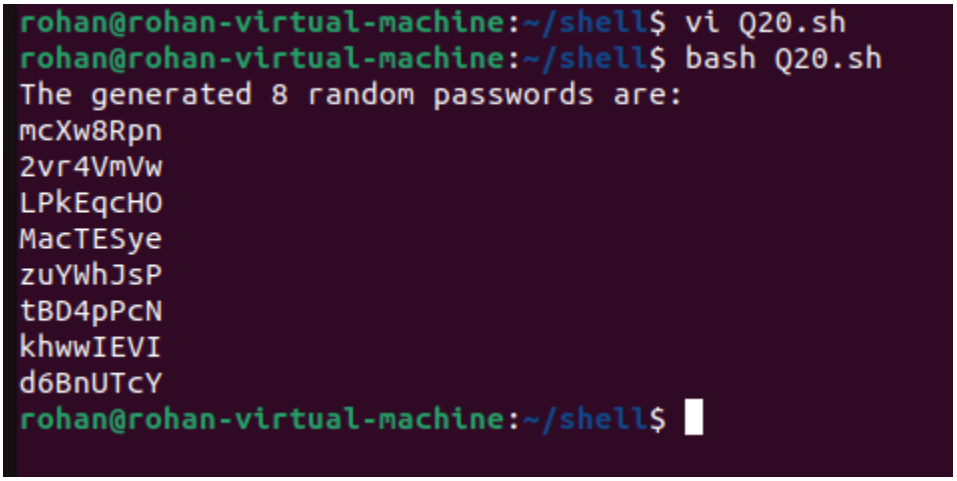
Q21. Script to delete all the .swp files found in your system or directory.



