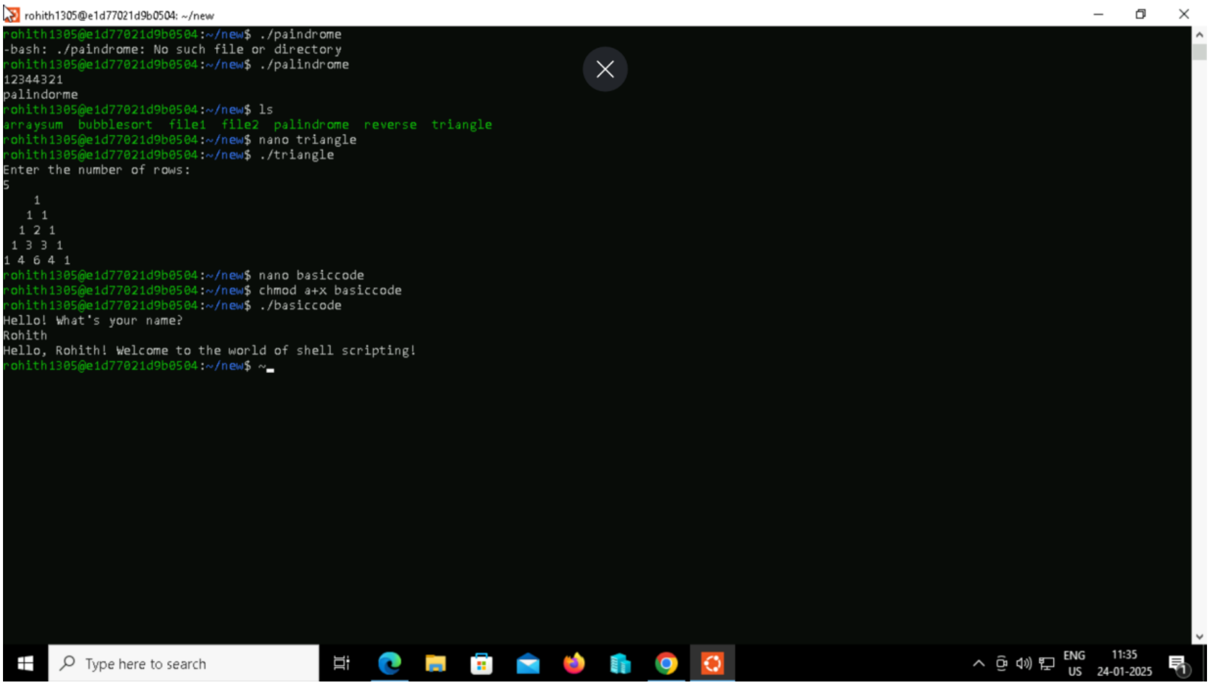
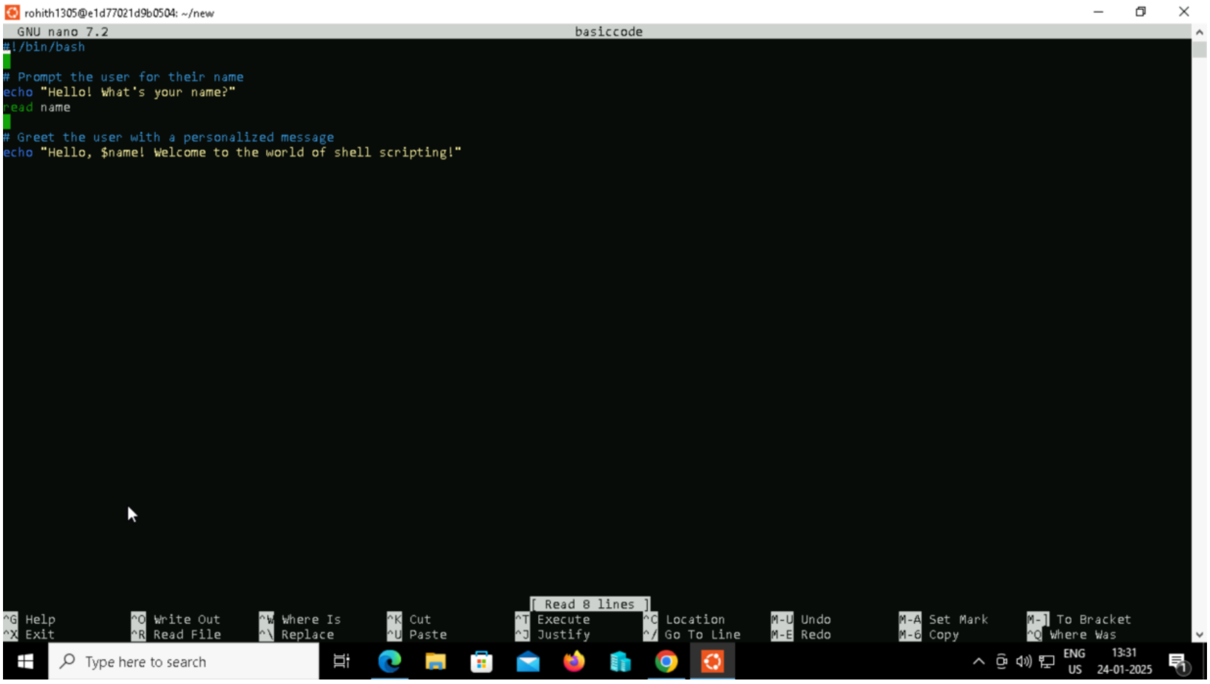
Basic Code:



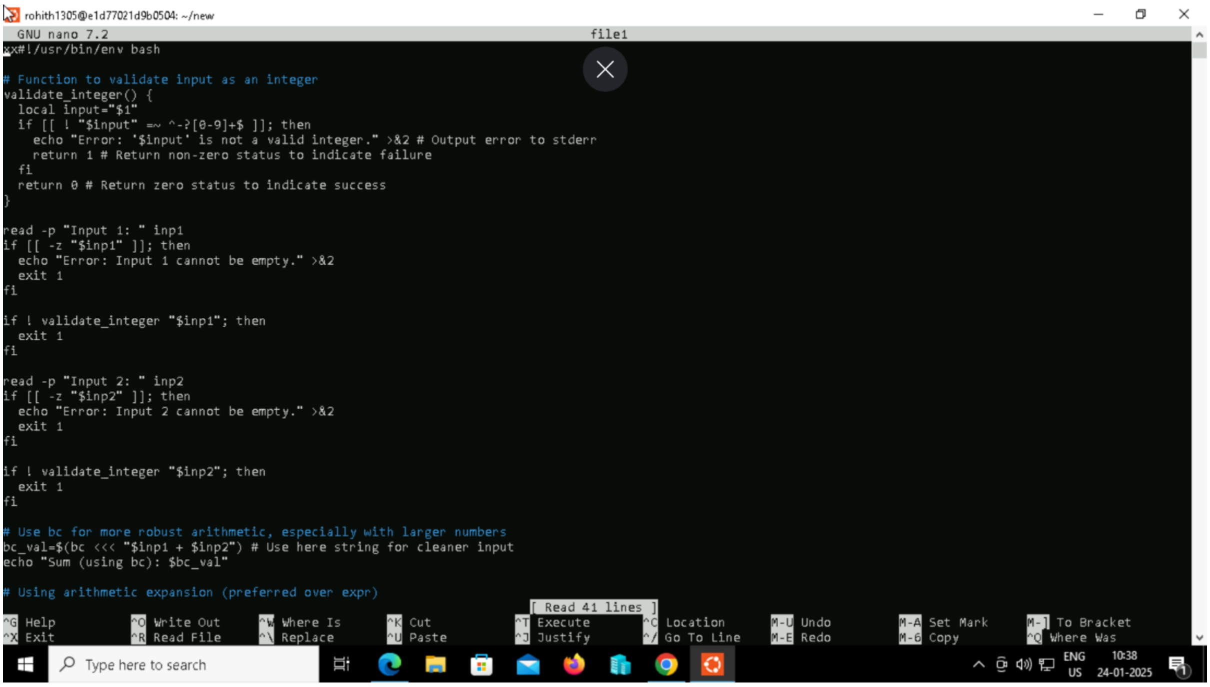
```
rohith1305@e1d77021d9b0504:~/new$ ./paindrome
-bash: ./paindrome: No such file or directory
rohith1305@e1d77021d9b0504:~/new$ ./palindrome
12344321
palindorme
rohith1305@e1d77021d9b0504:~/new$ ls
arraysum  bubblesort  file1  file2  palindrome  reverse  triangle
rohith1305@e1d77021d9b0504:~/new$ nano triangle
rohith1305@e1d77021d9b0504:~/new$ ./triangle
Enter the number of rows:
5
    1
   1 1
  1 2 1
 1 3 3 1
1 4 6 4 1
rohith1305@e1d77021d9b0504:~/new$ nano basiccode
rohith1305@e1d77021d9b0504:~/new$ chmod a+x basiccode
rohith1305@e1d77021d9b0504:~/new$ ./basiccode
Hello! What's your name?
Rohith
Hello, Rohith! Welcome to the world of shell scripting!
rohith1305@e1d77021d9b0504:~/new$ ~
```



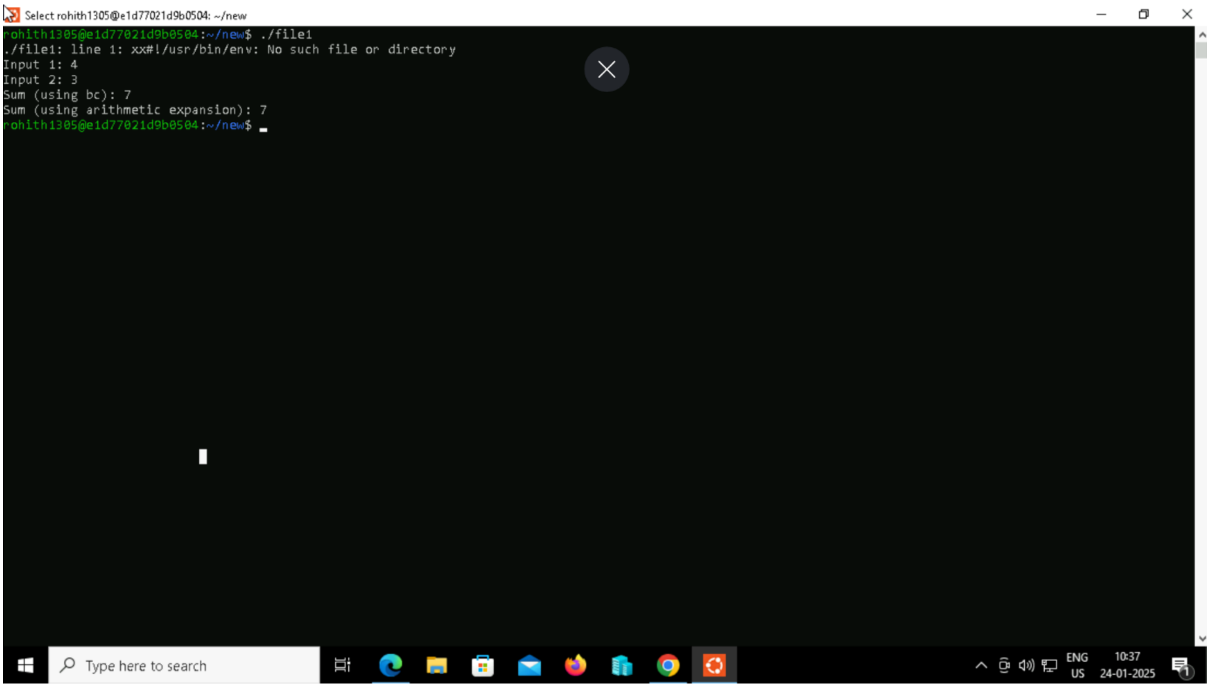
```
#!/bin/bash

# Prompt the user for their name
echo "Hello! What's your name?"
read name

# Greet the user with a personalized message
echo "Hello, $name! Welcome to the world of shell scripting!"
```

