

BASH

ARTHIMETICS IN BASH

INPUT:

```
kireeti@ac255b1135b0553:~$ arthi_oper.sh
arthi_oper.sh: command not found
kireeti@ac255b1135b0553:~$ touch arthi_oper.sh
kireeti@ac255b1135b0553:~$ nano arthi_oper.sh
kireeti@ac255b1135b0553:~$ ls -l
total 56
-rw-r--r-- 1 kireeti kireeti 164 Jan 21 07:09 index.html
-rw-r--r-- 1 kireeti kireeti 141 Jan 22 04:33 file1.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 04:35 r1n
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 04:35 nami
-rw-r--r-- 1 kireeti kireeti 219 Jan 22 09:43 greet.sh
-rw-r--r-- 1 kireeti kireeti 215 Jan 22 10:13 greeting.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 12:09 testfile
-rw-r--r-- 1 kireeti kireeti 84 Jan 22 12:19 script.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 12:21 test_website
drwx----- 3 kireeti kireeti 4096 Jan 23 06:12 snap
-rw-r--r-- 1 kireeti kireeti 445 Jan 23 12:19 add.sh
-rw-r--r-- 1 kireeti kireeti 481 Jan 24 05:23 palindrome.sh
-rw-r--r-- 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh
-rw-r--r-- 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh
-rw-r--r-- 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh
-rw-r--r-- 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh
-rw-r--r-- 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh
-rw-r--r-- 1 kireeti kireeti 814 Jan 24 11:35 arthi_oper.sh
kireeti@ac255b1135b0553:~$ chmod a+x arthi_oper.sh
kireeti@ac255b1135b0553:~$ ./arthi_oper.sh
x=8, y=2
Addition of x & y:
10
Subtraction of x & y:
6
Multiplication of x & y:
16
Division of x by y:
4
Exponentiation of x,y:
64
Modular Division of x,y:
0
Incrementing x by 5, then x=
13
Activate Windows
Go to Settings to activate Windows.
17:06
IN 24-01-2025
```

OUTPUT:

```
kireeti@ac255b1135b0553:~$ 
-rw-r--r-- 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh
-rw-r--r-- 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh
-rw-r--r-- 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh
-rw-r--r-- 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh
-rw-r--r-- 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh
-rw-r--r-- 1 kireeti kireeti 814 Jan 24 11:35 arthi_oper.sh
kireeti@ac255b1135b0553:~$ chmod a+x arthi_oper.sh
kireeti@ac255b1135b0553:~$ ./arthi_oper.sh
x=8, y=2
Addition of x & y:
10
Subtraction of x & y:
6
Multiplication of x & y:
16
Division of x by y:
4
Exponentiation of x,y:
64
Modular Division of x,y:
0
Incrementing x by 5, then x=
13
Decrementing x by 5, then x=
9
Multiplying x by 5, then x=
45
Dividing x by 5, then x=
8
Remainder of dividing x by 5, x=
3
kireeti@ac255b1135b0553:~$ 
Activate Windows
Go to Settings to activate Windows.
17:07
IN 24-01-2025
```

```
kireeti@ac255b1135b053:~  
GNU nano 7.2 arthi_oper.sh  
#!/bin/bash  
  
x=8  
y=2  
  
echo "x=8, y=2"  
  
# Addition  
echo "Addition of x & y:"  
echo $(( x + y ))  
  
# Subtraction  
echo "Subtraction of x & y:"  
echo $(( x - y ))  
  
# Multiplication  
echo "Multiplication of x & y:"  
echo $(( x * y ))  
  
# Division  
echo "Division of x by y:"  
echo $(( x / y ))  
  
# Exponentiation  
echo "Exponentiation of x,y:"  
echo $(( x ** y ))  
  
# Modular Division  
echo "Modular Division of x,y:"  
echo $(( x % y ))  
  
# Increment x by 5  
echo "Incrementing x by 5, then x="  
(( x += 5 ))  
echo $x  
  
# Decrement x by 5  
echo "Decrementing x by 5, then x="  
(( x -= 5 ))  
echo $x  
  
# Multiply x by 5  
echo "Multiplying x by 5, then x="  
(( x *= 5 ))  
echo $x  
  
# Divide x by 5  
echo "Dividing x by 5, then x="  
(( x /= 5 ))  
echo $x  
  
# Remainder when dividing x by 5  
echo "Remainder of dividing x by 5, x="  
(( x %= 5 ))  
echo $x
```

Activate Windows
Go to Settings to activate Windows.
M-A Set Mark M-B To Bracket
M-C Location M-D Go To Line
M-U Undo M-E Redo
M-G Help M-R Read File M-W Where Is
M-X Exit M-O Write Out M-P Replace
M-T Execute M-J Justify M-F Copy
M-V Cut M-L Go To Line M-S Where Was
ENG 17:07 IN 24-01-2025

```
kireeti@ac255b1135b053:~  
GNU nano 7.2 arthi_oper.sh  
#!/bin/bash  
  
x=8  
y=2  
  
echo "x=8, y=2"  
  
# Addition  
echo "Addition of x & y:"  
echo $(( x + y ))  
  
# Subtraction  
echo "Subtraction of x & y:"  
echo $(( x - y ))  
  
# Multiplication  
echo "Multiplication of x & y:"  
echo $(( x * y ))  
  
# Division  
echo "Division of x by y:"  
echo $(( x / y ))  
  
# Exponentiation  
echo "Exponentiation of x,y:"  
echo $(( x ** y ))  
  
# Modular Division  
echo "Modular Division of x,y:"  
echo $(( x % y ))  
  
# Increment x by 5  
echo "Incrementing x by 5, then x="  
(( x += 5 ))  
echo $x  
  
# Decrement x by 5  
echo "Decrementing x by 5, then x="  
(( x -= 5 ))  
echo $x  
  
# Multiply x by 5  
echo "Multiplying x by 5, then x="  
(( x *= 5 ))  
echo $x  
  
# Divide x by 5  
echo "Dividing x by 5, then x="  
(( x /= 5 ))  
echo $x  
  
# Remainder when dividing x by 5  
echo "Remainder of dividing x by 5, x="  
(( x %= 5 ))  
echo $x
```

