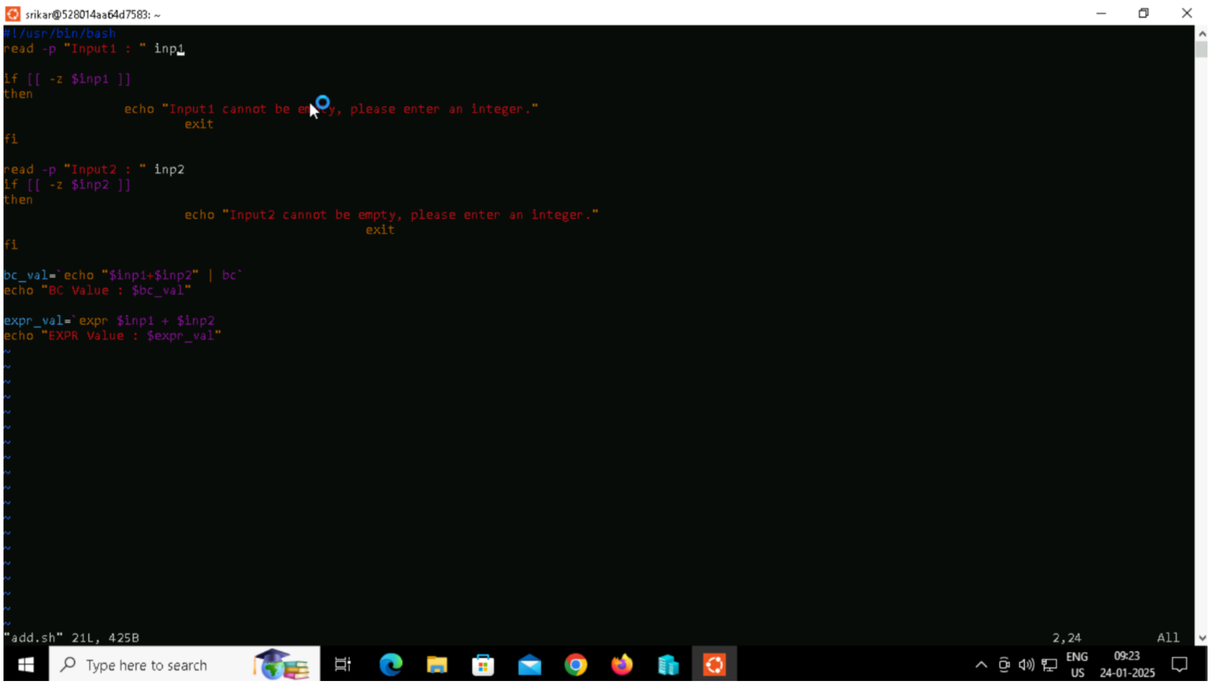
SHELL SCRIPTING PROGRAMS

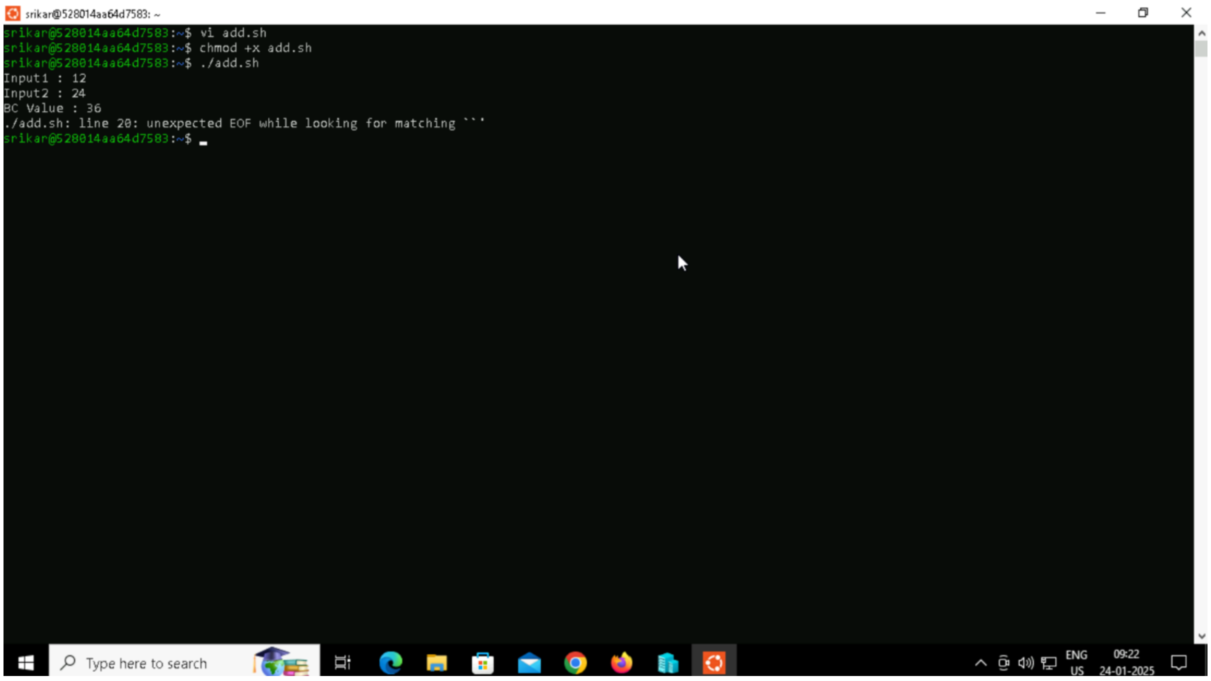
1. Sum of two numbers

CODE



```
#!/usr/bin/bash
read -p "Input1 : " inp1

if [[ -z $inp1 ]]
then
                echo "Input1 cannot be empty, please enter an integer."
                        exit
fi

read -p "Input2 : " inp2
if [[ -z $inp2 ]]
then
                        echo "Input2 cannot be empty, please enter an integer."
                                                exit
fi

bc_val=`echo "$inp1+$inp2" | bc`
echo "BC Value : $bc_val"

expr_val=`expr $inp1 + $inp2
echo "EXPR Value : $expr_val"
~
"add.sh" 21L, 425B                                              2,24          All
```