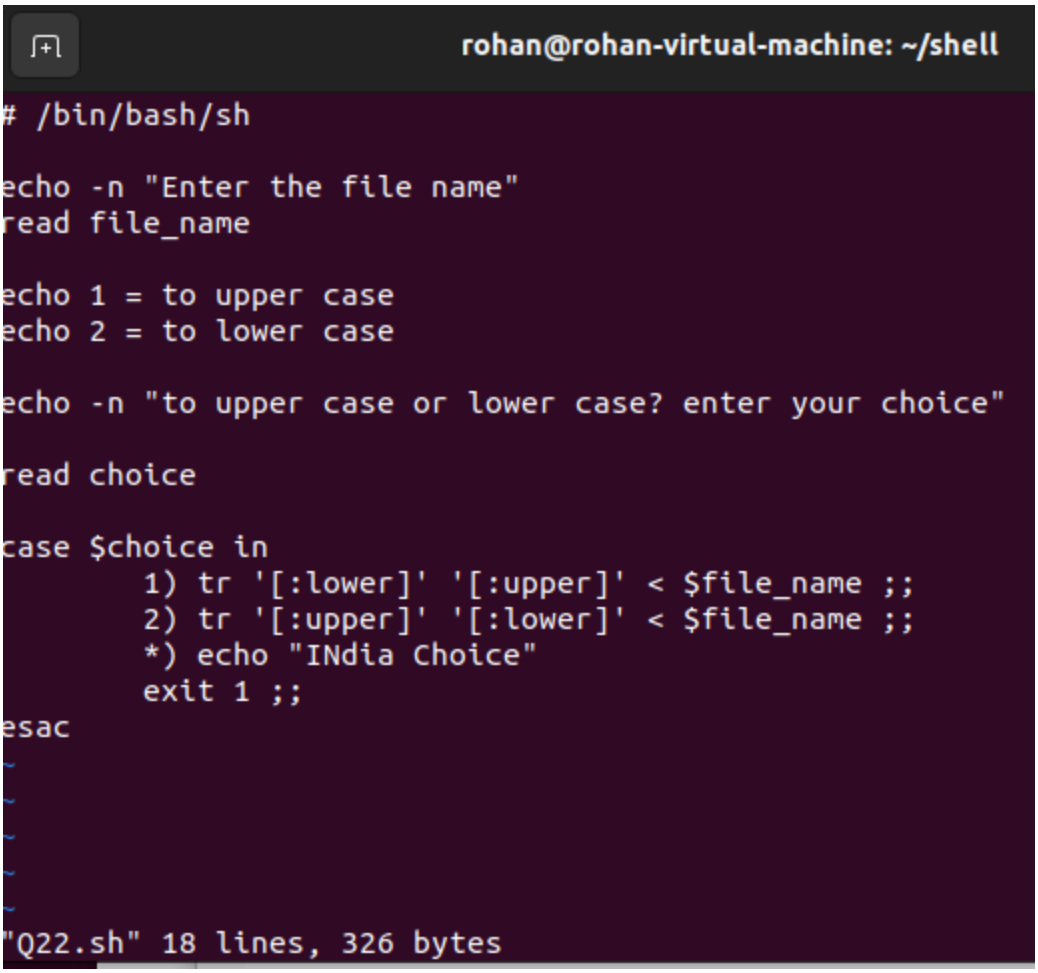


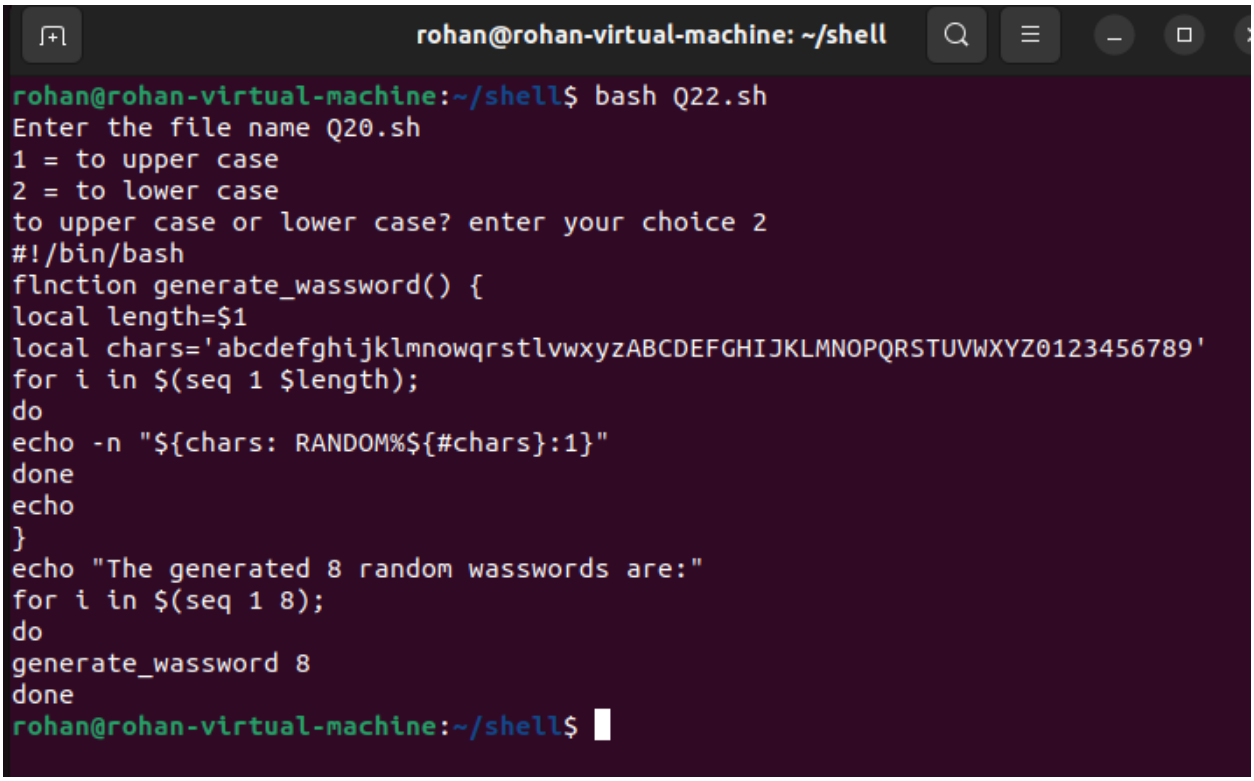
Q22. script for generating random 8-character passwords including alpha numeric characters.



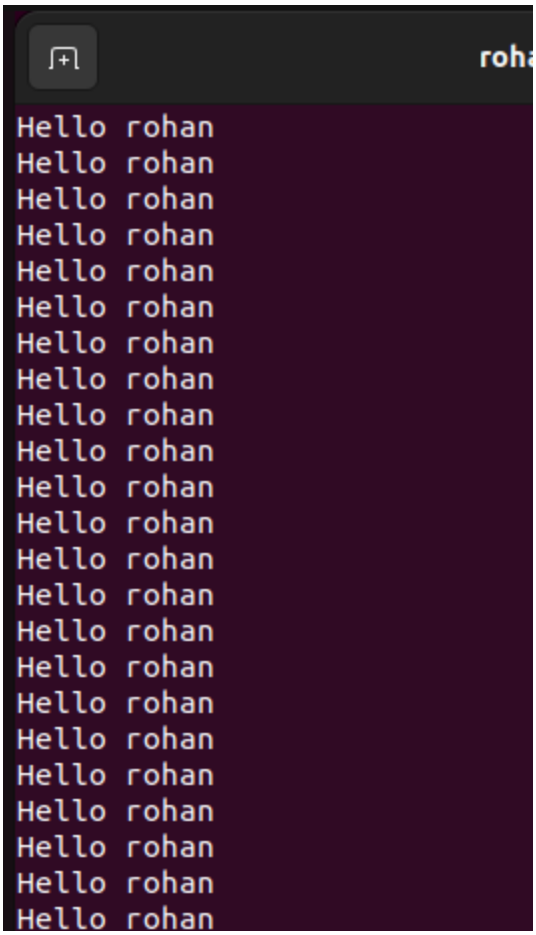


Q23. Script to convert content of file lower to uppercase and upper to lowercase.