Activate Windows
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M-G Help M-R Read File M-W Where Is
M-X Exit M-O Write Out M-P Replace
M-T Execute M-J Justify M-F Copy
M-V Cut M-L Go To Line M-S Where Was
ENG 17:07 IN 24-01-2025

```
kireeti@ac255b1135b0553:~  
array_sum.sh bubble_sort.sh greet.sh index.html palindrome.sh reverse_number.sh script.sh test_website user_input.sh  
kireeti@ac255b1135b0553:~$ nano add.sh  
kireeti@ac255b1135b0553:~$ nano addi.sh  
kireeti@ac255b1135b0553:~$ ./addi.sh  
-bash: ./addi.sh: Permission denied  
kireeti@ac255b1135b0553:~$ chmod a+x add  
add.sh addi.sh  
kireeti@ac255b1135b0553:~$ chmod a+x addi.sh  
kireeti@ac255b1135b0553:~$ ls -ltr  
total 68  
-rw-r--r-- 1 kireeti kireeti 164 Jan 21 07:09 index.html  
-rwxr-xr-x 1 kireeti kireeti 141 Jan 22 04:33 file1.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 04:35 r1n  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 04:35 nami  
-rwxr-xr-x 1 kireeti kireeti 219 Jan 22 09:43 greet.sh  
-rwxr-xr-x 1 kireeti kireeti 215 Jan 22 10:13 greeting.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 12:09 testfile  
-rwxr-xr-x 1 kireeti kireeti 80 Jan 22 12:19 script.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 12:21 test_website  
drwx----- 3 kireeti kireeti 4096 Jan 23 06:12 snap  
-rwxr-xr-x 1 kireeti kireeti 481 Jan 24 05:23 palindrome.sh  
-rwxr-xr-x 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh  
-rwxr-xr-x 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh  
-rwxr-xr-x 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh  
-rwxr-xr-x 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh  
-rwxr-xr-x 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh  
-rwxr-xr-x 1 kireeti kireeti 814 Jan 24 11:38 arithl_oper.sh  
-rwxrwxr-x 1 kireeti kireeti 445 Jan 24 12:14 add.sh  
-rwxr-xr-x 1 kireeti kireeti 173 Jan 24 12:15 addi.sh  
kireeti@ac255b1135b0553:~$ ./addi.sh  
a=10, b=3  
c is the value of addition c=a+b  
c = 13  
kireeti@ac255b1135b0553:~$
```

Activate Windows
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ADD

OUTPUT:

```
kireeti@ac255b1135b0553:~  
array_sum.sh bubble_sort.sh greet.sh index.html palindrome.sh reverse_number.sh script.sh test_website user_input.sh  
kireeti@ac255b1135b0553:~$ nano add.sh  
kireeti@ac255b1135b0553:~$ nano addi.sh  
kireeti@ac255b1135b0553:~$ ./addi.sh  
-bash: ./addi.sh: Permission denied  
kireeti@ac255b1135b0553:~$ chmod a+x add  
add.sh addi.sh  
kireeti@ac255b1135b0553:~$ chmod a+x addi.sh  
kireeti@ac255b1135b0553:~$ ls -ltr  
total 68  
-rw-r--r-- 1 kireeti kireeti 164 Jan 21 07:09 index.html  
-rwxr-xr-x 1 kireeti kireeti 141 Jan 22 04:33 file1.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 04:35 r1n  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 04:35 nami  
-rwxr-xr-x 1 kireeti kireeti 219 Jan 22 09:43 greet.sh  
-rwxr-xr-x 1 kireeti kireeti 215 Jan 22 10:13 greeting.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 12:09 testfile  
-rwxr-xr-x 1 kireeti kireeti 80 Jan 22 12:19 script.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 12:21 test_website  
drwx----- 3 kireeti kireeti 4096 Jan 23 06:12 snap  
-rwxr-xr-x 1 kireeti kireeti 481 Jan 24 05:23 palindrome.sh  
-rwxr-xr-x 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh  
-rwxr-xr-x 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh  
-rwxr-xr-x 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh  
-rwxr-xr-x 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh  
-rwxr-xr-x 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh  
-rwxr-xr-x 1 kireeti kireeti 814 Jan 24 11:38 arithl_oper.sh  
-rwxrwxr-x 1 kireeti kireeti 445 Jan 24 12:14 add.sh  
-rwxr-xr-x 1 kireeti kireeti 173 Jan 24 12:15 addi.sh  
kireeti@ac255b1135b0553:~$ ./addi.sh  
a=10, b=3  
c is the value of addition c=a+b  
c = 13  
kireeti@ac255b1135b0553:~$
```

Activate Windows
Go to Settings to activate Windows.



```
kireeti@ac255b1135b053:~  
GNUL nano 7.2  
#!/bin/Bash  
# Basic arithmetic using expr  
  
echo "a=10, b=3"  
echo "c is the value of addition c=a+b"  
  
a=10  
b=3  
  
# Perform addition using expr  
c= expr $a + $b  
echo "c = $c"  
  
add1.sh
```

Activate Windows
Go to Settings to activate Windows.
^G Help ^O Write Out ^W Where Is ^X Exit ^R Read File ^V Cut ^U Paste [Read 13 lines] ^T Execute ^C Location M-U Undo ^J Justify ^Y Go To Line M-E Redo M-A Set Mark M-L To Bracket M-B Copy M-Q Where Was
Type here to search ENG 17:47 IN 24-01-2025

IF STATEMENTS IN BASH:

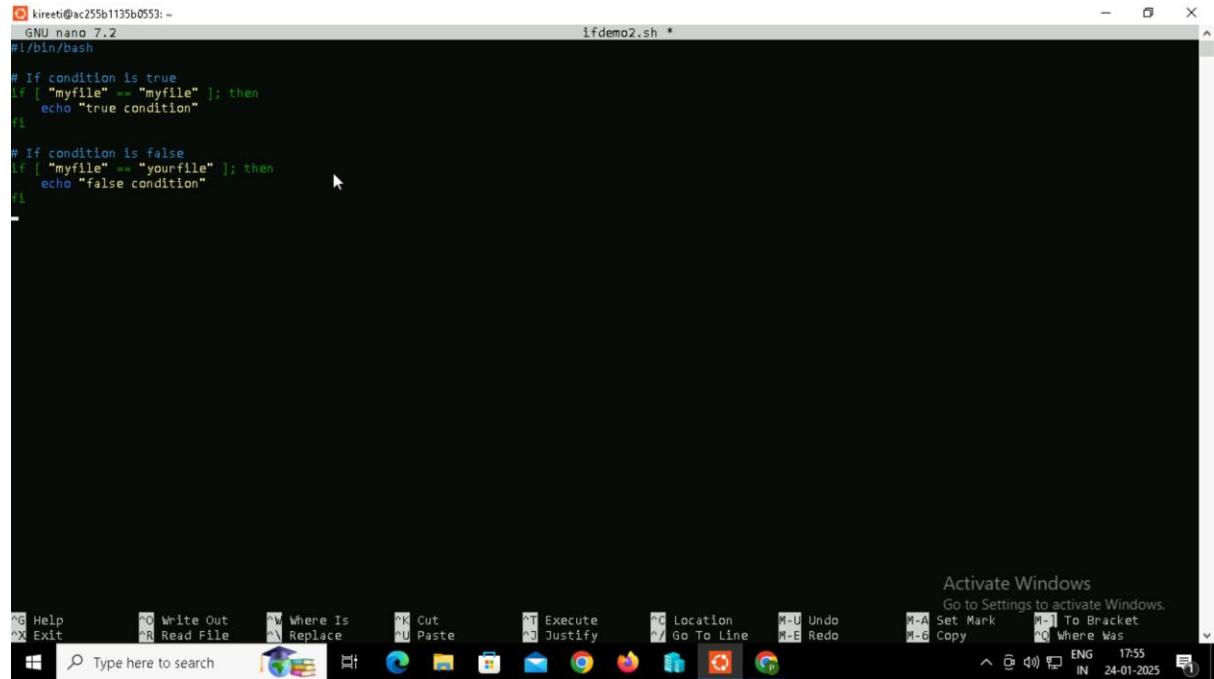
```
kireeti@ac255b1135b0553:~$ nano ifdemoi.sh
kireeti@ac255b1135b0553:~$ chmod a+x ifdemoi.sh
kireeti@ac255b1135b0553:~$ ./ifdemoi.sh
Enter number: 125
kireeti@ac255b1135b0553:~$ ./ifdemoi.sh
Enter number: 130
Value is greater than 125
kireeti@ac255b1135b0553:~$
```

```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash

# Prompt the user to enter a number
read -p "Enter number: " number

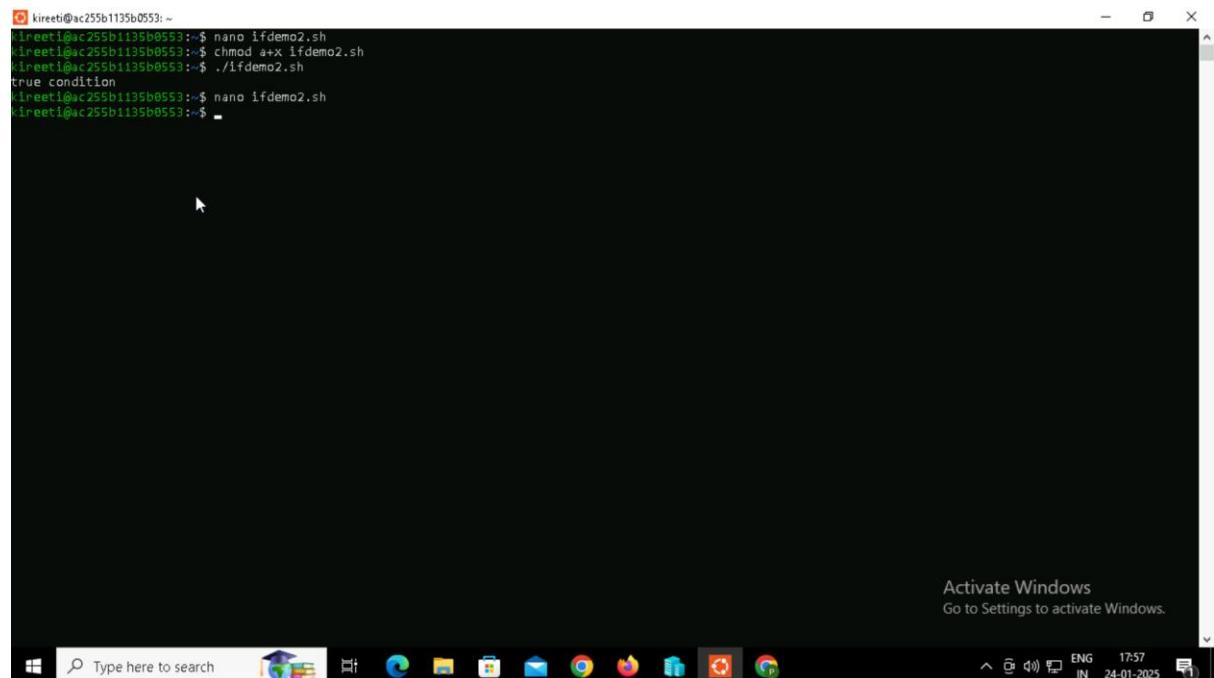
# Check if the number is greater than 125
if [ $number -gt 125 ]; then
    echo "Value is greater than 125"
fi
```

IF STATEMENTS USING ==



```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
  
# If condition is true  
if [ "myfile" == "myfile" ]; then  
    echo "true condition"  
fi  
  
# If condition is false  
if [ "myfile" == "yourfile" ]; then  
    echo "false condition"  
fi
```

The screenshot shows a terminal window titled "ifdemo2.sh *". It contains a bash script with two if statements. The first if statement checks if "myfile" is equal to "myfile", which is true, so it prints "true condition". The second if statement checks if "myfile" is equal to "yourfile", which is false, so it prints "false condition". The terminal window has a standard Linux-style menu bar at the top.