OUTPUT

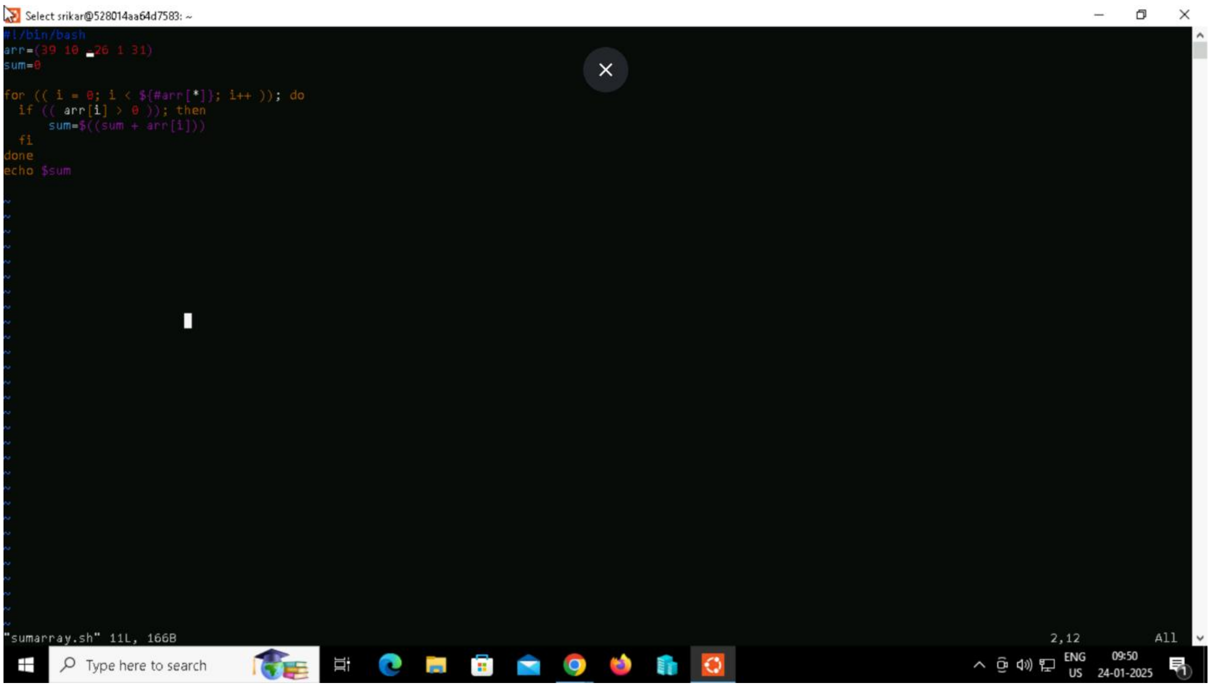


```
srikar@528014aa64d7583:~$ vi add.sh
srikar@528014aa64d7583:~$ chmod +x add.sh
srikar@528014aa64d7583:~$ ./add.sh
Input1 : 12
Input2 : 24
BC Value : 36
./add.sh: line 20: unexpected EOF while looking for matching ``'
srikar@528014aa64d7583:~$ 
```

2. Sum of array

CODE

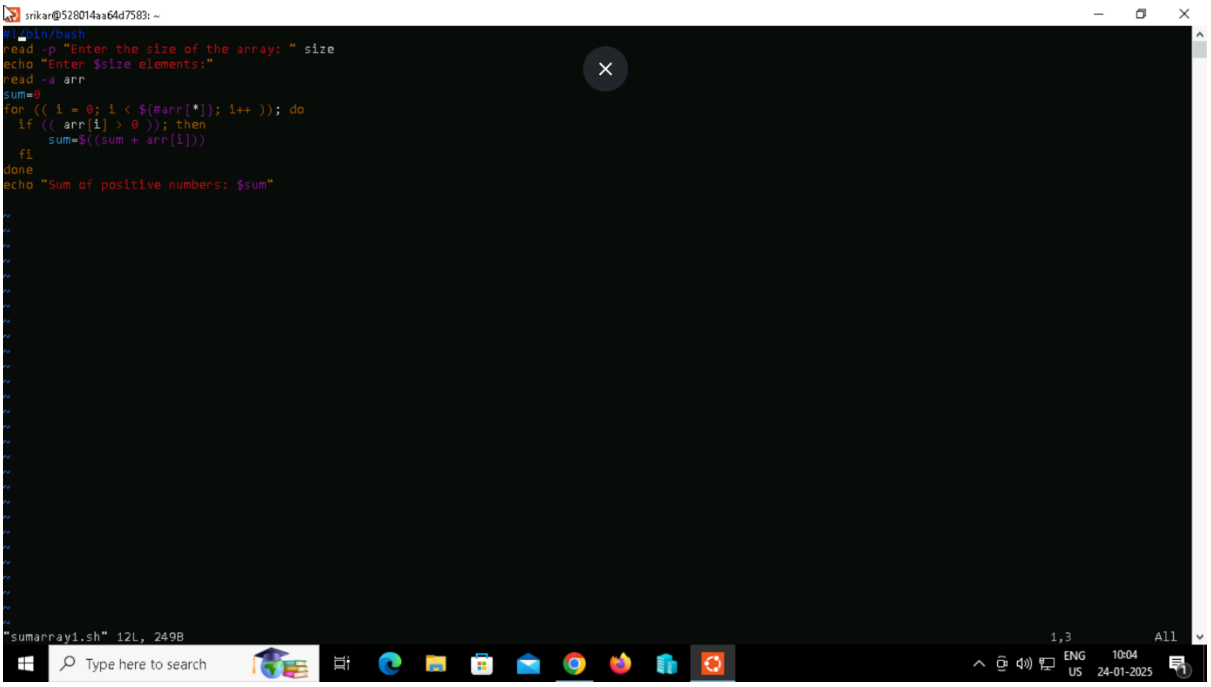
Sum of array code taking the input directly



```
#!/bin/bash
arr=(39 10 -26 1 31)
sum=0

for (( i = 0; i < ${#arr[*]}; i++ )); do
  if (( arr[i] > 0 )); then
      sum=$((sum + arr[i]))
  fi
done
echo $sum
```

```
"sumarray.sh" 11L, 166B                                   2,12          All
```