[Read 8 lines]

Arithmetic code:

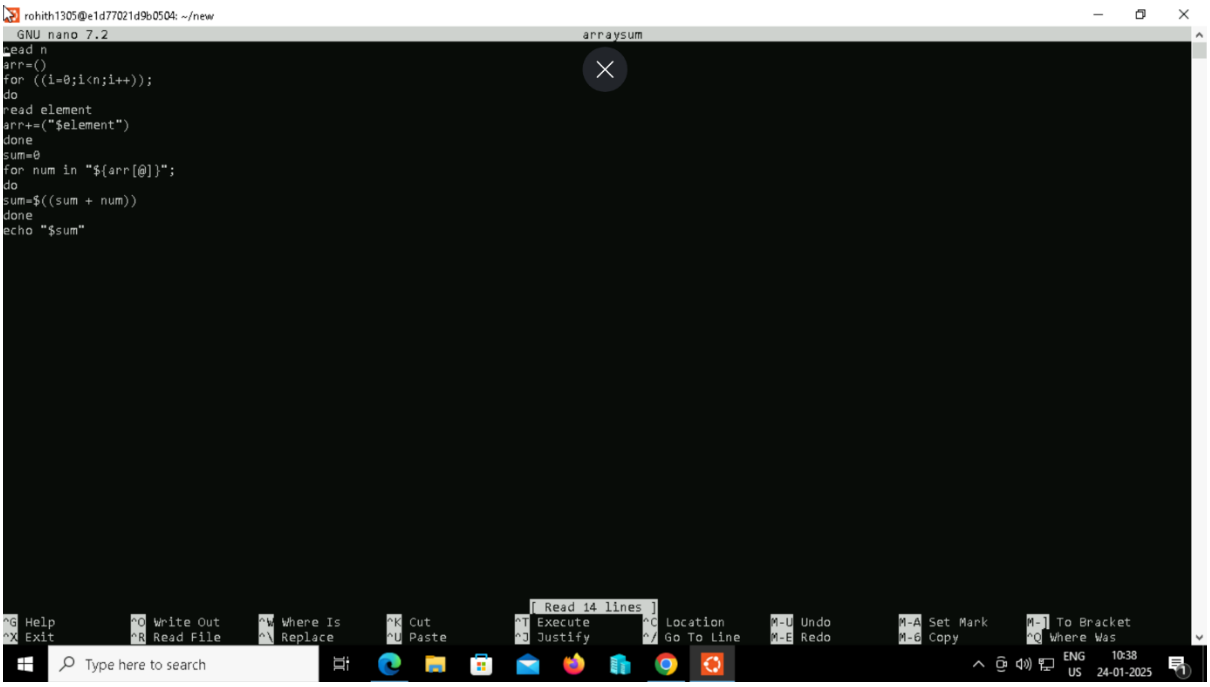


```
xx#!/usr/bin/env bash

# Function to validate input as an integer
validate_integer() {
  local input="$1"
  if [[ ! "$input" =~ ^-?[0-9]+$ ]]; then
    echo "Error: '$input' is not a valid integer." >&2 # Output error to stderr
    return 1 # Return non-zero status to indicate failure
  fi
  return 0 # Return zero status to indicate success
}

read -p "Input 1: " inp1
if [[ -z "$inp1" ]]; then
  echo "Error: Input 1 cannot be empty." >&2
  exit 1
fi

if ! validate_integer "$inp1"; then
  exit 1
fi

read -p "Input 2: " inp2
if [[ -z "$inp2" ]]; then
  echo "Error: Input 2 cannot be empty." >&2
  exit 1
fi

if ! validate_integer "$inp2"; then
  exit 1
fi

# Use bc for more robust arithmetic, especially with larger numbers
bc_val=$(bc <<< "$inp1 + $inp2") # Use here string for cleaner input
echo "Sum (using bc): $bc_val"

# Using arithmetic expansion (preferred over expr)
```

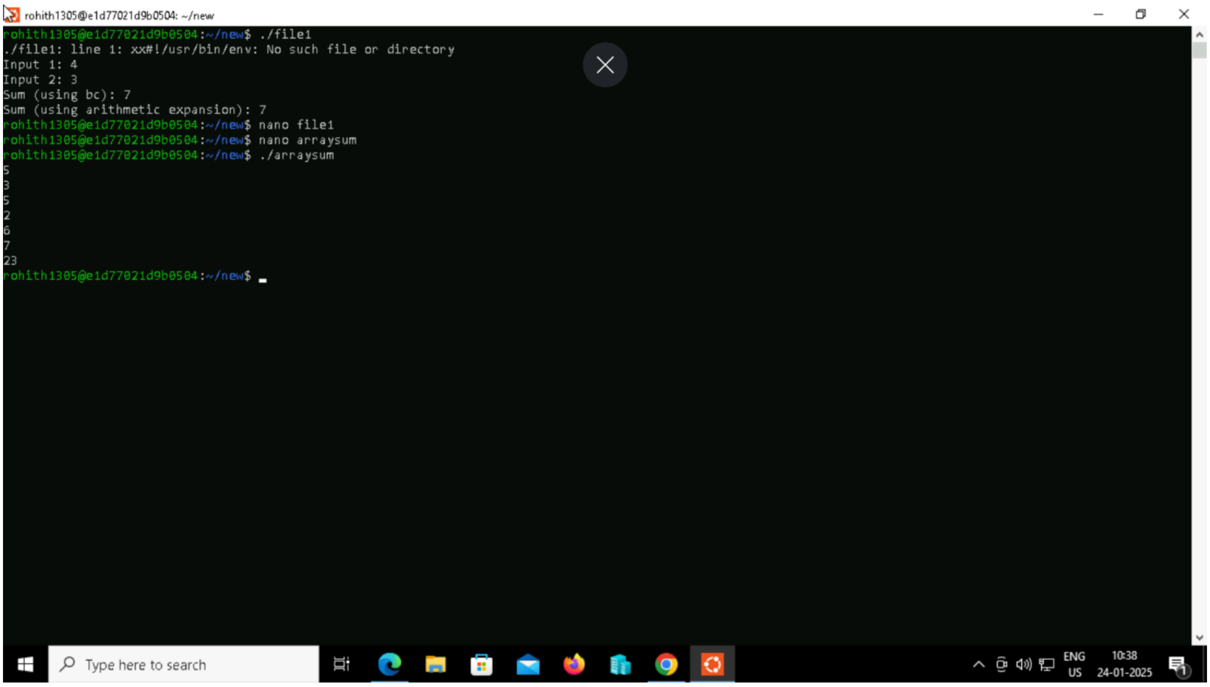


```
rohith1305@e1d77021d9b0504:~/new$ ./file1
./file1: line 1: xx#!/usr/bin/env: No such file or directory
Input 1: 4
Input 2: 3
Sum (using bc): 7
Sum (using arithmetic expansion): 7
rohith1305@e1d77021d9b0504:~/new$
```