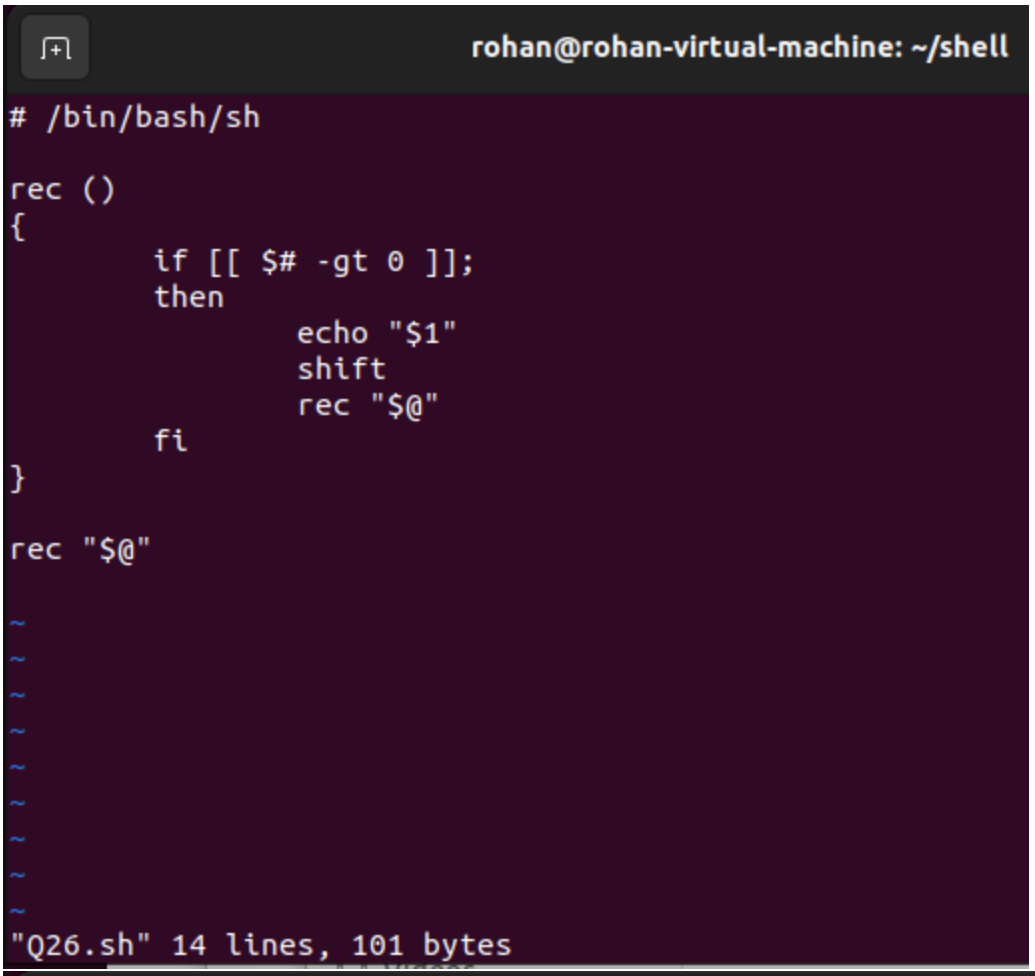

rohan@rohan-virtual-machine: ~/shell
/bin/bash/sh
echo -n "Enter the file name"
read file_name
echo 1 = to upper case
echo 2 = to lower case
echo -n "to upper case or lower case? enter your choice"
read choice
case $choice in
1) tr '[:lower]' '[:upper]' < $file_name ;;
2) tr '[:upper]' '[:lower]' < $file_name ;;
*) echo "INdia Choice"
exit 1 ;;
esac
"Q22.sh" 18 lines, 326 bytes

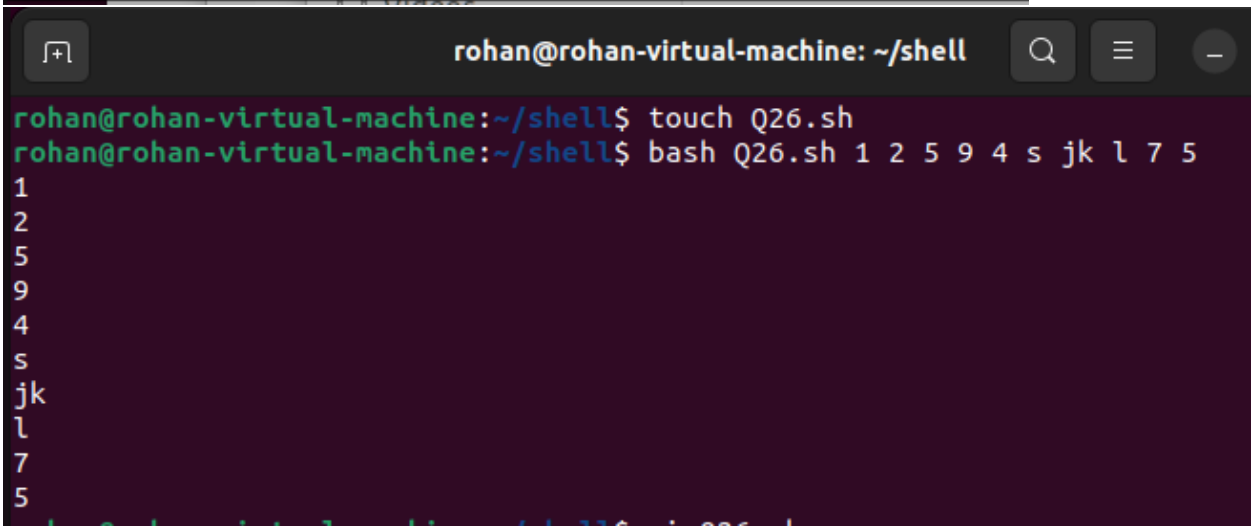


Q24. Script to use pipes or redirection to create an infinite feedback loop.