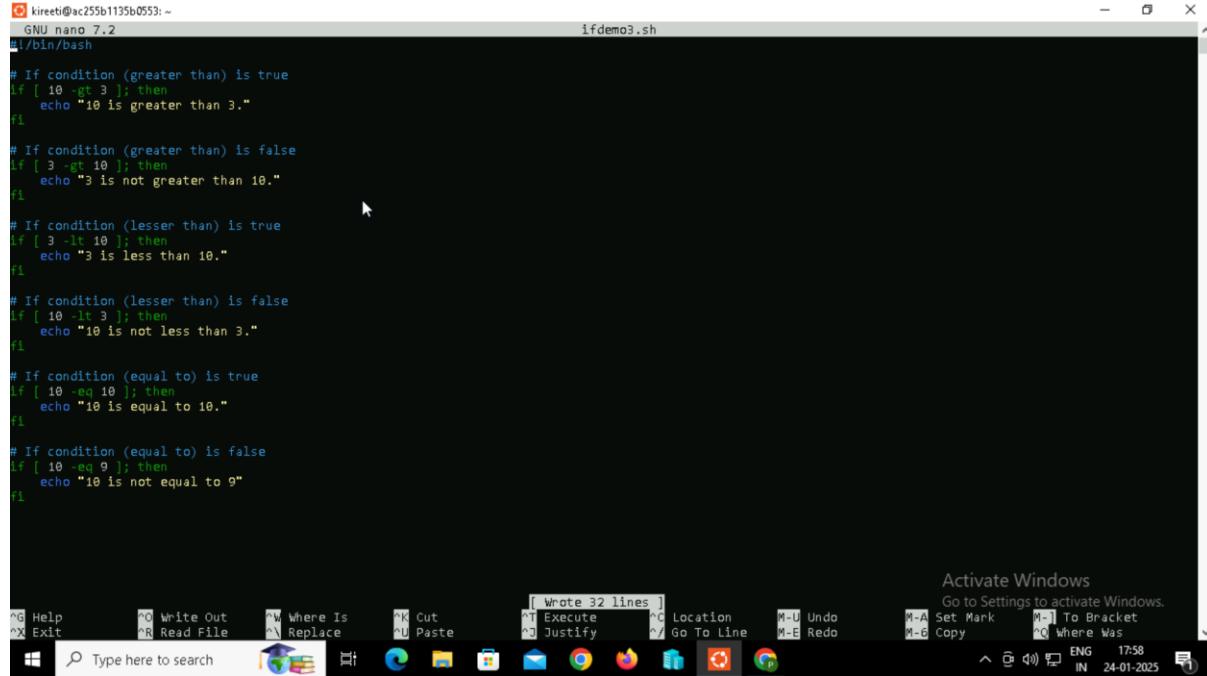


```
kireeti@ac255b1135b0553:~$ nano ifdemo2.sh  
kireeti@ac255b1135b0553:~$ chmod a+x ifdemo2.sh  
kireeti@ac255b1135b0553:~$ ./ifdemo2.sh  
true condition  
kireeti@ac255b1135b0553:~$ nano ifdemo2.sh  
kireeti@ac255b1135b0553:~$
```

```
Activate Windows  
Go to Settings to activate Windows.  
Help Write Out Where Is Cut Execute Justify Location Go To Line Undo Redo Set Mark To Bracket Copy Where Was  
Exit Read File Replace Paste ENG 17:55 IN 24-01-2025
```

The screenshot shows a terminal window with the command history. It starts with the user nano'ing the script, then chmod'ing it to executable, and finally running it. The output "true condition" is shown. Below the terminal is a Windows taskbar with various icons and system status indicators.

IF CONDITION USING UNARY OPERATORS:



```
GNU nano 7.2                               ifdemo3.sh
#!/bin/bash

# If condition (greater than) is true
if [ 10 -gt 3 ]; then
    echo "10 is greater than 3."
fi

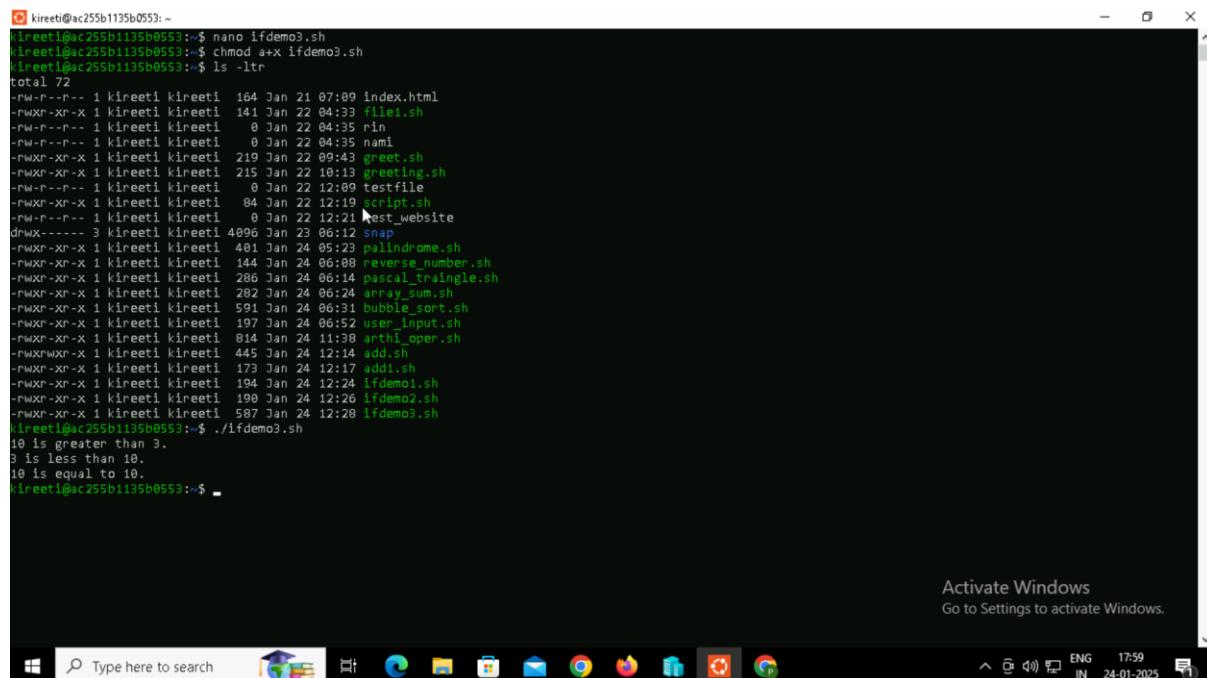
# If condition (greater than) is false
if [ 3 -gt 10 ]; then
    echo "3 is not greater than 10."
fi

# If condition (less than) is true
if [ 3 -lt 10 ]; then
    echo "3 is less than 10."
fi

# If condition (less than) is false
if [ 10 -lt 3 ]; then
    echo "10 is not less than 3."
fi

# If condition (equal to) is true
if [ 10 -eq 10 ]; then
    echo "10 is equal to 10."
fi

# If condition (equal to) is false
if [ 10 -eq 9 ]; then
    echo "10 is not equal to 9."
fi
```



```
kireeti@ac255b1135b0553:~$ nano ifdemo3.sh
kireeti@ac255b1135b0553:~$ chmod a+x ifdemo3.sh
kireeti@ac255b1135b0553:~$ ls -ltn
total 72
-rw-r--r-- 1 kireeti kireeti 164 Jan 21 07:09 index.html
-rw-r--r-- 1 kireeti kireeti 141 Jan 22 04:35 file1.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 04:35 r1n
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 04:35 nami
-rwxr--r-x 1 kireeti kireeti 219 Jan 22 09:43 greet.sh
-rwxr--r-x 1 kireeti kireeti 215 Jan 22 10:13 greeting.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 10:13 testfile
-rwxr--r-x 1 kireeti kireeti 84 Jan 22 12:19 script.sh
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 12:21 test_website
drwxr-x--- 3 kireeti kireeti 409 Jan 23 06:12 snap
-rwxr--r-- 1 kireeti kireeti 481 Jan 24 05:23 palindrome.sh
-rwxr--r-- 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh
-rwxr--r-- 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh
-rwxr--r-- 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh
-rwxr--r-- 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh
-rwxr--r-- 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh
-rwxr--r-- 1 kireeti kireeti 814 Jan 24 11:38 arith1_oper.sh
-rwxrwxr--x 1 kireeti kireeti 445 Jan 24 12:14 add.sh
-rwxr--r-- 1 kireeti kireeti 173 Jan 24 12:17 add1.sh
-rwxr--r-- 1 kireeti kireeti 194 Jan 24 12:24 ifdemo1.sh
-rwxr--r-- 1 kireeti kireeti 190 Jan 24 12:26 ifdemo2.sh
-rwxr--r-- 1 kireeti kireeti 587 Jan 24 12:28 ifdemo3.sh
kireeti@ac255b1135b0553:~$ ./ifdemo3.sh
10 is greater than 3.
3 is less than 10.
10 is equal to 10.
```