Arraysum:

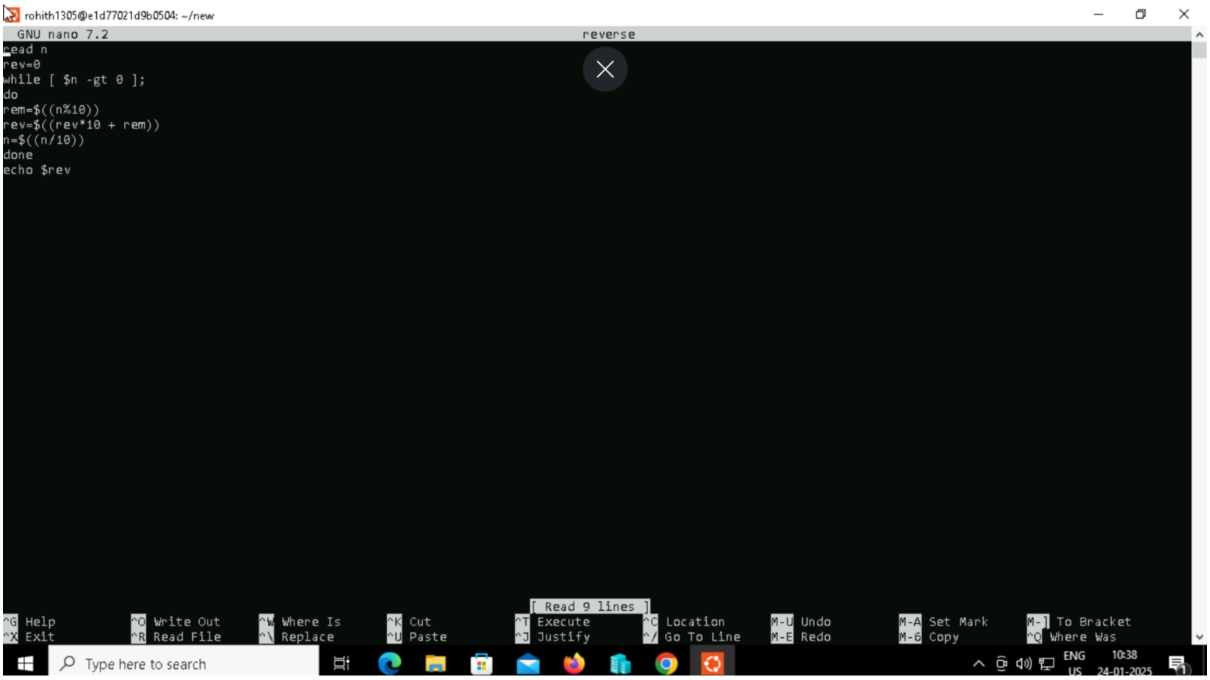


```
read n
arr=()
for ((i=0;i<n;i++));
do
read element
arr+=("$element")
done
sum=0
for num in "${arr[@]}";
do
sum=$((sum + num))
done
echo "$sum"
```