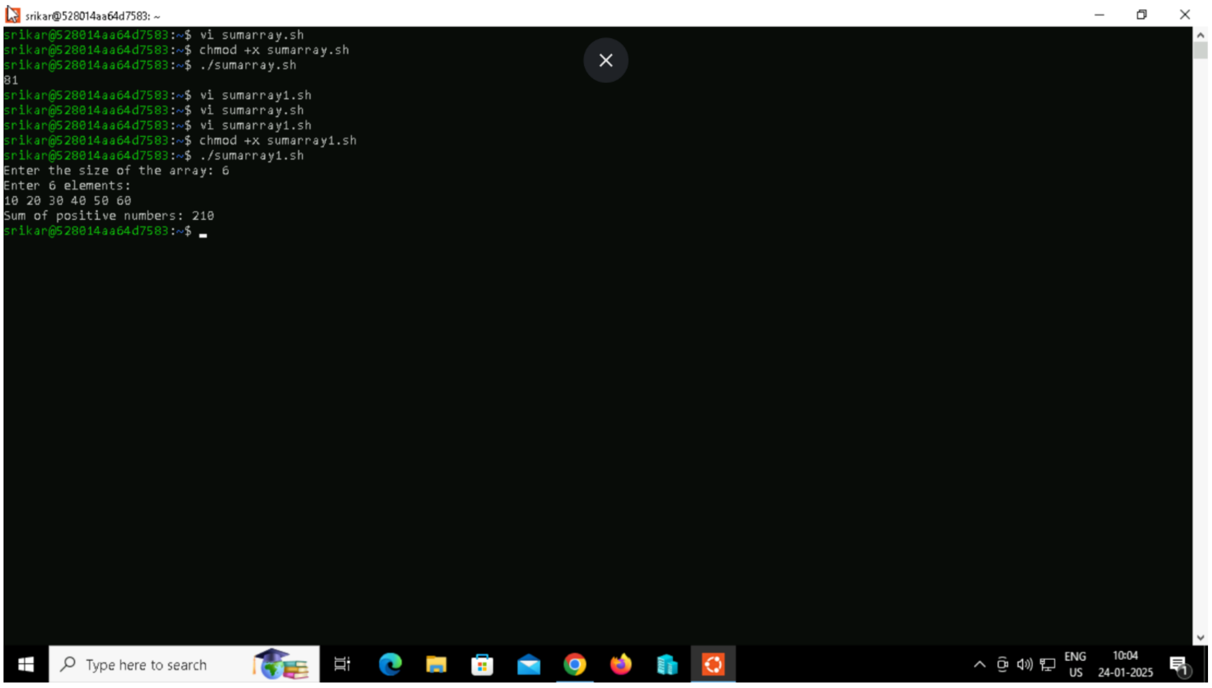
Sum of array code taking the user input



```
#!/bin/bash
read -p "Enter the size of the array: " size
echo "Enter $size elements:"
read -a arr
sum=0
for (( i = 0; i < ${#arr[*]}; i++ )); do
  if (( arr[i] > 0 )); then
      sum=$((sum + arr[i]))
  fi
done
echo "Sum of positive numbers: $sum"
```

```
"sumarray1.sh" 12L, 249B                                  1,3           All
```

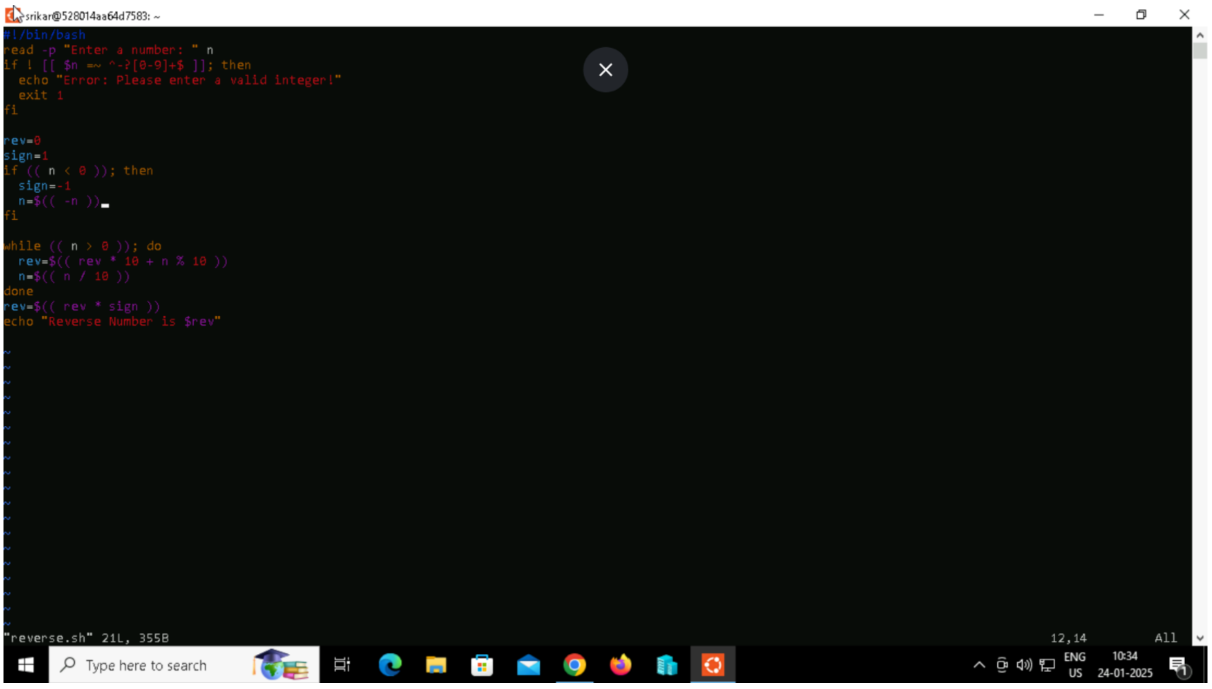
OUTPUT



```
srikar@528014aa64d7583:~$ vi sumarray.sh
srikar@528014aa64d7583:~$ chmod +x sumarray.sh
srikar@528014aa64d7583:~$ ./sumarray.sh
81
srikar@528014aa64d7583:~$ vi sumarray1.sh
srikar@528014aa64d7583:~$ vi sumarray.sh
srikar@528014aa64d7583:~$ vi sumarray1.sh
srikar@528014aa64d7583:~$ chmod +x sumarray1.sh
srikar@528014aa64d7583:~$ ./sumarray1.sh
Enter the size of the array: 6
Enter 6 elements:
10 20 30 40 50 60
Sum of positive numbers: 210
srikar@528014aa64d7583:~$
```