IF CONDITIONS USING “AND” and “OR”:

```
kireeti@ac255b1135b0553:~$ nano ifdemo4.sh
kireeti@ac255b1135b0553:~$ chmod a+x ifdemo4.sh
kireeti@ac255b1135b0553:~$ ls -ltr
total 76
-rw-r--r-- 1 kireeti kireeti 164 Jan 21 07:09 index.html
-rw-r--r-- 1 kireeti kireeti 141 Jan 22 04:33 file1.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 04:35 r1n
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 04:35 nami
-rwxr--r-x 1 kireeti kireeti 219 Jan 22 09:43 greet.sh
-rwxr--r-x 1 kireeti kireeti 215 Jan 22 10:13 greeting.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 12:09 testfile
-rwxr--r-x 1 kireeti kireeti 84 Jan 22 12:19 script.sh
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 12:21 test_website
drwx----- 3 kireeti kireeti 4096 Jan 23 06:12 snap
-rwxr--r-- 1 kireeti kireeti 481 Jan 24 05:23 palindrome.sh
-rwxr--r--x 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh
-rwxr--r--x 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh
-rwxr--r--x 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh
-rwxr--r--x 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh
-rwxr--r--x 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh
-rwxr--r--x 1 kireeti kireeti 814 Jan 24 11:38 arith1_oper.sh
-rwxrwxr--x 1 kireeti kireeti 445 Jan 24 12:14 add.sh
-rwxr--r--x 1 kireeti kireeti 173 Jan 24 12:17 add1.sh
-rwxr--r--x 1 kireeti kireeti 194 Jan 24 12:24 ifdemo1.sh
-rwxr--r--x 1 kireeti kireeti 190 Jan 24 12:26 ifdemo2.sh
-rwxr--r--x 1 kireeti kireeti 587 Jan 24 12:28 ifdemo3.sh
-rwxr--r--x 1 kireeti kireeti 283 Jan 24 12:30 ifdemo4.sh
kireeti@ac255b1135b0553:~$ ./ifdemo4.sh
Conditions are true
kireeti@ac255b1135b0553:~$
```

Activate Windows
Go to Settings to activate Windows.

Windows Type here to search ENG 18:00 IN 24-01-2025

```
kireeti@ac255b1135b0553:~$ nano ifdemo4.sh
GNU nano 7.2
#!/bin/bash

# TRUE && TRUE
if [ 8 -gt 6 ] && [ 10 -eq 10 ]; then
    echo "Conditions are true"
fi

# TRUE && FALSE
if [ "mylife" == "mylife" ] && [ 3 -gt 10 ]; then
    echo "Conditions are false"
fi
```

Activate Windows
Go to Settings to activate Windows.

Windows Type here to search ENG 18:01 IN 24-01-2025

```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash

# TRUE && FALSE || FALSE || TRUE
if [[ 10 -eq 10 && 5 -gt 4 || 3 -eq 4 || 3 -lt 6 ]]; then
    echo "Condition is true."
fi

# TRUE && FALSE || FALSE
if [[ 8 -eq 8 && 10 -gt 9 || 9 -lt 5 ]]; then
    echo "Condition is false."
fi
```

Activate Windows
Go to Settings to activate Windows.
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^A Replace ^U Paste ^D Justify ^V Go To Line M-E Redo
M-A Set Mark M-1 To Bracket M-B Copy ^Q Where Was
Type here to search ENG 18:03 IN 24-01-2025

NESTED-IF STATEMENTS:

```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
# Nested if statement  
  
# Check if an argument is provided  
if [ -z "$1" ]; then  
    echo "Error: No number provided. Please pass a number as an argument."  
    exit 1  
fi  
  
# Check if the provided argument is a valid number  
if ! [[ "$1" =~ ^[0-9]+$ ]]; then  
    echo "Error: '$1' is not a valid number. Please provide a numeric value."  
    exit 1  
fi  
  
# Proceed with the nested if statements  
if [ $1 -gt 50 ]; then  
    echo "Number is greater than 50."  
  
    if (( $1 % 2 == 0 )); then  
        echo "and it is an even number."  
    fi  
fi
```

```
kireeti@ac255b1135b0553:~$ nano nested_if.sh  
kireeti@ac255b1135b0553:~$ ./nested_if.sh  
Error: No number provided. Please pass a number as an argument.  
kireeti@ac255b1135b0553:~$ ./nested_if.sh 34  
kireeti@ac255b1135b0553:~$ ./nested_if.sh 909  
Number is greater than 50.  
kireeti@ac255b1135b0553:~$
```