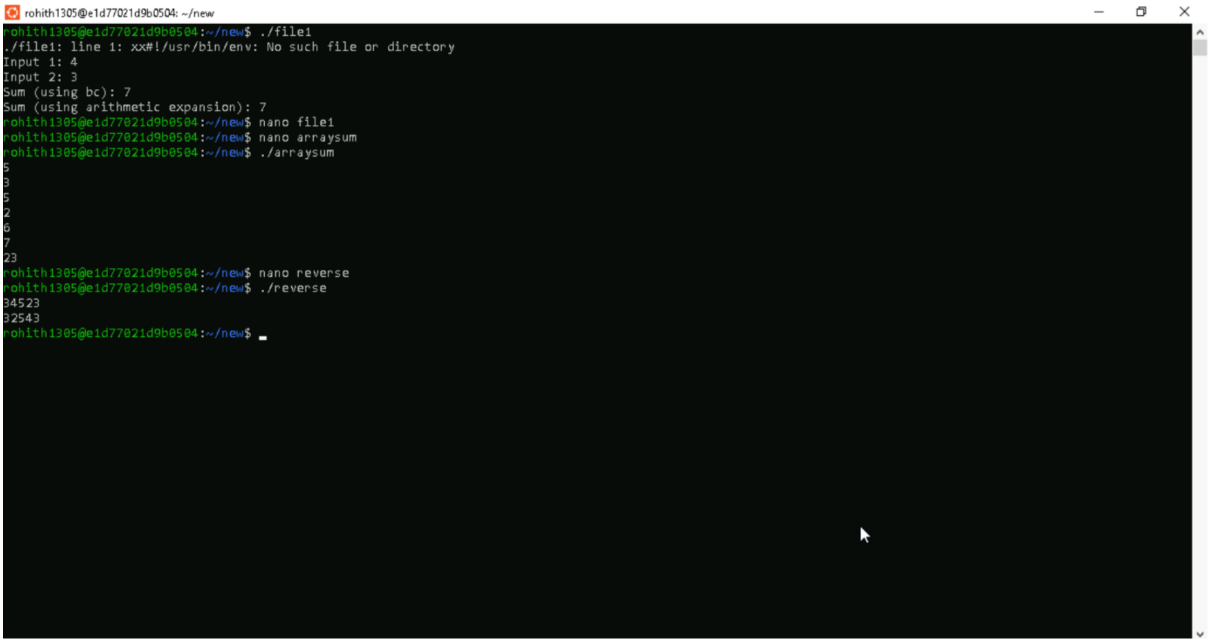


```
rohith1305@e1d77021d9b0504:~/new$ ./file1
./file1: line 1: xx#!/usr/bin/env: No such file or directory
Input 1: 4
Input 2: 3
Sum (using bc): 7
Sum (using arithmetic expansion): 7
rohith1305@e1d77021d9b0504:~/new$ nano file1
rohith1305@e1d77021d9b0504:~/new$ nano arraysum
rohith1305@e1d77021d9b0504:~/new$ ./arraysum
5
3
5
2
6
7
23
rohith1305@e1d77021d9b0504:~/new$ 
```

Reverse:

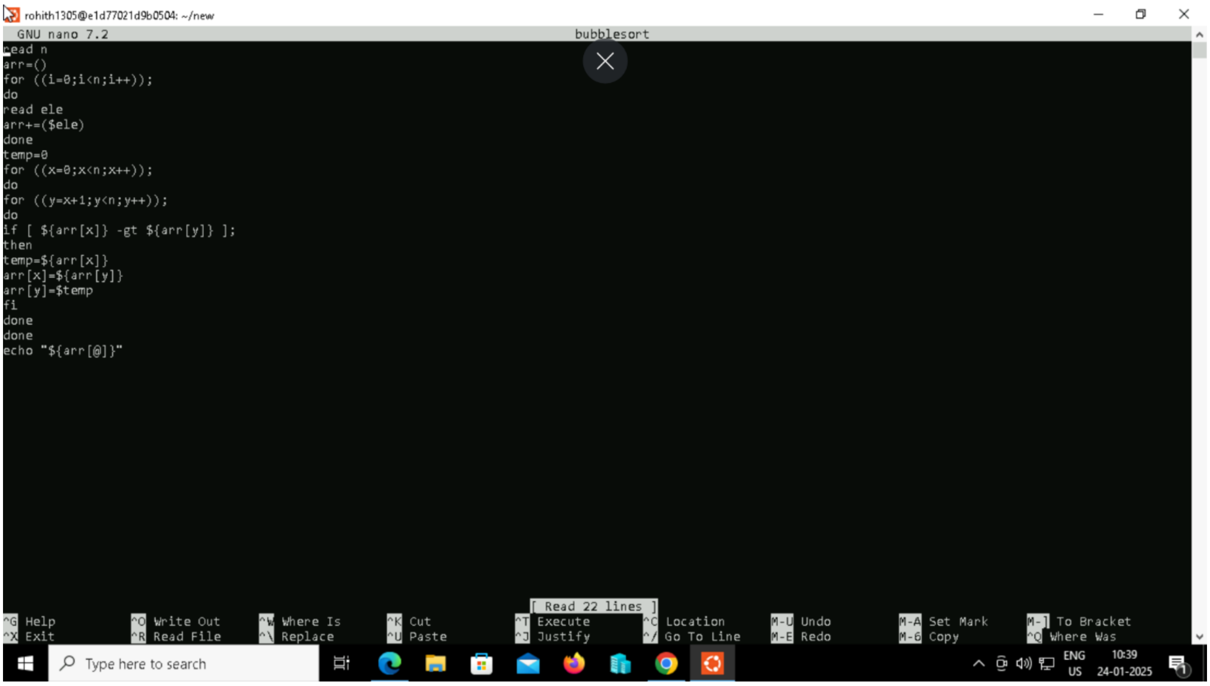


```
read n
rev=0
while [ $n -gt 0 ];
do
rem=$((n%10))
rev=$((rev*10 + rem))
n=$((n/10))
done
echo $rev
```

