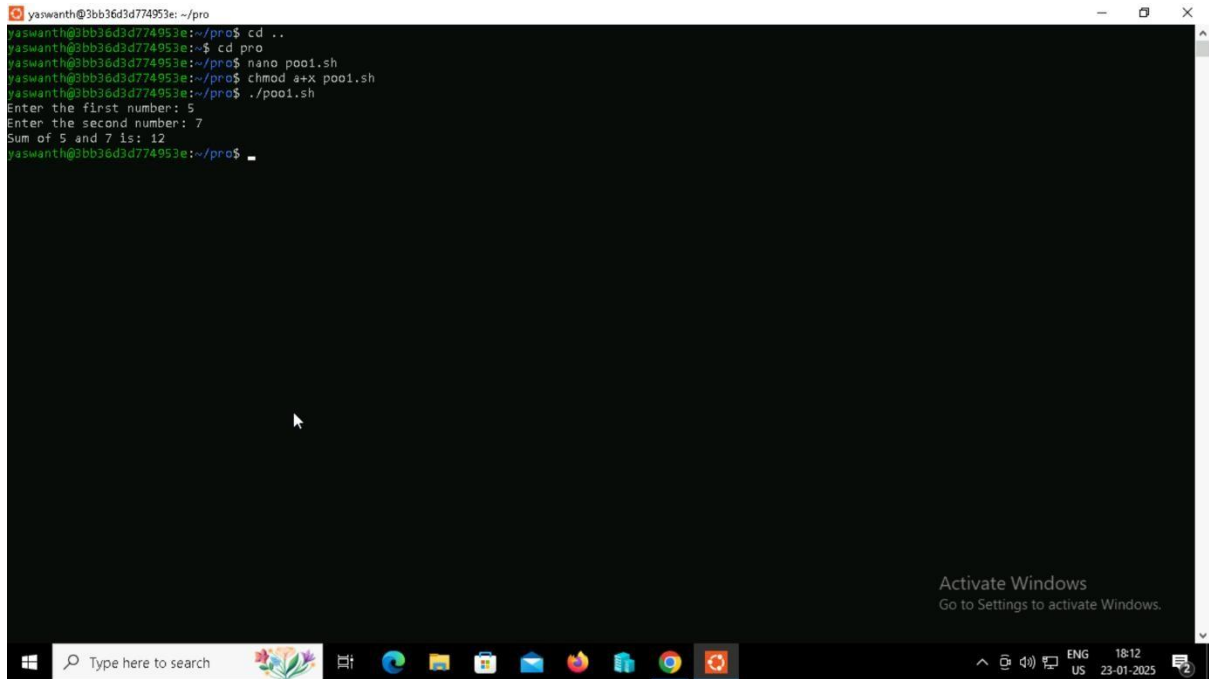


PROGRAMS FOR SHELL AND BASHSCRIPTING

1.PROGRAM FOR SUM OF NUMBERS(arithmetic operation):

```
yaswanth@3bb36d3d774953e: ~/pro
yaswanth@3bb36d3d774953e:~/pro$ cd ..
yaswanth@3bb36d3d774953e:~$ cd pro
yaswanth@3bb36d3d774953e:~/pro$ nano pool.sh
yaswanth@3bb36d3d774953e:~/pro$ chmod +x pool.sh
yaswanth@3bb36d3d774953e:~/pro$ ./pool.sh
Enter the first number: 5
Enter the second number: 7
Sum of 5 and 7 is: 12
yaswanth@3bb36d3d774953e:~/pro$
```



NANO EDITOR TO EDIT AND MANAGE CODE OF SUM OF NUMBERS:

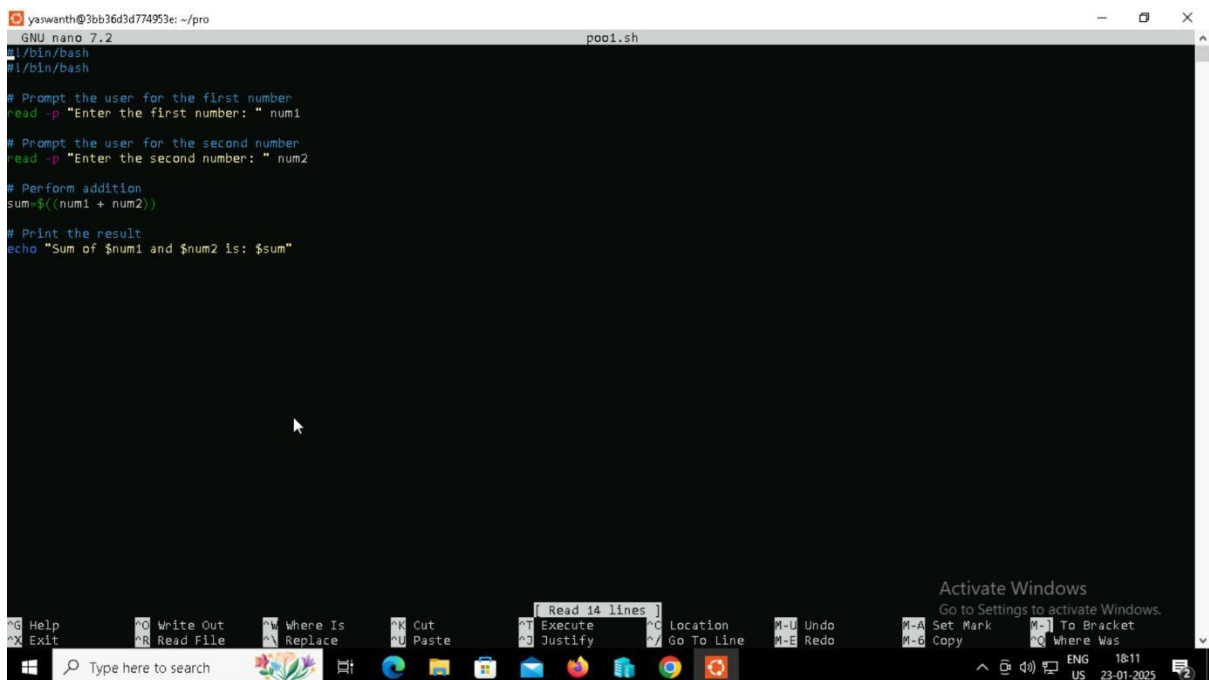
```
yaswanth@3bb36d3d774953e: ~/pro
GNU nano 7.2 pool.sh
#!/bin/bash
#!/bin/bash

# Prompt the user for the first number
read -p "Enter the first number: " num1

# Prompt the user for the second number
read -p "Enter the second number: " num2

# Perform addition
sum=$((num1 + num2))

# Print the result
echo "Sum of $num1 and $num2 is: $sum"
```