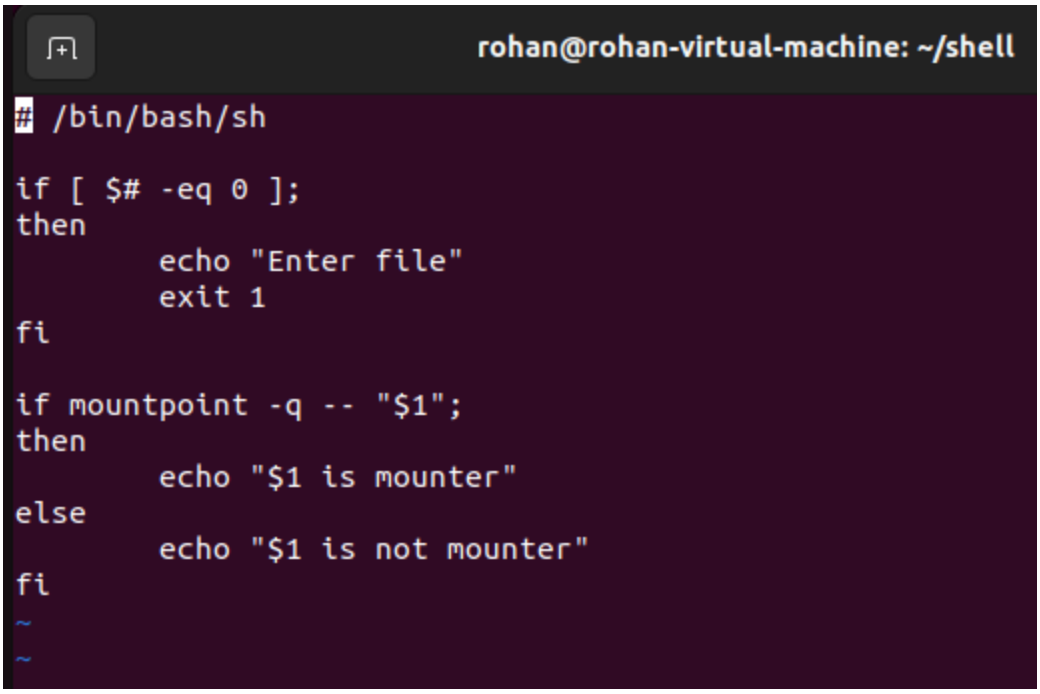


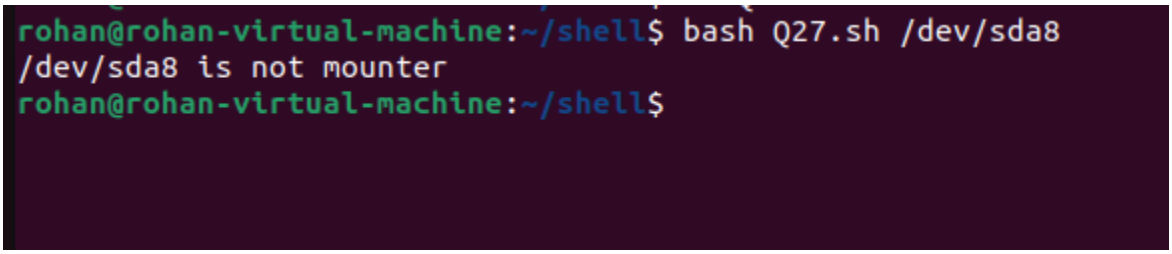
Q26. Script to use a recursive function to print each argument passed to the function.



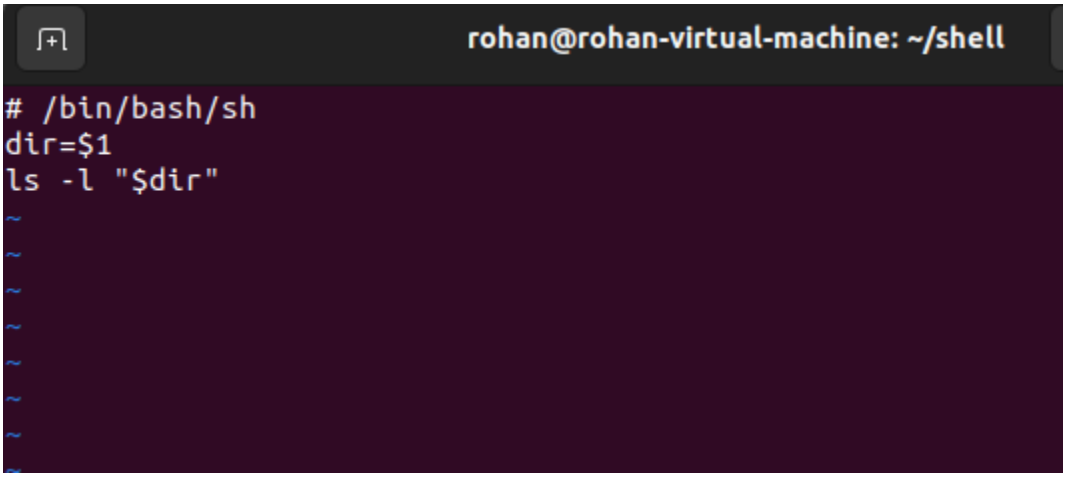


Q27. Script to determine whether a given file system or mount point is mounted.