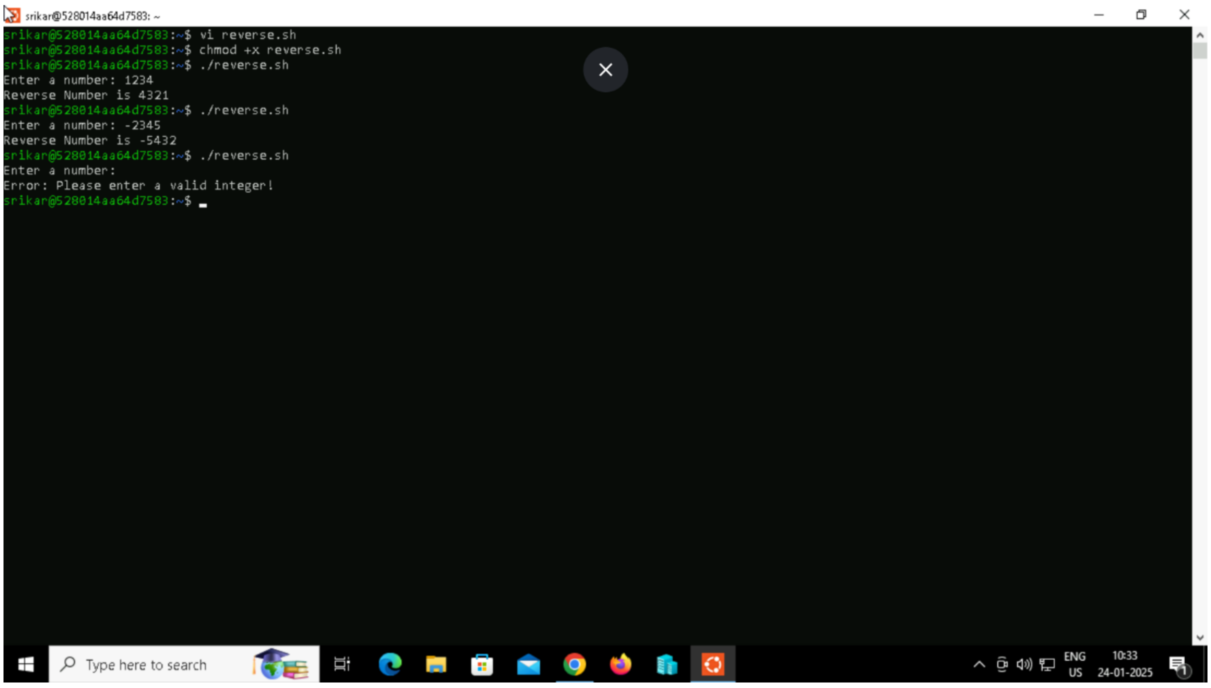
3. Reverse a number

CODE



```
#!/bin/bash
read -p "Enter a number: " n
if ! [[ $n =~ ^-?[0-9]+$ ]]; then
  echo "Error: Please enter a valid integer!"
  exit 1
fi

rev=0
sign=1
if (( n < 0 )); then
  sign=-1
  n=$(( -n ))
fi

while (( n > 0 )); do
  rev=$(( rev * 10 + n % 10 ))
  n=$(( n / 10 ))
done
rev=$(( rev * sign ))
echo "Reverse Number is $rev"
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"reverse.sh" 21L, 355B                                          12,14          All
```

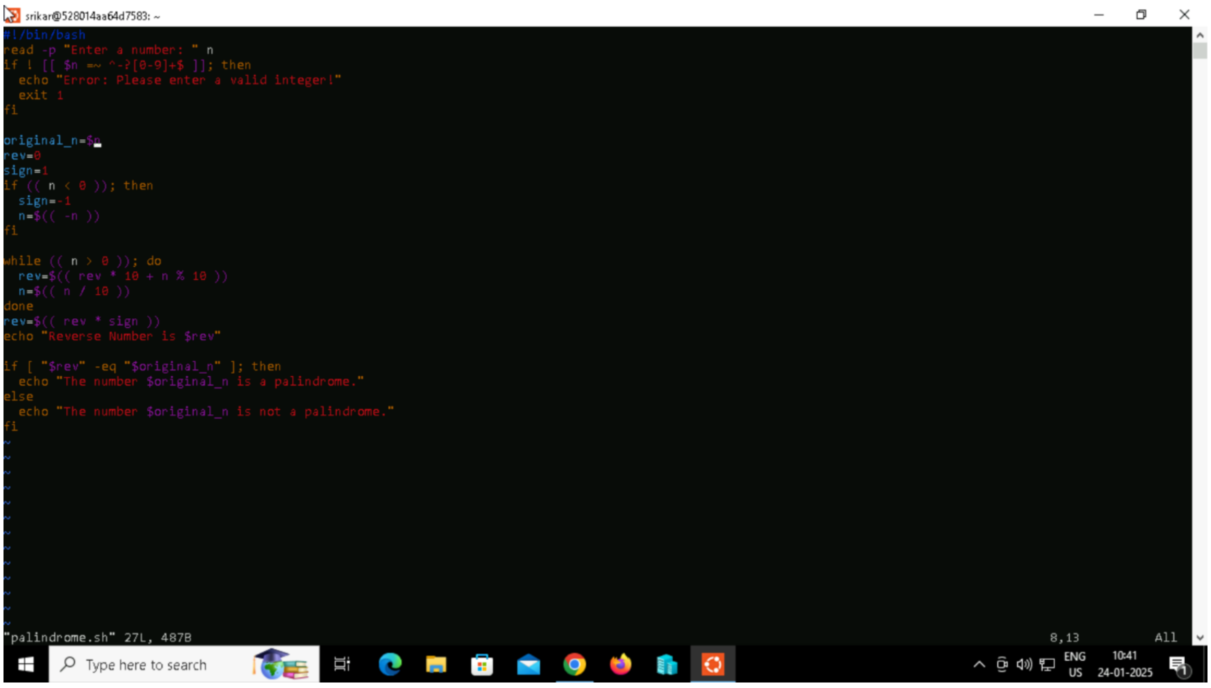
OUTPUT



```
srikar@528014aa64d7583:~$ vi reverse.sh
srikar@528014aa64d7583:~$ chmod +x reverse.sh
srikar@528014aa64d7583:~$ ./reverse.sh
Enter a number: 1234
Reverse Number is 4321
srikar@528014aa64d7583:~$ ./reverse.sh
Enter a number: -2345
Reverse Number is -5432
srikar@528014aa64d7583:~$ ./reverse.sh
Enter a number:
Error: Please enter a valid integer!
srikar@528014aa64d7583:~$
```