2. PROGRAM FOR BUBBLE SORTING :

```
yaswanth@3bb36d3d774953e: ~  
-rw-r--r-- 1 yaswanth yaswanth 113 Jan 22 06:17 file2.txt  
-rw-r--r-- 1 yaswanth yaswanth 16 Jan 22 06:32 file3.txt  
-rwxrwxrwx 1 root yaswanth 16 Jan 22 06:33 file4.txt  
--x-rwxrwx 1 root yaswanth 16 Jan 22 06:34 file5.txt  
-rwxr-xr-x 1 yaswanth yaswanth 51 Jan 23 09:37 for.sh  
-rwxr-xr-x 1 yaswanth yaswanth 57 Jan 23 10:14 function.sh  
-rw-r--r-- 1 yaswanth yaswanth 37 Jan 23 10:06 'function.sh\  
drwxr-xr-x 3 yaswanth yaswanth 4096 Jan 22 04:37 linux  
-rw-r--r-- 1 yaswanth yaswanth 346 Jan 23 04:34 new.zip  
-rwxrwxrwx 1 yaswanth yaswanth 142 Jan 22 06:39 newall.txt  
drwxr-xr-x 2 yaswanth yaswanth 4096 Jan 23 12:24 pro  
-rwxr-xr-x 1 yaswanth yaswanth 208 Jan 22 09:39 project.txt  
-rw-r--r-- 1 yaswanth yaswanth 13 Jan 22 06:19 text.txt  
-rwxr-xr-x 1 yaswanth yaswanth 123 Jan 23 09:59 while.sh  
-rw-r--r-- 1 yaswanth yaswanth 63 Jan 23 09:44 while.shu  
yaswanth@3bb36d3d774953e:~$ nano bubble.sh  
yaswanth@3bb36d3d774953e:~$ chmod a+x bubble.sh  
yaswanth@3bb36d3d774953e:~$ ./bubble.sh  
Enter the elements of the array separated by space: 7 9 3 14 5 0  
Sorted array:  
0 3 5 7 9 14  
yaswanth@3bb36d3d774953e:~$
```

NANO EDITOR TO EDIT AND MANAGE CODE OF BUBBLE SORT:

```
GNU nano 7.2 bubble.sh *  
#!/bin/bash  
  
bubble_sort() {  
    local arr=("$@")  
    local n=${#arr[@]}  
    for ((i = 0; i < n - 1; i++)); do  
        for ((j = 0; j < n - i - 1; j++)); do  
            if ((arr[j] > arr[j + 1])); then  
                temp=${arr[j]}  
                arr[j]=${arr[j + 1]}  
                arr[j + 1]=$temp  
            fi  
        done  
    done  
    echo "${arr[@]}"  
    read -p "Enter the elements of the array separated by space: " -a array  
  
    echo "Sorted array:"  
    bubble_sort "${array[@]}"  
}
```

3.PROGRAM FOR REVERSE A NUMBER:

```
yaswanth@3bb36d3d774953e: ~$ ls -l
total 96
-rw-r--r-- 1 yaswanth yaswanth 126 Jan 22 06:28 all.txt
-rwxr-xr-x 1 yaswanth yaswanth 485 Jan 24 04:23 bubble.sh
-rwxr-xr-x 1 yaswanth yaswanth 58 Jan 23 06:25 example.sh
-rwxr-xr-x 1 yaswanth yaswanth 49 Jan 23 07:10 example1.sh
-rw-r--r-- 1 yaswanth yaswanth 39 Jan 23 06:39 example1.sho
-rwxr-xr-x 1 yaswanth yaswanth 46 Jan 23 07:10 exp.sh
-rwxr-xr-x 1 yaswanth yaswanth 125 Jan 23 06:48 expewan.sh
-rw-r--r-- 1 yaswanth yaswanth 5 Jan 22 08:57 file.txt
-rw-r--r-- 1 yaswanth yaswanth 113 Jan 22 06:17 file2.txt
-rw-r--r-- 1 yaswanth yaswanth 16 Jan 22 06:32 file3.txt
-rwxrwxrwx 1 root yaswanth 16 Jan 22 06:33 file4.txt
---Xrwxrwx 1 root yaswanth 16 Jan 22 06:34 file5.txt
-rwxr-xr-x 1 yaswanth yaswanth 51 Jan 23 09:37 for.sh
-rwxr-xr-x 1 yaswanth yaswanth 57 Jan 23 10:14 function.sh
-rw-r--r-- 1 yaswanth yaswanth 37 Jan 23 10:06 'function.sh\'
-rwxr-xr-x 3 yaswanth yaswanth 4096 Jan 22 04:37 linux
-rw-r--r-- 1 yaswanth yaswanth 346 Jan 23 04:34 new.zip
-rwxrwxrwx 1 yaswanth yaswanth 142 Jan 22 06:39 newall.txt
-rwxr-xr-x 2 yaswanth yaswanth 4096 Jan 23 12:24 pro
-rwxr-xr-x 1 yaswanth yaswanth 208 Jan 22 09:39 project.txt
-rwxr-xr-x 1 yaswanth yaswanth 487 Jan 24 04:36 reverse.sh
-rw-r--r-- 1 yaswanth yaswanth 13 Jan 22 06:10 reverse.sh
-rwxr-xr-x 1 yaswanth yaswanth 123 Jan 23 09:50 while.sh
-rw-r--r-- 1 yaswanth yaswanth 63 Jan 23 09:44 while.shu
yaswanth@3bb36d3d774953e:~$ nano reverse.sh
yaswanth@3bb36d3d774953e:~$ chmod a+x reverse.sh
yaswanth@3bb36d3d774953e:~$ ./reverse.sh
Enter a number to reverse: 3657754
Reversed number: 4577563
yaswanth@3bb36d3d774953e:~$ ./reverse.sh
Enter a number to reverse: 12 35 768
Invalid input! Please enter a positive integer.
yaswanth@3bb36d3d774953e:~$ ./reverse.sh
Enter a number to reverse: -5467857
Invalid input! Please enter a positive integer.
yaswanth@3bb36d3d774953e:~$
```