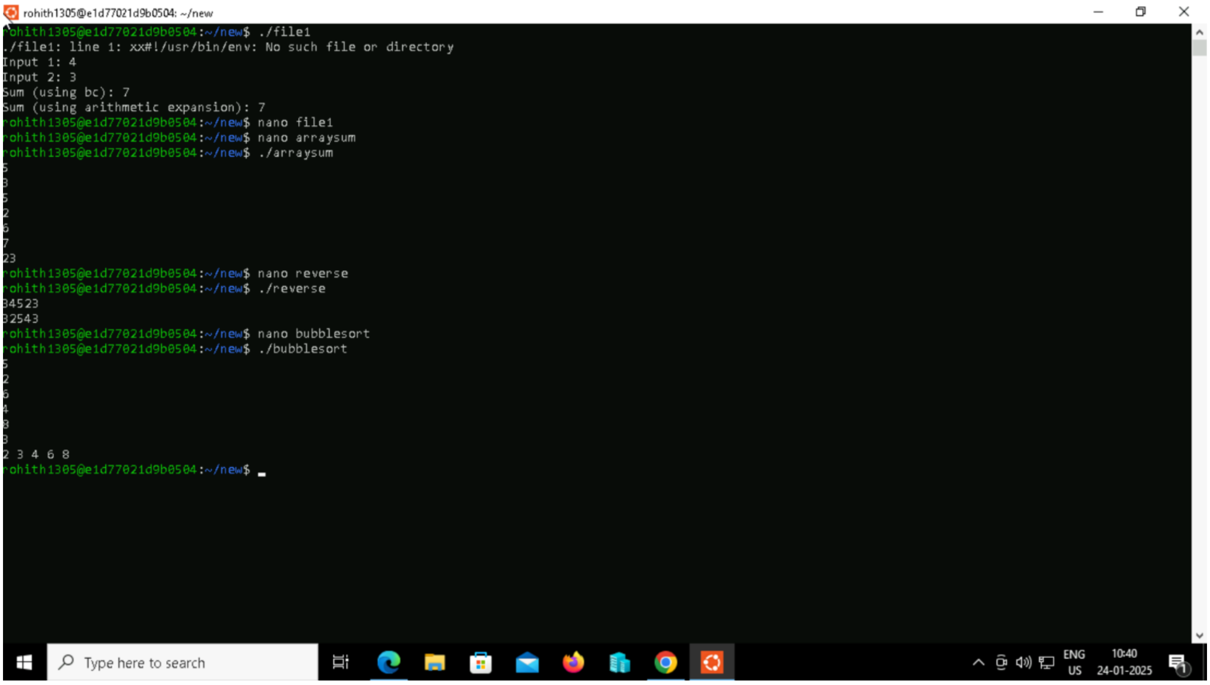


```
rohith1305@e1d77021d9b0504:~/new$ ./file1
./file1: line 1: xx#!/usr/bin/env: No such file or directory
Input 1: 4
Input 2: 3
Sum (using bc): 7
Sum (using arithmetic expansion): 7
rohith1305@e1d77021d9b0504:~/new$ nano file1
rohith1305@e1d77021d9b0504:~/new$ nano arraysum
rohith1305@e1d77021d9b0504:~/new$ ./arraysum
5
3
5
2
6
7
23
rohith1305@e1d77021d9b0504:~/new$ nano reverse
rohith1305@e1d77021d9b0504:~/new$ ./reverse
34523
32543
rohith1305@e1d77021d9b0504:~/new$ _
```

Bubble sort:

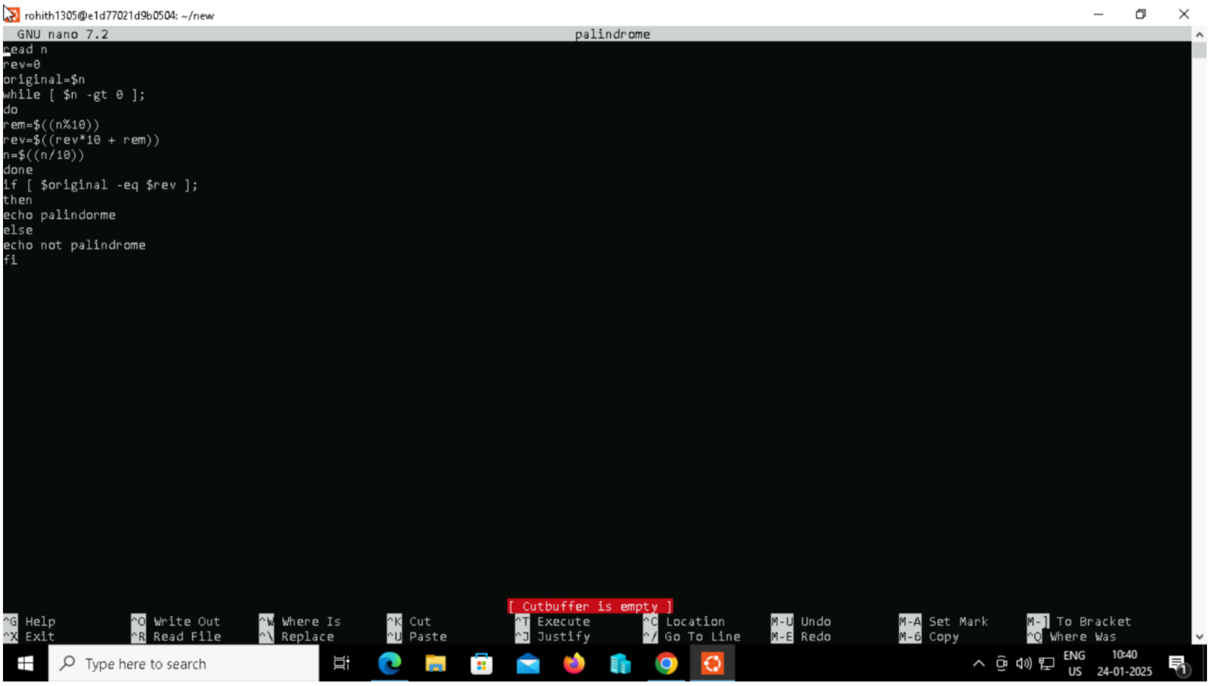


```
read n
arr=()
for ((i=0;i<n;i++));
do
read ele
arr+=($ele)
done
temp=0
for ((x=0;x<n;x++));
do
for ((y=x+1;y<n;y++));
do
if [ ${arr[x]} -gt ${arr[y]} ];
then
temp=${arr[x]}
arr[x]=${arr[y]}
arr[y]=$temp
fi
done
done
echo "${arr[@]}"
```