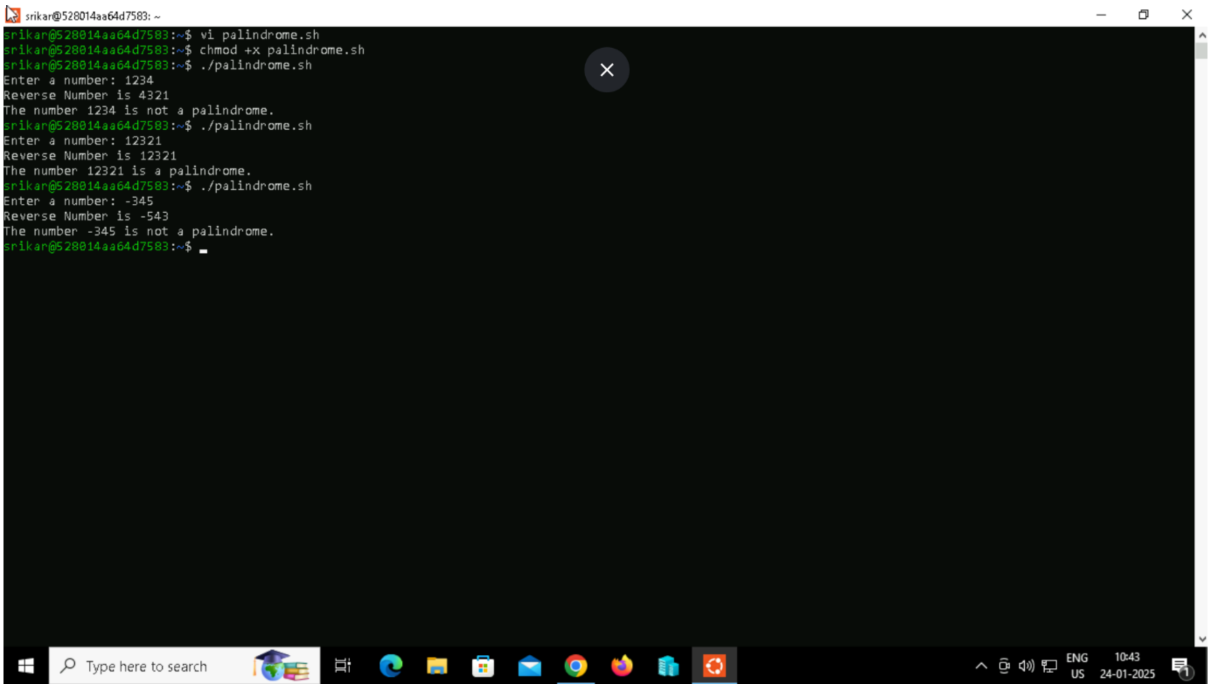
4. Palindrome number

CODE



```
#!/bin/bash
read -p "Enter a number: " n
if ! [[ $n =~ ^-?[0-9]+$ ]]; then
  echo "Error: Please enter a valid integer!"
  exit 1
fi

original_n=$n
rev=0
sign=1
if (( n < 0 )); then
  sign=-1
  n=$(( -n ))
fi

while (( n > 0 )); do
  rev=$(( rev * 10 + n % 10 ))
  n=$(( n / 10 ))
done
rev=$(( rev * sign ))
echo "Reverse Number is $rev"

if [ "$rev" -eq "$original_n" ]; then
  echo "The number $original_n is a palindrome."
else
  echo "The number $original_n is not a palindrome."
fi
~
"palindrome.sh" 27L, 487B                                    8,13          All
```