NANO EDITOR TO EDIT AND MANAGE CODE OF REVERSE A NUMBER:

```
GNU nano 7.2 reverse.sh
//bin/bash

reverse_number() {
    local num=$1
    local reversed=0
    local remainder=0

    while ((num > 0)); do
        remainder=$((num % 10))
        reversed=$((reversed * 10 + remainder))
        num=$((num / 10))
    done

    echo "$reversed"
}

read -p "Enter a number to reverse: " number

if [[ ! $number =~ ^[0-9]+$ ]]; then
    echo "Invalid input! Please enter a positive integer."
    exit 1
fi

result=$(reverse_number "$number")
echo "Reversed number: $result"
```

4.PROGRAM FOR SUM OF ARRAYS:

```
yaswanth@3bb36d3d774953e: ~$ ls -l
total 108
-rw-r--r-- 1 yaswanth yaswanth 126 Jan 22 06:28 all.txt
-rwxr-xr-x 1 yaswanth yaswanth 485 Jan 24 04:23 bubble.sh
-rwxr-xr-x 1 yaswanth yaswanth 58 Jan 23 06:25 example.sh
-rwxr-xr-x 1 yaswanth yaswanth 49 Jan 23 07:10 example1.sh
-rw-r--r-- 1 yaswanth yaswanth 39 Jan 23 06:39 example1.sho
-rwxr-xr-x 1 yaswanth yaswanth 46 Jan 23 07:10 exp.sh
-rwxr-xr-x 1 yaswanth yaswanth 125 Jan 23 06:48 expewan.sh
-rw-r--r-- 1 yaswanth yaswanth 5 Jan 22 08:57 file.txt
-rw-r--r-- 1 yaswanth yaswanth 113 Jan 22 06:17 file2.txt
-rw-r--r-- 1 yaswanth yaswanth 16 Jan 22 06:32 file3.txt
-rwxrwxrwx 1 root yaswanth 16 Jan 22 06:33 file4.txt
---x-rwxrwx 1 root yaswanth 16 Jan 22 06:34 file5.txt
-rwxr-xr-x 1 yaswanth yaswanth 51 Jan 23 09:37 for.sh
-rwxr-xr-x 1 yaswanth yaswanth 57 Jan 23 10:14 function.sh
-rw-r--r-- 1 yaswanth yaswanth 37 Jan 23 10:06 'function.sh\'
-rwxr-xr-x 3 yaswanth yaswanth 4096 Jan 22 04:37 linux
-rw-r--r-- 1 yaswanth yaswanth 346 Jan 23 04:34 new.zip
-rwxrwxrwx 1 yaswanth yaswanth 142 Jan 22 06:39 newall.txt
-rwxr-xr-x 2 yaswanth yaswanth 4096 Jan 23 12:24 pro
-rwxr-xr-x 1 yaswanth yaswanth 208 Jan 22 09:39 project.txt
-rwxr-xr-x 1 yaswanth yaswanth 487 Jan 24 04:36 reverse.sh
-rwxr-xr-x 1 yaswanth yaswanth 388 Jan 24 04:52 sumarray.sh
-rw-r--r-- 1 yaswanth yaswanth 13 Jan 22 06:10 text.txt
-rwxr-xr-x 1 yaswanth yaswanth 123 Jan 23 09:50 while.sh
-rw-r--r-- 1 yaswanth yaswanth 63 Jan 23 09:44 while.shu
yaswanth@3bb36d3d774953e: ~$ nano sumarray.sh
yaswanth@3bb36d3d774953e: ~$ chmod a+x sumarray.sh
yaswanth@3bb36d3d774953e: ~$ ./sumarray.sh
Enter the elements of the array separated by space: 45 8 3 12 03
Sum of the array elements: 71
yaswanth@3bb36d3d774953e: ~$ ./sumarray.sh
Enter the elements of the array separated by space: -34 5 2 67
Sum of the array elements: 40
yaswanth@3bb36d3d774953e: ~$ ./sumarray.sh
-35: command not found
yaswanth@3bb36d3d774953e: ~$ ./sumarray.sh
Enter the elements of the array separated by space: -343 -5 -3
Sum of the array elements: -351
yaswanth@3bb36d3d774953e: ~$
```