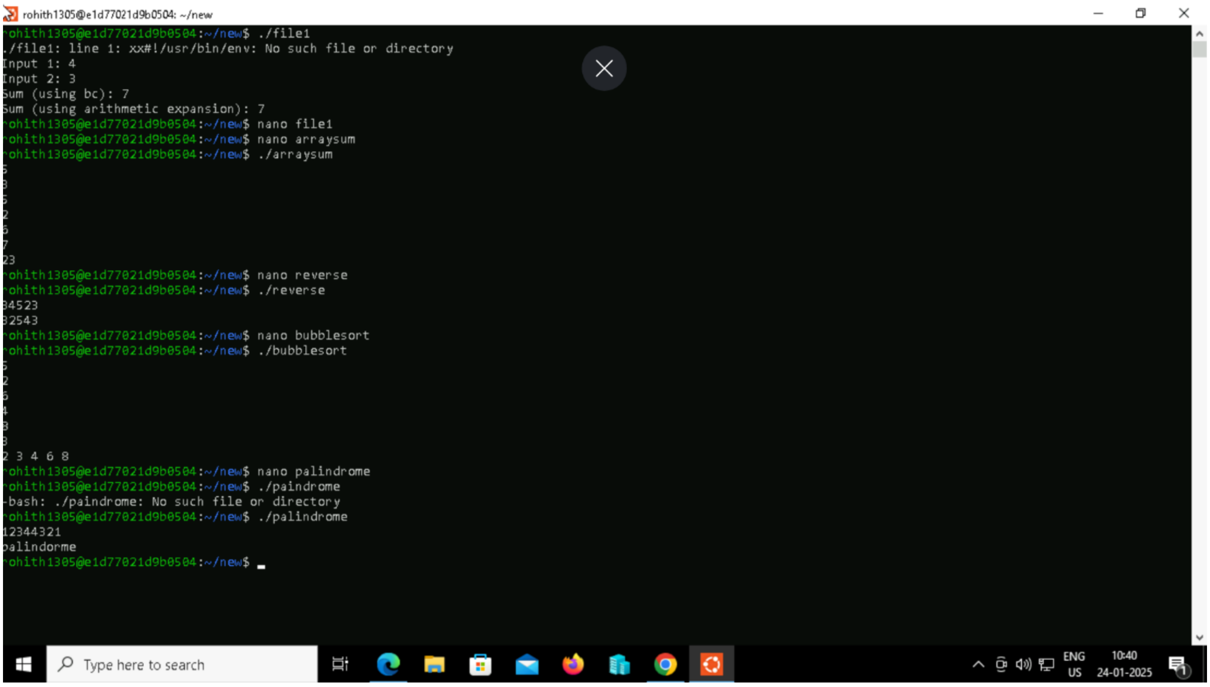


```
rohith1305@e1d77021d9b0504:~/new$ ./file1
./file1: line 1: xx#!/usr/bin/env: No such file or directory
Input 1: 4
Input 2: 3
Sum (using bc): 7
Sum (using arithmetic expansion): 7
rohith1305@e1d77021d9b0504:~/new$ nano file1
rohith1305@e1d77021d9b0504:~/new$ nano arraysum
rohith1305@e1d77021d9b0504:~/new$ ./arraysum
5
3
5
2
6
7
23
rohith1305@e1d77021d9b0504:~/new$ nano reverse
rohith1305@e1d77021d9b0504:~/new$ ./reverse
34523
32543
rohith1305@e1d77021d9b0504:~/new$ nano bubblesort
rohith1305@e1d77021d9b0504:~/new$ ./bubblesort
5
2
6
4
8
3
2 3 4 6 8
rohith1305@e1d77021d9b0504:~/new$ _
```

Palindrome:

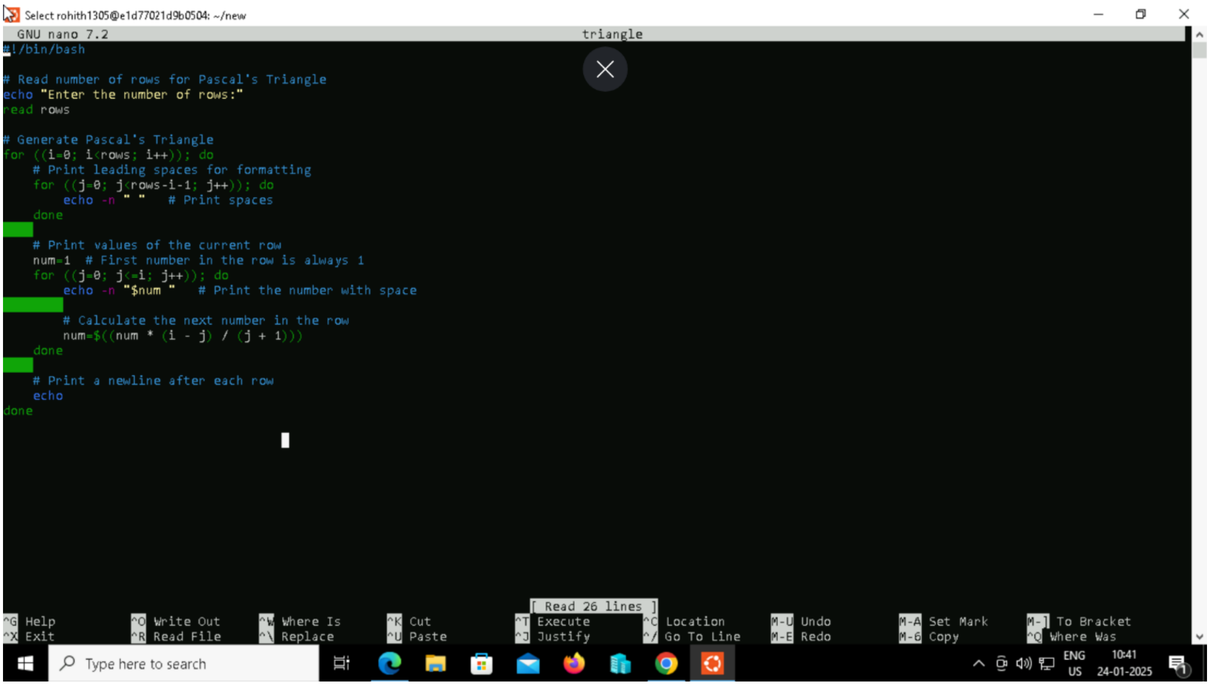


```
  GNU nano 7.2                                              palindrome
read n
rev=0
original=$n
while [ $n -gt 0 ];
do
rem=$((n%10))
rev=$((rev*10 + rem))
n=$((n/10))
done
if [ $original -eq $rev ];
then
echo palindorme
else
echo not palindrome
fi

                                   [ Cutbuffer is empty ]
^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location    M-U Undo       M-A Set Mark   M-] To Bracket
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo       M-6 Copy       ^Q Where Was
```



```
rohith1305@e1d77021d9b0504:~/new$ ./file1
./file1: line 1: xx#!/usr/bin/env: No such file or directory
Input 1: 4
Input 2: 3
Sum (using bc): 7
Sum (using arithmetic expansion): 7
rohith1305@e1d77021d9b0504:~/new$ nano file1
rohith1305@e1d77021d9b0504:~/new$ nano arraysum
rohith1305@e1d77021d9b0504:~/new$ ./arraysum
5
3
5
2
6
7
23
rohith1305@e1d77021d9b0504:~/new$ nano reverse
rohith1305@e1d77021d9b0504:~/new$ ./reverse
34523
32543
rohith1305@e1d77021d9b0504:~/new$ nano bubblesort
rohith1305@e1d77021d9b0504:~/new$ ./bubblesort
5
2
6
4
3
8
2 3 4 6 8
rohith1305@e1d77021d9b0504:~/new$ nano palindrome
rohith1305@e1d77021d9b0504:~/new$ ./paindrome
-bash: ./paindrome: No such file or directory
rohith1305@e1d77021d9b0504:~/new$ ./palindrome
12344321
palindorme
rohith1305@e1d77021d9b0504:~/new$ _
```