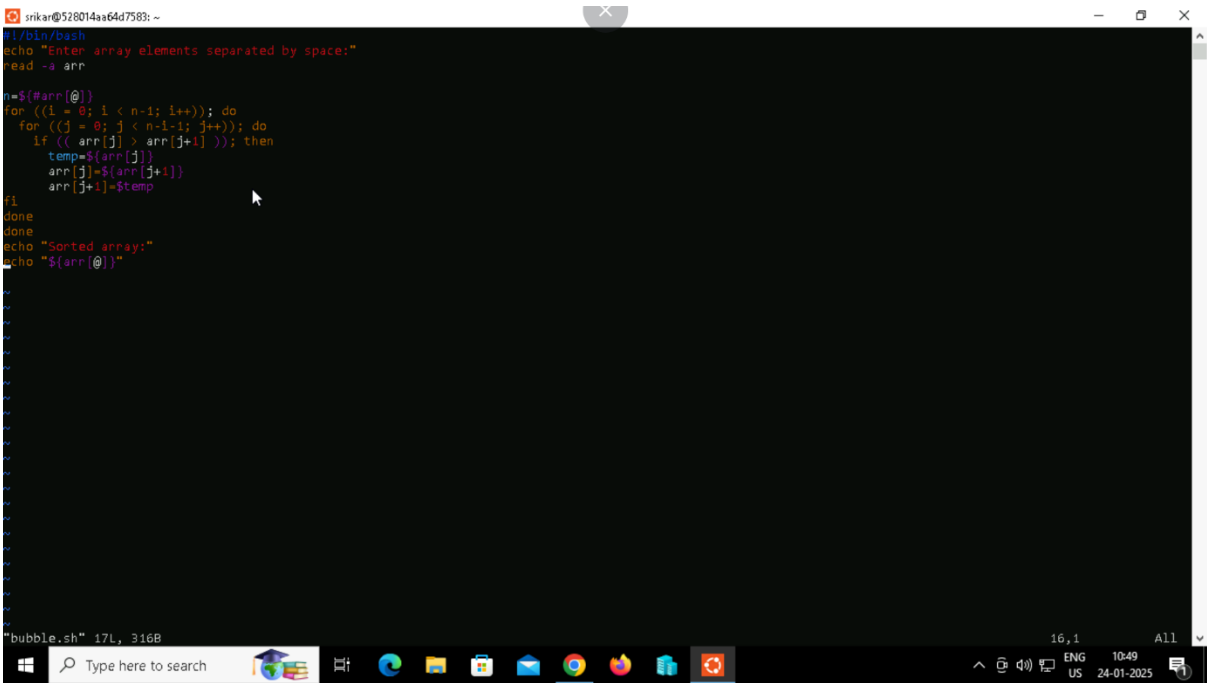
OUTPUT



```
srikar@528014aa64d7583:~$ vi palindrome.sh
srikar@528014aa64d7583:~$ chmod +x palindrome.sh
srikar@528014aa64d7583:~$ ./palindrome.sh
Enter a number: 1234
Reverse Number is 4321
The number 1234 is not a palindrome.
srikar@528014aa64d7583:~$ ./palindrome.sh
Enter a number: 12321
Reverse Number is 12321
The number 12321 is a palindrome.
srikar@528014aa64d7583:~$ ./palindrome.sh
Enter a number: -345
Reverse Number is -543
The number -345 is not a palindrome.
srikar@528014aa64d7583:~$
```

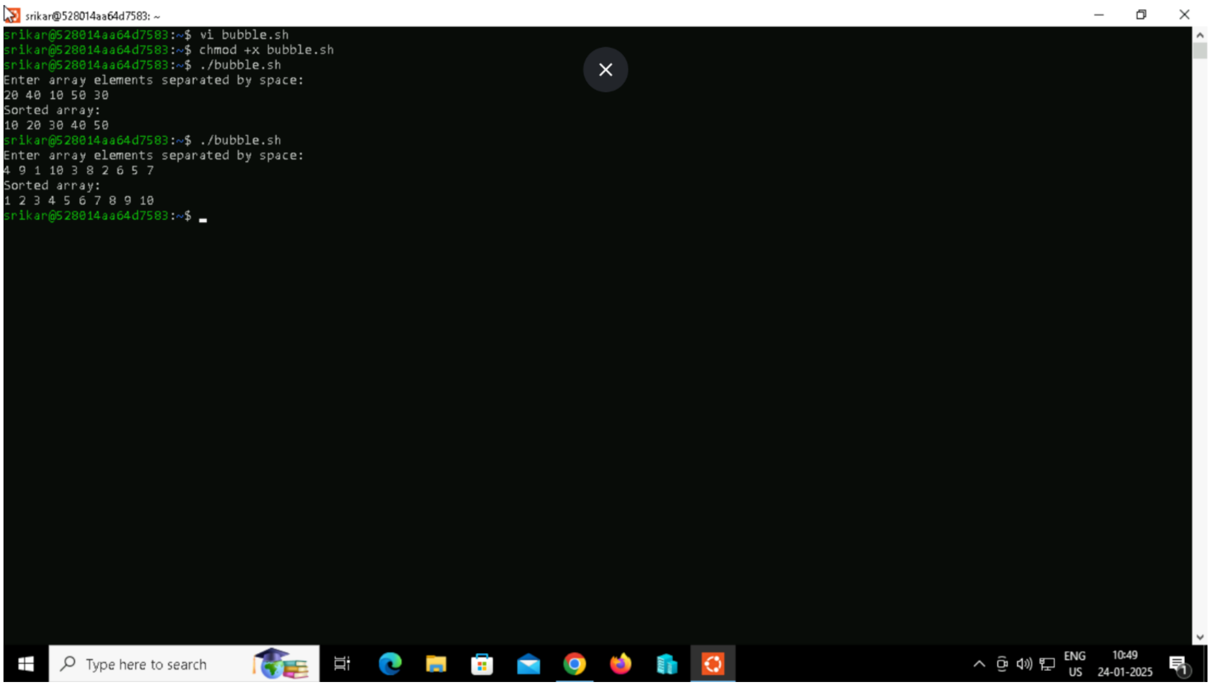
5. Bubble sort

CODE



```
#!/bin/bash
echo "Enter array elements separated by space:"
read -a arr

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 "Sorted array:"
echo "${arr[@]}"

"bubble.sh" 17L, 316B                                                         16,1          All
```