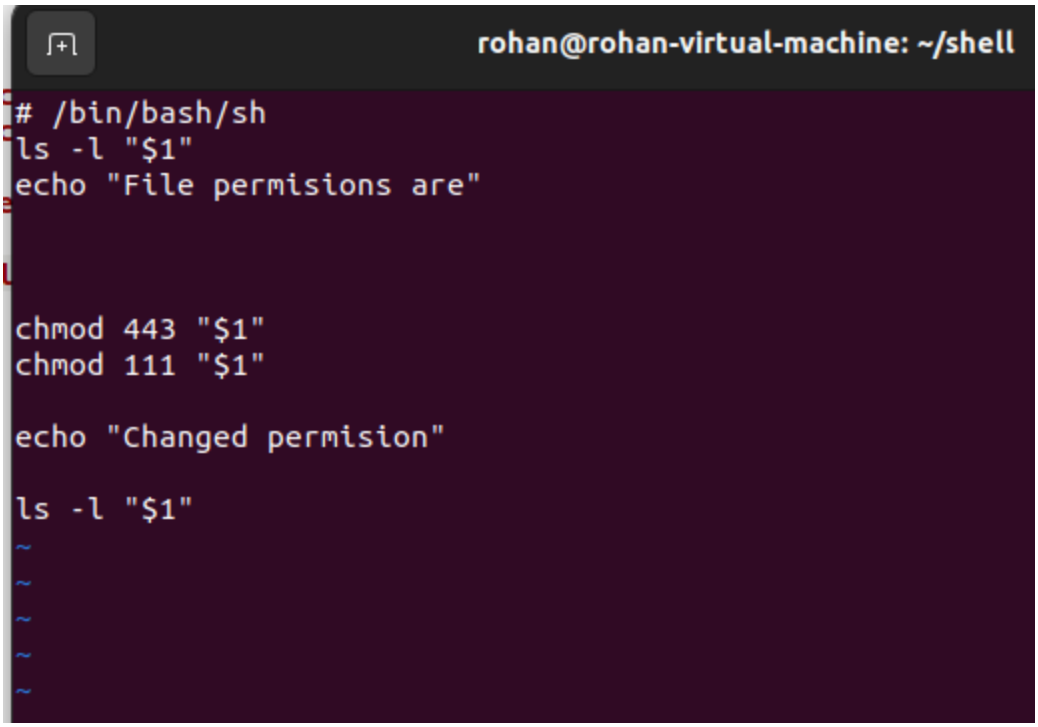


Q28. Script that takes any number of directories as command-line arguments and then lists the contents of each of the directories.



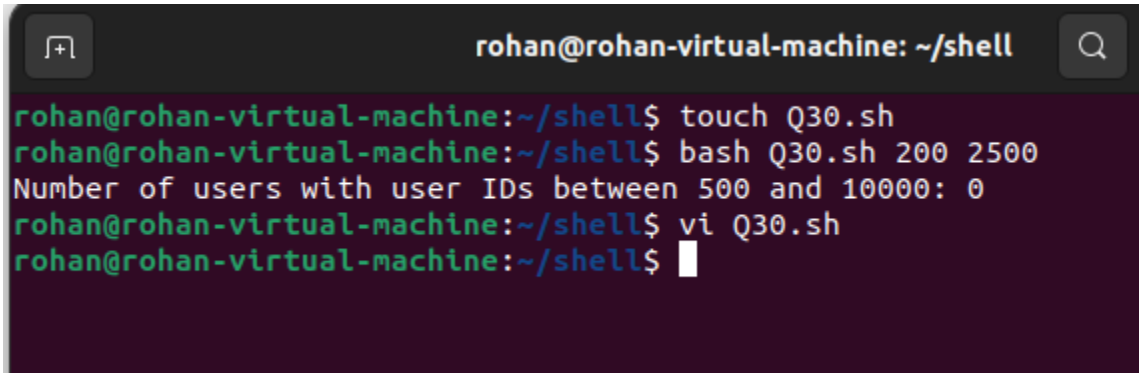
```
rohan@rohan-virtual-machine:~/shell$ bash Q28.sh
ls: cannot access '': No such file or directory
rohan@rohan-virtual-machine:~/shell$ bash Q28.sh /home/rohan/shell
total 224
-rw-rw-r-- 1 rohan rohan   0 Apr 21 16:58 :
-rw-rw-r-- 1 rohan rohan 107 Apr 21 16:10 @
-rw-rw-r-- 1 rohan rohan  93 Apr 19 16:12 1
-rw-rw-r-- 1 rohan rohan  61 Apr 15 18:53 addition.sh
-rw-rw-r-- 1 rohan rohan 159 Apr 20 16:09 arr2.sh
-rw-rw-r-- 1 rohan rohan 195 Apr 20 16:17 arr3.sh
-rw-rw-r-- 1 rohan rohan 105 Apr 20 16:06 arr.sh
-rw-rw-r-- 1 rohan rohan  66 Apr 19 22:42 cal.sh
-rw-rw-r-- 1 rohan rohan 173 Apr 19 23:27 chess.sh
-rw-rw-r-- 1 rohan rohan  87 Apr 19 16:23 content.sh
-rw-rw-r-- 1 rohan rohan  77 Apr 15 19:27 div.sh
-rw-rw-r-- 1 rohan rohan  34 Apr 21 15:49 empty.sh
-rw-rw-r-- 1 rohan rohan 144 Apr 19 16:00 exe.sh
-rw-rw-r-- 1 rohan rohan 139 Apr 19 23:21 fib.sh
-rw-rw-r-- 1 rohan rohan  80 Apr 15 19:40 for2.sh
-rw-rw-r-- 1 rohan rohan  71 Apr 20 15:14 for.sh
-rw-rw-r-- 1 rohan rohan 349 Apr 20 11:33 greet.sh
-rw-rw-r-- 1 rohan rohan 125 Apr 19 12:52 if_else.sh
-rw-rw-r-- 1 rohan rohan 108 Apr 20 15:16 if.sh
-rw-rw-r-- 1 rohan rohan 134 Apr 19 23:02 largest.sh
-rw-rw-r-- 1 rohan rohan 205 Apr 19 12:52 leap.sh
-rw-rw-r-- 1 rohan rohan  93 Apr 19 16:11 less.sh
-rw-rw-r-- 1 rohan rohan  72 Apr 15 19:32 mod.sh
-rw-rw-r-- 1 rohan rohan  67 Apr 15 19:19 mul.sh
-rw-rw-r-- 1 rohan rohan   0 Apr 19 15:48 no_file.sh
```