1) IF - ELSE STATEMENT:

```
kireeti@ac255b1135b0553:~$ nano nested_if.sh
kireeti@ac255b1135b0553:~$ ./nested_if.sh
Error: No number provided. Please pass a number as an argument.
kireeti@ac255b1135b0553:~$ ./nested_if.sh 34
kireeti@ac255b1135b0553:~$ ./nested_if.sh 999
Number is greater than 50.
kireeti@ac255b1135b0553:~$ nano if_else1.sh
kireeti@ac255b1135b0553:~$ chmod +x if_else1.sh
kireeti@ac255b1135b0553:~$ ./if_else1.sh
10 is greater than 3.
3 is not greater than 10.
kireeti@ac255b1135b0553:~$ -
```



```
kireeti@ac255b1135b0553:~$ nano if_else1.sh
GNU nano 7.2
#!/bin/bash
# When the condition is true
if [ 10 -gt 3 ]; then
    echo "10 is greater than 3."
else
    echo "10 is not greater than 3."
fi

# When the condition is false
if [ 3 -gt 10 ]; then
    echo "3 is greater than 10."
else
    echo "3 is not greater than 10."
fi
```



```
kireeti@ac255b1135b0553:~$ nano if_else1.sh
GNU nano 7.2
#!/bin/bash
# When the condition is true
if [ 10 -gt 3 ]; then
    echo "10 is greater than 3."
else
    echo "10 is not greater than 3."
fi

# When the condition is false
if [ 3 -gt 10 ]; then
    echo "3 is greater than 10."
else
    echo "3 is not greater than 10."
fi
```

2.

The image consists of three vertically stacked screenshots of a Windows desktop environment, likely Windows 10, showing terminal windows for shell script development.

Screenshot 1: A terminal window titled "kireeti@ac255b1135b0553:~". It shows the execution of a script named "nested_if.sh". The output indicates that no number was provided as an argument, and the script exits with status 99. It then shows the execution of "if_else1.sh" and "if_else2.sh", both of which exit with status 99 because their conditions are not met. Finally, it shows the execution of "if_else1.sh" again, which exits with status 0 because its condition is true.

```
kireeti@ac255b1135b0553:~$ nano nested_if.sh
kireeti@ac255b1135b0553:~$ ./nested_if.sh
Error: No number provided. Please pass a number as an argument.
kireeti@ac255b1135b0553:~$ ./nested_if.sh 34
kireeti@ac255b1135b0553:~$ ./nested_if.sh 999
Number is greater than 50.
kireeti@ac255b1135b0553:~$ nano if_else1.sh
kireeti@ac255b1135b0553:~$ chmod a+x if_else1.sh
kireeti@ac255b1135b0553:~$ ./if_else1.sh
10 is greater than 3.
3 is not greater than 10.
kireeti@ac255b1135b0553:~$ nano if_else1.sh
kireeti@ac255b1135b0553:~$ nano if_else2.sh
kireeti@ac255b1135b0553:~$ chmod a+x if_else2.sh
kireeti@ac255b1135b0553:~$ ./if_else2.sh
Given condition is true.
Given condition is not true.
kireeti@ac255b1135b0553:~$
```

Screenshot 2: A terminal window titled "kireeti@ac255b1135b0553:~". It shows the creation of a new file named "if_else2.sh" using the nano editor. The script contains a conditional statement that checks if 10 is greater than 9 and less than or equal to 9, or if 2 is less than 1 and 25 is greater than 20. If true, it prints "Given condition is true.". Otherwise, it prints "Given condition is false.". The script then includes a section for when the condition is false, which is currently empty.

```
GNU nano 7.2
#!/bin/bash
# When condition is true
# TRUE && FALSE || FALSE || TRUE
if [[ 10 -gt 9 && 10 == 9 || 2 -lt 1 || 25 -gt 20 ]]; then
    echo "Given condition is true."
else
    echo "Given condition is false."
fi

# when condition is false
# TRUE && FALSE || FALSE || TRUE
if [[ 10 -gt 9 && 10 == 8 || 3 -gt 4 || 8 -gt 8 ]]; then
    echo "Given condition is true."
else
    echo "Given condition is not true."
fi
```

Screenshot 3: A terminal window titled "kireeti@ac255b1135b0553:~". It shows the terminal menu at the top, including options like Help, Exit, Write Out, Read File, Where Is, Replace, Cut, Paste, Execute, Justify, Location, Go To Line, Undo, Redo, Set Mark, Copy, To Bracket, Where Was, and Read 19 lines. The status bar at the bottom shows the date and time as 25-01-2025 and 12:27.

3.

```
kireeti@ac255b1135b0553:~$ nano if_else3.sh
kireeti@ac255b1135b0553:~$ chmod a+x if_else3.sh
kireeti@ac255b1135b0553:~$ ./if_else3.sh
Enter a value: 14
The value you typed is greater than 9.
kireeti@ac255b1135b0553:~$ ./if_else3.sh
Enter a value: 2
The value you typed is not greater than 9.
kireeti@ac255b1135b0553:~$
```

```
kireeti@ac255b1135b0553:~$ nano 7.2
GNU nano 7.2
#!/bin/bash
read -p "Enter a value: " value
if [ "$value" -gt 9 ]; then
    echo "The value you typed is greater than 9."
else
    echo "The value you typed is not greater than 9."
fi
```