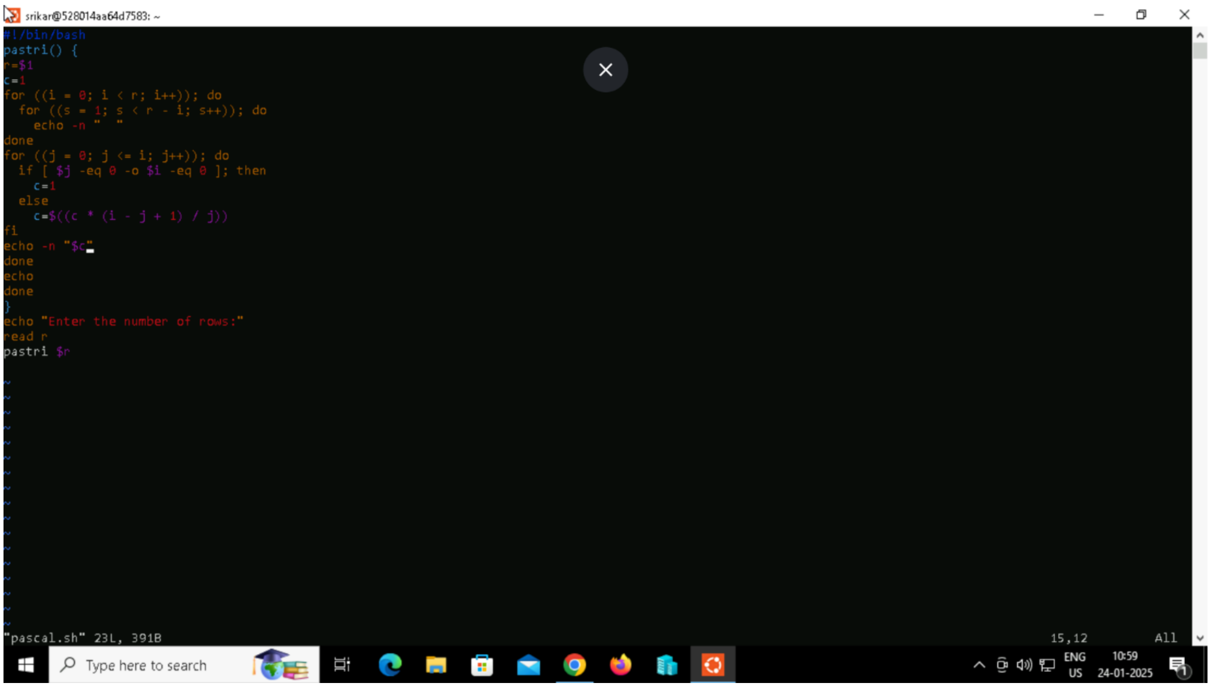
OUTPUT



```
srikar@528014aa64d7583:~$ vi bubble.sh
srikar@528014aa64d7583:~$ chmod +x bubble.sh
srikar@528014aa64d7583:~$ ./bubble.sh
Enter array elements separated by space:
20 40 10 50 30
Sorted array:
10 20 30 40 50
srikar@528014aa64d7583:~$ ./bubble.sh
Enter array elements separated by space:
4 9 1 10 3 8 2 6 5 7
Sorted array:
1 2 3 4 5 6 7 8 9 10
srikar@528014aa64d7583:~$ 
```

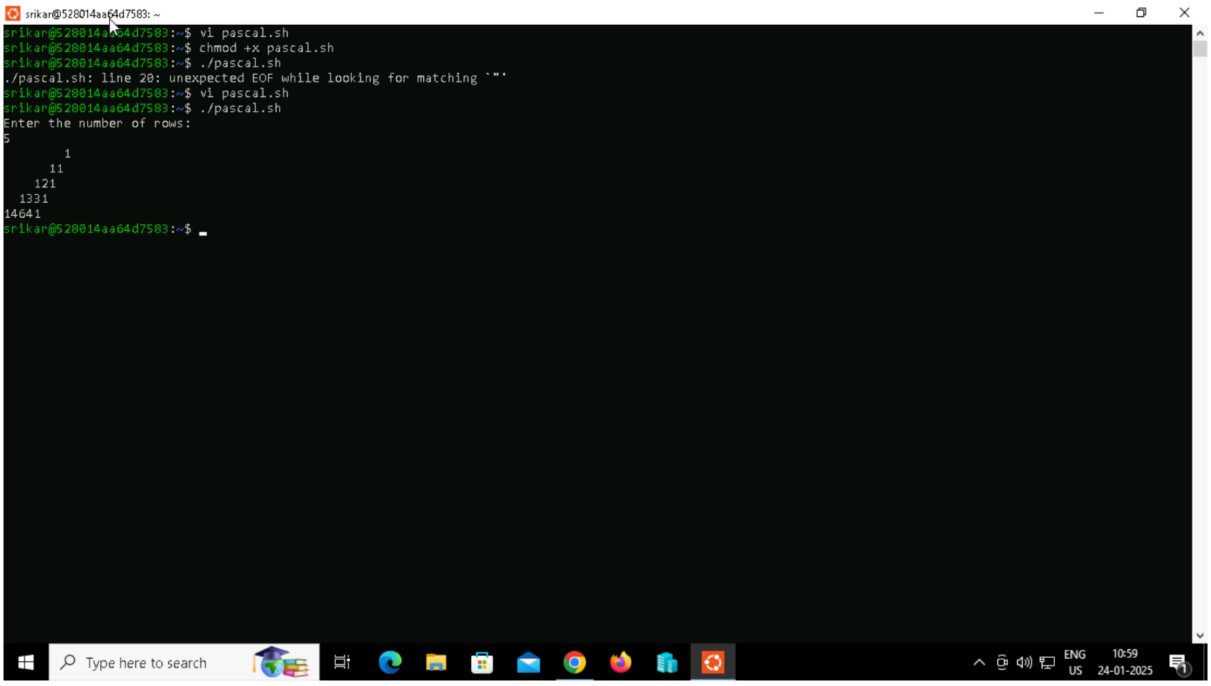
6. Pascal Triangle

CODE



```
#!/bin/bash
pastri() {
r=$1
c=1
for ((i = 0; i < r; i++)); do
  for ((s = 1; s < r - i; s++)); do
    echo -n "  "
done
for ((j = 0; j <= i; j++)); do
  if [ $j -eq 0 -o $i -eq 0 ]; then
    c=1
  else
    c=$((c * (i - j + 1) / j))
fi
echo -n "$c"
done
echo
done
}
echo "Enter the number of rows:"
read r
pastri $r

~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"pascal.sh" 23L, 391B                                                     15,12         All
```