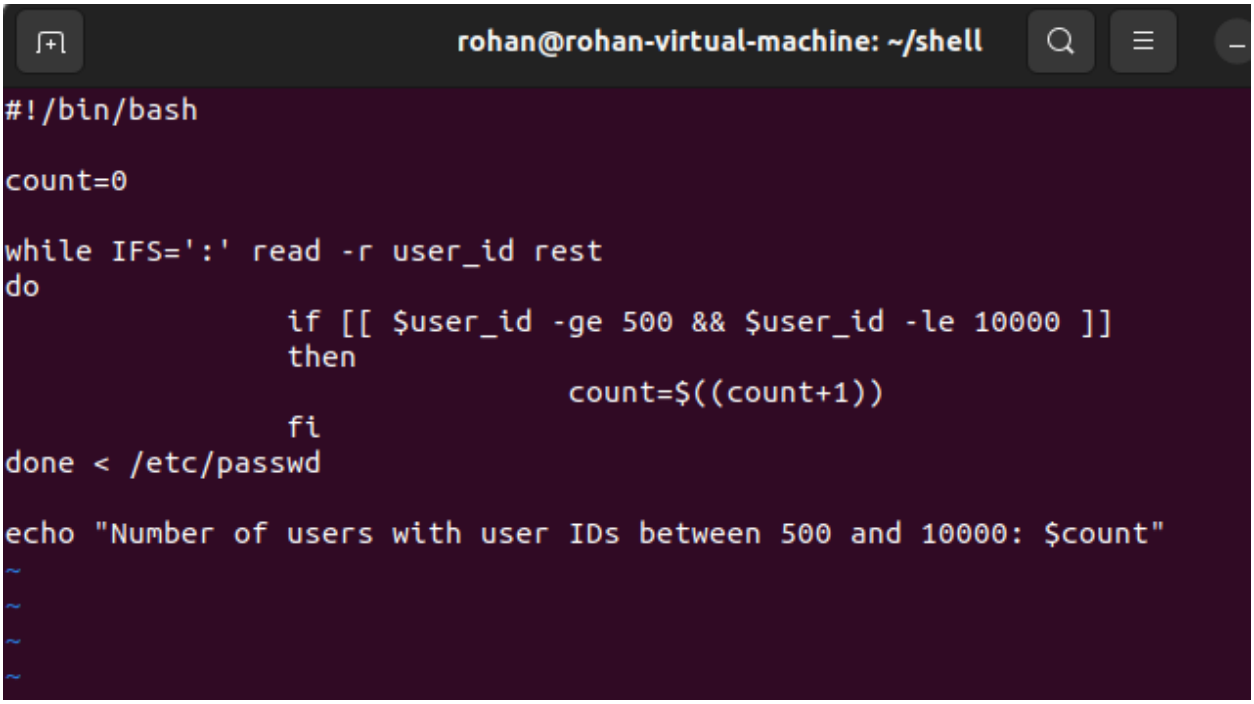
Q29. Script to locks file permissions for a particular directory for groups and others