4.

```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
  
read -p "Enter a number of quantity: " num  
  
if [ "$num" -gt 100 ]; then  
    echo "Eligible for 10% discount"  
elif [ "$num" -lt 100 ]; then  
    echo "Eligible for 5% discount"  
else  
    echo "Lucky Draw Winner"  
    echo "Eligible to get the item for free"  
fi
```

```
kireeti@ac255b1135b0553:~$ nano if_else4.sh  
kireeti@ac255b1135b0553:~$ chmod a+x if_else4.sh  
kireeti@ac255b1135b0553:~$ ls -ltr  
total 100  
-rw-r--r-- 1 kireeti kireeti 164 Jan 21 07:09 index.html  
-rwxr-xn-x 1 kireeti kireeti 141 Jan 22 04:33 file1.sh  
-rw-r--r-- 1 kireeti kireeti 0 Jan 22 04:35 r1n  
-rwxr-xn-x 1 kireeti kireeti 0 Jan 22 04:35 nami  
-rwxr-xn-x 1 kireeti kireeti 219 Jan 22 09:43 greet.sh  
-rwxr-xn-x 1 kireeti kireeti 215 Jan 22 10:13 greeting.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 12:09 testfile  
-rwxr-xn-x 1 kireeti kireeti 84 Jan 22 12:19 script.sh  
-rwxr--r-- 1 kireeti kireeti 0 Jan 22 12:21 test_website  
drwxr-xr-x 3 kireeti kireeti 4096 Jan 23 06:12 snap  
-rwxr-xn-x 1 kireeti kireeti 481 Jan 24 05:23 palindrome.sh  
-rwxr-xn-x 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh  
-rwxr-xn-x 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh  
-rwxr-xn-x 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh  
-rwxr-xn-x 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh  
-rwxr-xn-x 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh  
-rwxr-xn-x 1 kireeti kireeti 814 Jan 24 11:38 arith_oper.sh  
-rwxrwxr-x 1 kireeti kireeti 445 Jan 24 12:14 add.sh  
-rwxr-xn-x 1 kireeti kireeti 173 Jan 24 12:17 addi.sh  
-rwxr-xn-x 1 kireeti kireeti 194 Jan 24 12:24 ifdemo1.sh  
-rwxr-xn-x 1 kireeti kireeti 198 Jan 24 12:26 ifdemo2.sh  
-rwxr-xn-x 1 kireeti kireeti 587 Jan 24 12:28 ifdemo3.sh  
-rwxr-xn-x 1 kireeti kireeti 283 Jan 24 12:31 ifdemo4.sh  
-rwxr-xn-x 1 kireeti kireeti 244 Jan 24 12:33 if_demo5.sh  
-rwxr-xn-x 1 kireeti kireeti 546 Jan 25 05:13 nested_if.sh  
-rwxr-xn-x 1 kireeti kireeti 285 Jan 25 06:59 if_else1.sh  
-rwxr-xn-x 1 kireeti kireeti 426 Jan 25 07:00 if_else2.sh  
-rwxr-xn-x 1 kireeti kireeti 188 Jan 25 07:02 if_else3.sh  
-rwxr-xn-x 1 kireeti kireeti 271 Jan 25 07:11 if_else4.sh  
kireeti@ac255b1135b0553:~$ ./if_else4.sh  
Enter a number of quantity: 4  
Eligible for 5% discount  
kireeti@ac255b1135b0553:~$ ./if_else4.sh  
Enter a number of quantity: 7  
Eligible for 5% discount  
kireeti@ac255b1135b0553:~$
```

5.

```
kireeti@ac255b1135b0553:~$ nano if_else5.sh
kireeti@ac255b1135b0553:~$ chmod a+x if_else5.sh
kireeti@ac255b1135b0553:~$ ./if_else5.sh
Enter a number of quantity: 100
Lucky Draw Winner
Eligible to get the item for free
kireeti@ac255b1135b0553:~$ ./if_else5.sh
Enter a number of quantity: 45
No discount
kireeti@ac255b1135b0553:~$
```

```
kireeti@ac255b1135b0553:~$ nano if_else5.sh
GNU nano 7.2
#!/bin/bash

read -p "Enter a number of quantity: " num

if [ "$num" -gt 200 ]; then
    echo "Eligible for 20% discount"
elif [[ "$num" == 200 || "$num" == 100 ]]; then
    echo "Lucky Draw Winner"
    echo "Eligible to get the item for free"
elif [[ "$num" -gt 100 && "$num" -lt 200 ]]; then
    echo "Eligible for 10% discount"
elif [ "$num" -lt 100 ]; then
    echo "No discount"
fi
```

CASE STATEMENTS:

1)

```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
  
echo "Do you know Java Programming?"  
read -p "Yes/No? :" Answer  
case $Answer in  
  Yes|yes|Y|y)  
    echo "That's amazing."  
    echo  
  ;;  
  No|no|N|n)  
    echo "It's easy. Let's start learning from javatpoint."  
  ;;  
esac
```

The terminal window shows the creation of a file named 'case1.sh' using the nano editor. The script contains a case statement that checks if the user answered 'Yes' or 'No'. If 'Yes', it outputs 'That's amazing.'; if 'No', it outputs 'It's easy. Let's start learning from javatpoint.' The file is then chmoded to executable and run.

```
kireeti@ac255b1135b0553:~  
-rwxr-xr-x 1 kireeti kireeti 390 Jan 25 07:15 if_else5.sh  
kireeti@ac255b1135b0553:~$ nano case1.sh  
kireeti@ac255b1135b0553:~$ chmod a+x case1.sh  
kireeti@ac255b1135b0553:~$ ls -ltr  
total 108  
-rwxr--r-- 1 kireeti kireeti 164 Jan 21 07:09 index.html  
-rwxr--r--x 1 kireeti kireeti 141 Jan 22 04:33 file1.sh  
-rwxr--r--r-- 1 kireeti kireeti 0 Jan 22 04:35 r1n  
-rwxr--r--x 1 kireeti kireeti 0 Jan 22 04:35 nami  
-rwxr--r--x 1 kireeti kireeti 219 Jan 22 09:43 greet.sh  
-rwxr--r--x 1 kireeti kireeti 215 Jan 22 10:13 greeting.sh  
-rwxr--r--r-- 1 kireeti kireeti 0 Jan 22 12:09 testfile  
-rwxr--r--x 1 kireeti kireeti 84 Jan 22 12:19 script.sh  
-rwxr--r--r-- 1 kireeti kireeti 0 Jan 22 12:21 test_website  
drwxrwxrwx 3 kireeti kireeti 4096 Jan 23 06:12 snap  
-rwxr--r--x 1 kireeti kireeti 481 Jan 24 05:23 palindrome.sh  
-rwxr--r--x 1 kireeti kireeti 144 Jan 24 06:08 reverse_number.sh  
-rwxr--r--x 1 kireeti kireeti 286 Jan 24 06:14 pascal_triangle.sh  
-rwxr--r--x 1 kireeti kireeti 282 Jan 24 06:24 array_sum.sh  
-rwxr--r--x 1 kireeti kireeti 591 Jan 24 06:31 bubble_sort.sh  
-rwxr--r--x 1 kireeti kireeti 197 Jan 24 06:52 user_input.sh  
-rwxr--r--x 1 kireeti kireeti 814 Jan 24 11:38 arith_oper.sh  
-rwxrwxrwx 1 kireeti kireeti 445 Jan 24 12:14 add.sh  
-rwxr--r--x 1 kireeti kireeti 173 Jan 24 12:17 addi.sh  
-rwxr--r--x 1 kireeti kireeti 194 Jan 24 12:24 ifdemo1.sh  
-rwxr--r--x 1 kireeti kireeti 190 Jan 24 12:26 ifdemo2.sh  
-rwxr--r--x 1 kireeti kireeti 587 Jan 24 12:28 ifdemo3.sh  
-rwxr--r--x 1 kireeti kireeti 283 Jan 24 12:31 ifdemo4.sh  
-rwxr--r--x 1 kireeti kireeti 244 Jan 24 12:33 if_demo5.sh  
-rwxr--r--x 1 kireeti kireeti 546 Jan 25 05:13 nested_if.sh  
-rwxr--r--x 1 kireeti kireeti 285 Jan 25 06:59 if_else1.sh  
-rwxr--r--x 1 kireeti kireeti 426 Jan 25 07:08 if_else2.sh  
-rwxr--r--x 1 kireeti kireeti 188 Jan 25 07:02 if_else3.sh  
-rwxr--r--x 1 kireeti kireeti 271 Jan 25 07:11 if_else4.sh  
-rwxr--r--x 1 kireeti kireeti 390 Jan 25 07:15 if_else5.sh  
-rwxr--r--x 1 kireeti kireeti 286 Jan 30 06:36 case1.sh  
kireeti@ac255b1135b0553:~$ ./case1.sh  
Do you know Java Programming?  
Yes/No? :yes  
That's amazing.
```