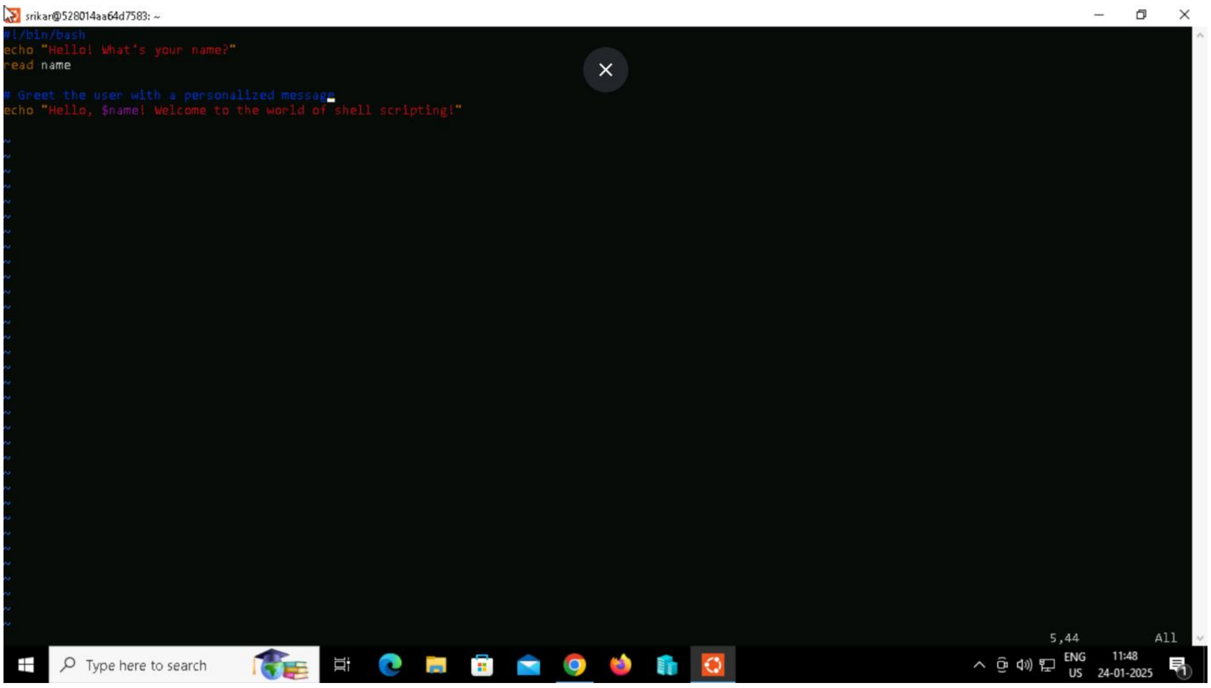
OUTPUT



```
srikar@528014aa64d7583:~$ vi pascal.sh
srikar@528014aa64d7583:~$ chmod +x pascal.sh
srikar@528014aa64d7583:~$ ./pascal.sh
./pascal.sh: line 20: unexpected EOF while looking for matching `"'
srikar@528014aa64d7583:~$ vi pascal.sh
srikar@528014aa64d7583:~$ ./pascal.sh
Enter the number of rows:
5
        1
      11
    121
  1331
14641
srikar@528014aa64d7583:~$
```

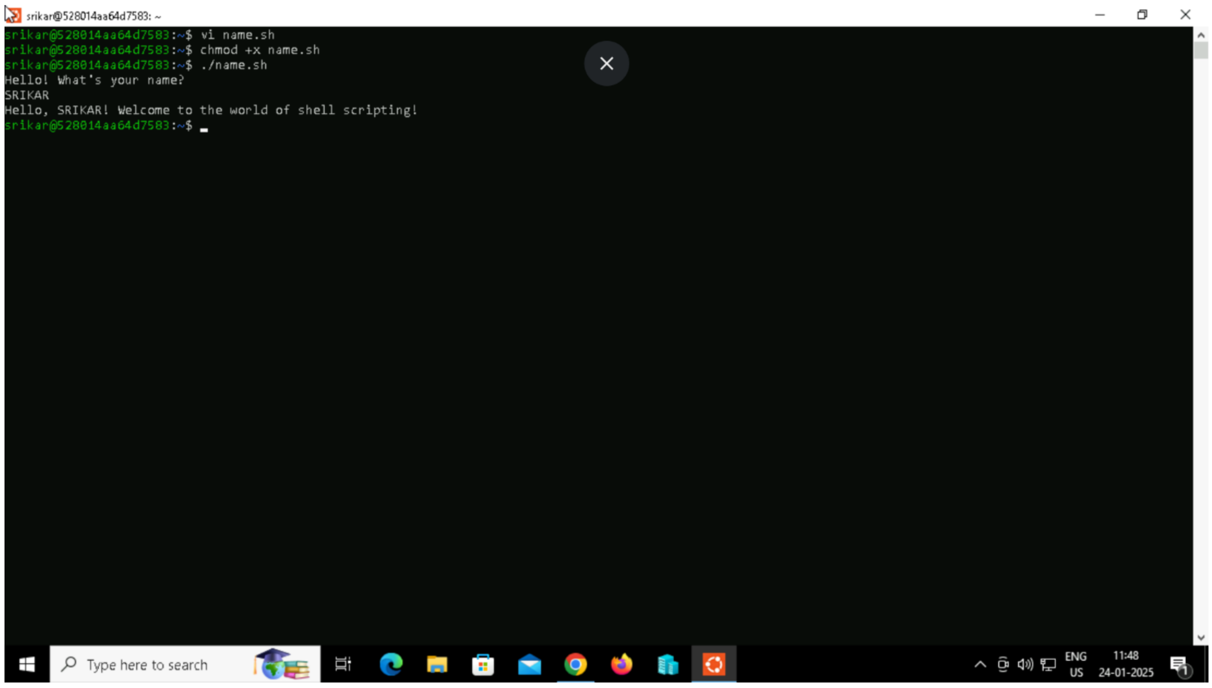
7. Personalized name Program

CODE



```
#!/bin/bash
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!"
```

OUTPUT



```
srikar@528014aa64d7583:~$ vi name.sh
srikar@528014aa64d7583:~$ chmod +x name.sh
srikar@528014aa64d7583:~$ ./name.sh
Hello! What's your name?
SRIKAR
Hello, SRIKAR! Welcome to the world of shell scripting!
srikar@528014aa64d7583:~$ _
```