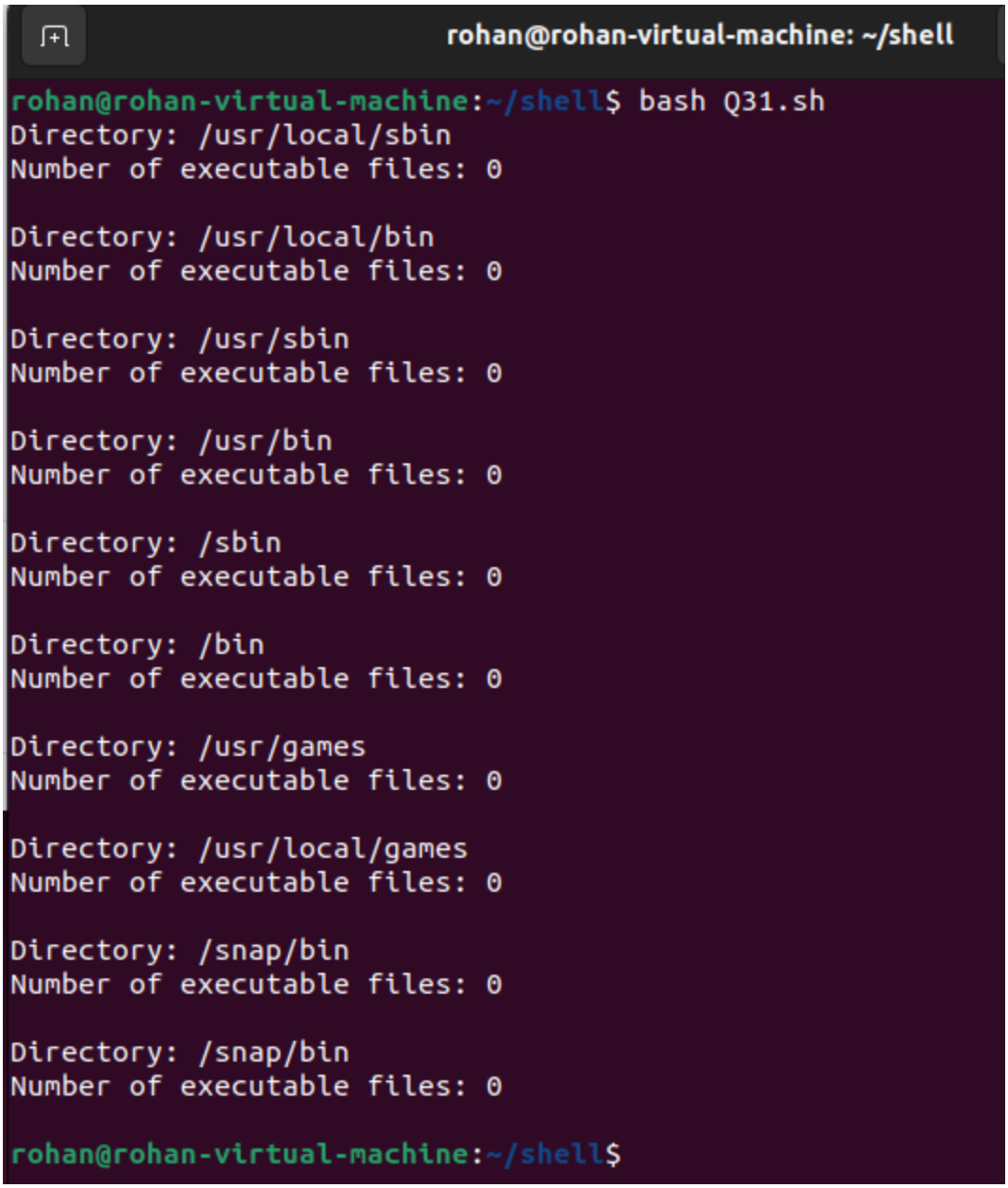

```
rohan@rohan-virtual-machine:~/shell$ bash Q29.sh /home/rohan/shell/Q22.sh
-rw-rw-r-- 1 rohan rohan 326 Apr 21 18:25 /home/rohan/shell/Q22.sh
File permisions are
Changed permision
---x--x--x 1 rohan rohan 326 Apr 21 18:25 /home/rohan/shell/Q22.sh
rohan@rohan-virtual-machine:~/shell$
```