NANO EDITOR TO EDIT AND MANAGE CODE OF SUM OF ARRAYS:

```
GNU nano 7.2 sumarray.sh
#!/bin/bash

sum_array() {
    local arr=("$@")
    local sum=0

    for num in "${arr[@]"; do
        sum=$((sum + num))
    done

    echo "$sum"
}

read -p "Enter the elements of the array separated by space: " -a array

result=$(sum_array "${array[@]}")
echo "Sum of the array elements: $result"
```

5. PROGRAM FOR PASCAL TRIANGLE :

```
yaswanth@3bb36d3d774953e: ~$ nano pastr1.sh
yaswanth@3bb36d3d774953e: ~$ chmod +x pastr1.sh
yaswanth@3bb36d3d774953e: ~$ ./pastr1.sh
Enter the number of rows for Pascal's Triangle: 5
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
yaswanth@3bb36d3d774953e: ~$ ls -l
total 108
-rw-r--r-- 1 yaswanth yaswanth 126 Jan 22 06:28 all.txt
-rwxr-xr-x 1 yaswanth yaswanth 485 Jan 24 04:23 bubble.sh
-rwxr-xr-x 1 yaswanth yaswanth 58 Jan 23 06:25 example.sh
-rwxr-xr-x 1 yaswanth yaswanth 49 Jan 23 07:10 example1.sh
-rw-r--r-- 1 yaswanth yaswanth 39 Jan 23 06:39 example1.sho
-rwxr-xr-x 1 yaswanth yaswanth 46 Jan 23 07:10 exp.sh
-rwxr-xr-x 1 yaswanth yaswanth 125 Jan 23 06:48 exspear.sh
-rw-r--r-- 1 yaswanth yaswanth 5 Jan 22 08:57 file.txt
-rw-r--r-- 1 yaswanth yaswanth 113 Jan 22 06:17 file2.txt
-rw-r--r-- 1 yaswanth yaswanth 16 Jan 22 06:32 file3.txt
-rwxrwxrwx 1 root yaswanth 16 Jan 22 06:33 file4.txt
-rwxrwxrwx 1 root yaswanth 16 Jan 22 06:34 file5.txt
-rwxr-xr-x 1 yaswanth yaswanth 51 Jan 23 09:37 for.sh
-rwxr-xr-x 1 yaswanth yaswanth 57 Jan 23 18:14 function.sh
-rw-r--r-- 1 yaswanth yaswanth 37 Jan 23 18:06 'function.sh\'
-rwxr-xr-x 1 yaswanth yaswanth 4896 Jan 22 04:37 linux
-rw-r--r-- 1 yaswanth yaswanth 346 Jan 23 04:34 new.zip
-rwxrwxrwx 1 yaswanth yaswanth 142 Jan 22 06:39 newall.txt
-rwxr-xr-x 1 yaswanth yaswanth 315 Jan 24 04:55 panlidrom.sh
-rwxr-xr-x 1 yaswanth yaswanth 253 Jan 24 04:57 pastr1.sh
-rwxr-xr-x 2 yaswanth yaswanth 4896 Jan 23 12:24 pro
-rwxr-xr-x 1 yaswanth yaswanth 208 Jan 22 09:39 project.txt
-rwxr-xr-x 1 yaswanth yaswanth 487 Jan 24 04:36 reverse.sh
-rwxr-xr-x 1 yaswanth yaswanth 308 Jan 24 04:52 sumarray.sh
-rw-r--r-- 1 yaswanth yaswanth 13 Jan 22 06:19 text.txt
-rwxr-xr-x 1 yaswanth yaswanth 123 Jan 23 09:59 while.sh
-rw-r--r-- 1 yaswanth yaswanth 63 Jan 23 09:44 while.shu
yaswanth@3bb36d3d774953e: ~$
```