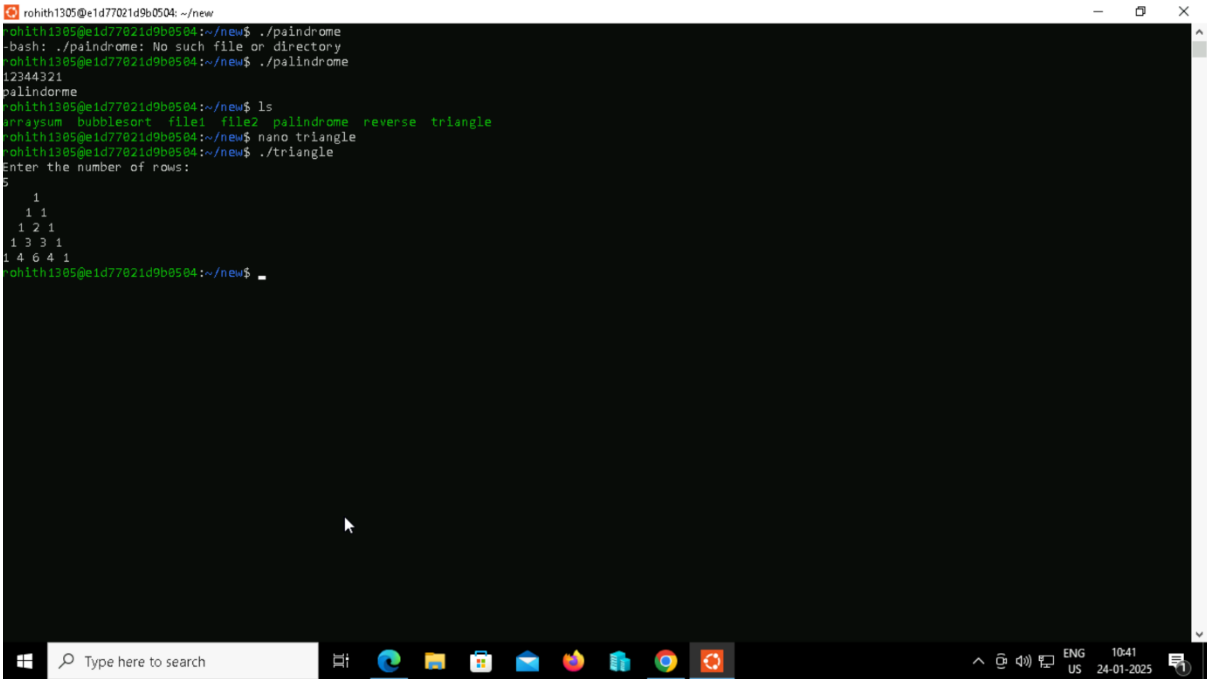
Pascal triangle:



Select rohith1305@e1d77021d9b0504: ~/new

```
  GNU nano 7.2                                                triangle
#!/bin/bash

# Read number of rows for Pascal's Triangle
echo "Enter the number of rows:"
read rows

# Generate Pascal's Triangle
for ((i=0; i<rows; i++)); do
    # Print leading spaces for formatting
    for ((j=0; j<rows-i-1; j++)); do
        echo -n " "   # Print spaces
    done

    # Print values of the current row
    num=1  # First number in the row is always 1
    for ((j=0; j<=i; j++)); do
        echo -n "$num "   # Print the number with space

        # Calculate the next number in the row
        num=$((num * (i - j) / (j + 1)))
    done

    # Print a newline after each row
    echo
done
```

```
[ Read 26 lines ]
```



rohith1305@e1d77021d9b0504: ~/new

```
rohith1305@e1d77021d9b0504:~/new$ ./paindrome
-bash: ./paindrome: No such file or directory
rohith1305@e1d77021d9b0504:~/new$ ./palindrome
12344321
palindorme
rohith1305@e1d77021d9b0504:~/new$ ls
arraysum  bubblesort  file1  file2  palindrome  reverse  triangle
rohith1305@e1d77021d9b0504:~/new$ nano triangle
rohith1305@e1d77021d9b0504:~/new$ ./triangle
Enter the number of rows:
5
    1
   1 1
  1 2 1
 1 3 3 1
1 4 6 4 1
rohith1305@e1d77021d9b0504:~/new$ 
```