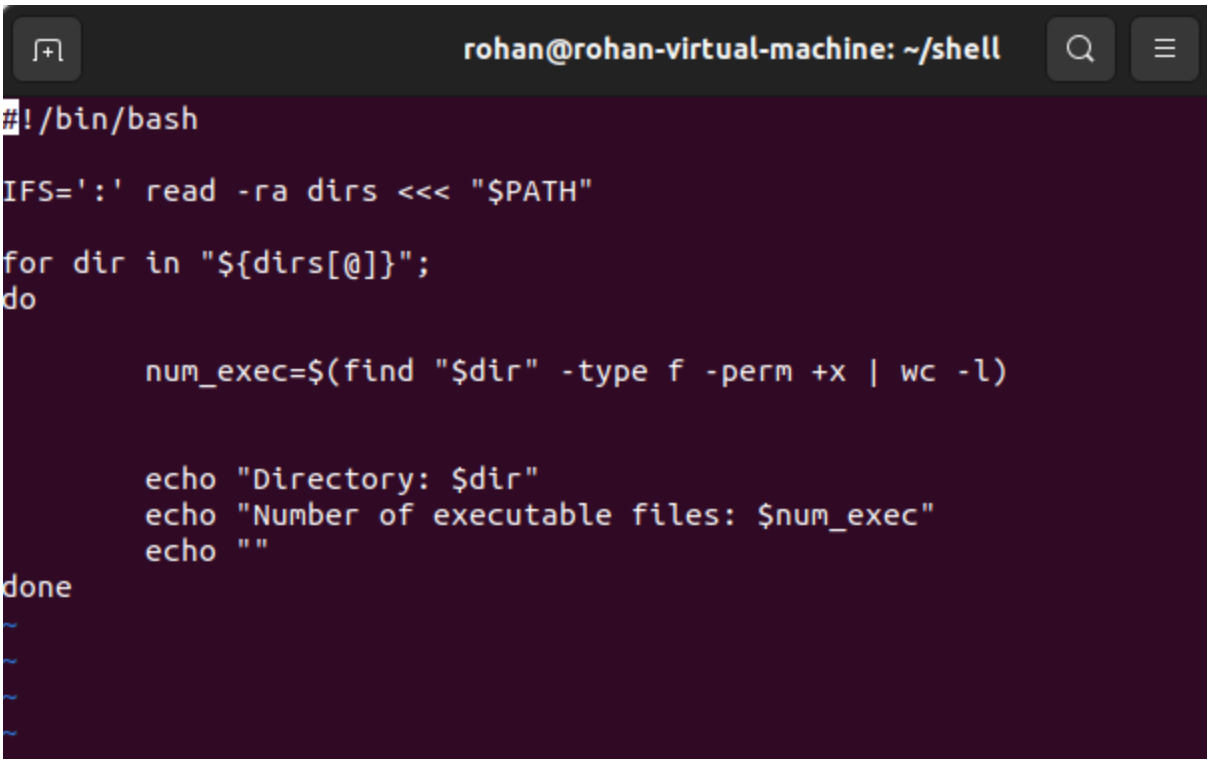
Q30. Script to count the number of users with user IDs between 500 and 10000 on the system



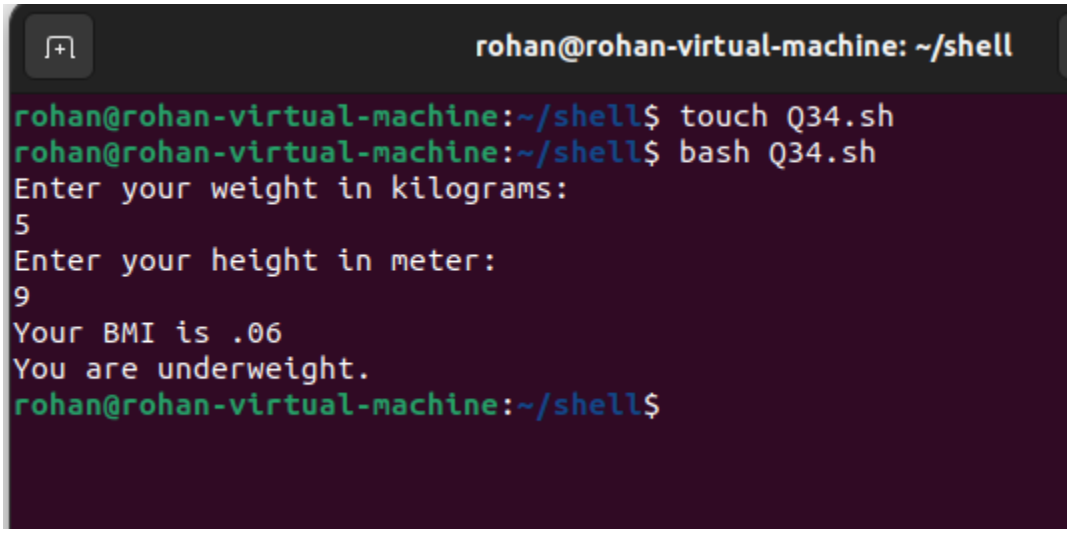


Q31. Script or each directory in the $PATH variable, to display the number of executable files in that directory.


rohan@rohan-virtual-machine: ~/shell
rohan@rohan-virtual-machine:~/shell$ bash Q31.sh
Directory: /usr/local/sbin
Number of executable files: 0
Directory: /usr/local/bin
Number of executable files: 0
Directory: /usr/sbin
Number of executable files: 0
Directory: /usr/bin
Number of executable files: 0
Directory: /sbin
Number of executable files: 0
Directory: /bin
Number of executable files: 0
Directory: /usr/games
Number of executable files: 0
Directory: /usr/local/games
Number of executable files: 0
Directory: /snap/bin
Number of executable files: 0
Directory: /snap/bin
Number of executable files: 0
rohan@rohan-virtual-machine:~/shell$



Q34. Script to to calculate the BMI.



```
# /bin/bash/sh
echo "Enter your weight in kilograms:"
read weight

echo "Enter your height in meter:"
read height
# calculate BMI
bmi=$(echo "scale=2; $weight / ($height * $height)" | bc)

echo "Your BMI is $bmi"

# Determine weight status based on WHO guidelines
if (( $(echo "$bmi < 18.5" | bc -l) )); then
                        echo "You are underweight."
        elif (( $(echo "$bmi < 25" | bc -l) )); then
                        echo "you have a healthy weight."
        elif (( $(echo "$bmi < 30" | bc -l) )); then
                        echo "You are overweight."
                else
                        echo "You are obese."
fi
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"Q34.sh" 21 lines, 534 bytes
```