NANO EDITOR TO EDIT AND MANAGE CODE OF PASCAL TRIANGLE:

```
GNU nano 7.2 pastr1.sh
//bin/bash

read -p "Enter the number of rows for Pascal's Triangle: " rows

for ((i = 0; i < rows; i++)); do
    value=1
    for ((j = 0; j <= i; j++)); do
        echo -n "$value "
        value=$((value * (i - j) / (j + 1)))
    done
    echo
done
```

6.SIMPLE SHELL SCRIPTING PROGRAM :

```
yaswanth@3bb36d3d774953e: ~  
-rwxr-xr-x 1 yaswanth yaswanth 346 Jan 23 04:34 new.zip  
-rwxr-xr-x 1 yaswanth yaswanth 142 Jan 22 06:39 newall.txt  
-rwxr-xr-x 1 yaswanth yaswanth 315 Jan 24 04:55 panlidrom.sh  
-rwxr-xr-x 1 yaswanth yaswanth 253 Jan 24 04:57 pastr1.sh  
-rwxr-xr-x 2 yaswanth yaswanth 4096 Jan 23 12:24 pro  
-rwxr-xr-x 1 yaswanth yaswanth 208 Jan 22 09:39 project.txt  
-rwxr-xr-x 1 yaswanth yaswanth 487 Jan 24 04:36 reverse.sh  
-rwxr-xr-x 1 yaswanth yaswanth 308 Jan 24 04:52 sumarray.sh  
-rwxr-xr-x 1 yaswanth yaswanth 13 Jan 22 06:19 text.txt  
-rwxr-xr-x 1 yaswanth yaswanth 123 Jan 23 09:59 while.sh  
-rwxr-xr-x 1 yaswanth yaswanth 63 Jan 23 09:44 while.shu  
yaswanth@3bb36d3d774953e:~$ nano pastr1.sh  
yaswanth@3bb36d3d774953e:~$ nano bubble.sh  
yaswanth@3bb36d3d774953e:~$ nano panlidrom.sh  
yaswanth@3bb36d3d774953e:~$ nano panlidrom.sh  
yaswanth@3bb36d3d774953e:~$ nano hello.sh  
yaswanth@3bb36d3d774953e:~$ chmod a+x hello.sh  
yaswanth@3bb36d3d774953e:~$ ./hello.sh  
hellol what is your name?  
yash  
hello , yash ! welcome to shell scripting  
yaswanth@3bb36d3d774953e:~$
```

```
GNU nano 7.2 hello.sh  
echo "hellol what is your name?"  
read name  
echo "hello , $name ! welcome to shell scripting "
```

7.PROGRAM FOR PANLIDROME :

```
yaswanth@3bb36d3d774953e:~$ nano panlidrom.sh
yaswanth@3bb36d3d774953e:~$ chmod a+x panlidrom.sh
yaswanth@3bb36d3d774953e:~$ ./panlidrom.sh
Enter a number: 143
143 is not a palindrome.
yaswanth@3bb36d3d774953e:~$ 121
121: command not found
yaswanth@3bb36d3d774953e:~$ ./panlidrom.sh
Enter a number: 121
121 is a palindrome.
yaswanth@3bb36d3d774953e:~$ 1001
1001: command not found
yaswanth@3bb36d3d774953e:~$ ./panlidrom.sh
Enter a number: 1001
1001 is a palindrome.
yaswanth@3bb36d3d774953e:~$ ls -l
total 104
-rw-r--r-- 1 yaswanth yaswanth 126 Jan 22 06:28 all.txt
-rwxr-xr-x 1 yaswanth yaswanth 485 Jan 24 04:23 bubble.sh
-rwxr-xr-x 1 yaswanth yaswanth 58 Jan 23 06:25 example.sh
-rwxr-xr-x 1 yaswanth yaswanth 49 Jan 23 07:10 example1.sh
-rw-r--r-- 1 yaswanth yaswanth 39 Jan 23 06:39 example1.sho
-rwxr-xr-x 1 yaswanth yaswanth 46 Jan 23 07:10 exp.sh
-rwxr-xr-x 1 yaswanth yaswanth 125 Jan 23 06:48 exspevar.sh
-rw-r--r-- 1 yaswanth yaswanth 5 Jan 22 08:57 file.txt
-rw-r--r-- 1 yaswanth yaswanth 113 Jan 22 06:17 file2.txt
-rw-r--r-- 1 yaswanth yaswanth 16 Jan 22 06:32 file3.txt
-rwxrwxrwx 1 root yaswanth 16 Jan 22 06:33 file5.txt
---Xrwxrwx 1 root yaswanth 16 Jan 22 06:34 file5.txt
-rwxr-xr-x 1 yaswanth yaswanth 51 Jan 23 09:37 fon.sh
-rwxr-xr-x 1 yaswanth yaswanth 57 Jan 23 10:14 function.sh
-rw-r--r-- 1 yaswanth yaswanth 37 Jan 23 10:06 'function.sh\'
drwxr-xr-x 3 yaswanth yaswanth 4096 Jan 22 04:37 linux
-rw-r--r-- 1 yaswanth yaswanth 346 Jan 23 04:34 new.zip
-rwxrwxrwx 1 yaswanth yaswanth 142 Jan 22 06:39 newall.txt
-rwxr-xr-x 1 yaswanth yaswanth 315 Jan 24 04:55 panlidrom.sh
drwxr-xr-x 2 yaswanth yaswanth 4096 Jan 23 12:24 pro
-rwxr-xr-x 1 yaswanth yaswanth 288 Jan 22 09:39 project.txt
-rwxr-xr-x 1 yaswanth yaswanth 487 Jan 24 04:36 reverse.sh
-rwxr-xr-x 1 yaswanth yaswanth 308 Jan 24 04:52 sumarray.sh
-rw-r--r-- 1 yaswanth yaswanth 13 Jan 22 06:19 text.txt
```

NANO EDITOR TO EDIT AND MANAGE CODE OF PANLIDROME

```
GNU nano 7.2 panlidrom.sh
#!/bin/bash

read -p "Enter a number: " num
original=$num
reversed=0

while ((num > 0)); do
    remainder=$((num % 10))
    reversed=$((reversed * 10 + remainder))
    num=$((num / 10))
done

if ((original == reversed)); then
    echo "$original is a palindrome."
else
    echo "$original is not a palindrome."
fi
```