The terminal window shows the execution of the 'case1.sh' script. It asks the user if they know Java Programming, and since the user typed 'yes', it outputs 'That's amazing.'

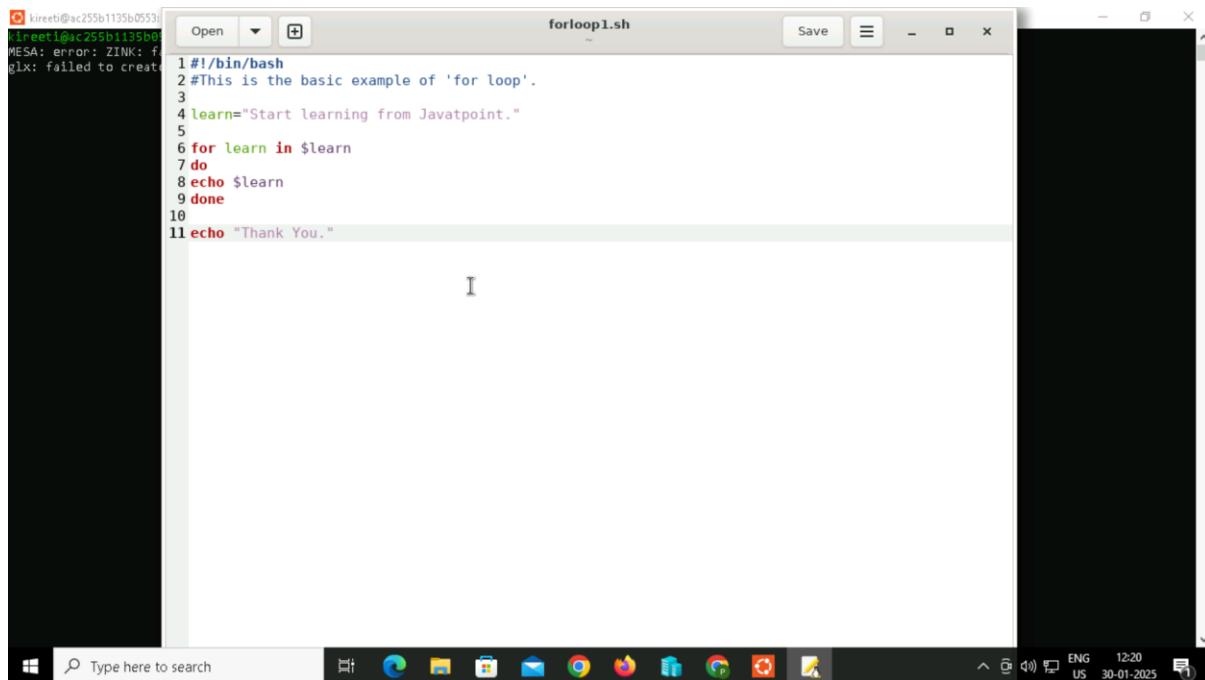
2)

```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
echo "Which Operating System are you using?"  
echo "Windows, Android, Chrome, Linux, Others?"  
read -p "Type your OS Name:" OS  
  
case $OS in  
    Windows|Windows)  
        echo "That's common. You should try something new."  
        echo  
        ;;  
    Android|android)  
        echo "This is my favorite. It has lots of applications."  
        echo  
        ;;  
    Chrome|chrome)  
        echo "Cool!! It's for pro users. Amazing Choice."  
        echo  
        ;;  
    Linux|linux)  
        echo "You might be serious about security!!"  
        echo  
        ;;  
    *)  
        echo "Sounds interesting. I will try that."  
        echo  
        ;;  
esac
```

```
-rwxr-xr-x 1 kireeti kireeti 173 Jan 24 12:17 addi.sh  
-rwxr-xr-x 1 kireeti kireeti 194 Jan 24 12:24 ifdemo1.sh  
-rwxr-xr-x 1 kireeti kireeti 190 Jan 24 12:26 ifdemo2.sh  
-rwxr-xr-x 1 kireeti kireeti 587 Jan 24 12:28 ifdemo3.sh  
-rwxr-xr-x 1 kireeti kireeti 203 Jan 24 12:31 ifdemo4.sh  
-rwxr-xr-x 1 kireeti kireeti 244 Jan 24 12:33 if_demo5.sh  
-rwxr-xr-x 1 kireeti kireeti 546 Jan 25 05:13 nested_if.sh  
-rwxr-xr-x 1 kireeti kireeti 285 Jan 25 06:59 if_else1.sh  
-rwxr-xr-x 1 kireeti kireeti 426 Jan 25 07:00 if_else2.sh  
-rwxr-xr-x 1 kireeti kireeti 188 Jan 25 07:02 if_else3.sh  
-rwxr-xr-x 1 kireeti kireeti 271 Jan 25 07:11 if_else4.sh  
-rwxr-xr-x 1 kireeti kireeti 398 Jan 25 07:15 if_else5.sh  
-rwxr-xr-x 1 kireeti kireeti 286 Jan 30 06:39 casel.sh  
-rwxr--r-- 1 kireeti kireeti 786 Jan 30 06:43 case2.sh  
kireeti@ac255b1135b0553:~$ chmod a+x case2.sh  
kireeti@ac255b1135b0553:~$ ./case2.sh  
Which Operating System are you using?  
Windows, Android, Chrome, Linux, Others?  
Type your OS Name:Windows  
That's common. You should try something new.  
kireeti@ac255b1135b0553:~$
```

FOR LOOP:

1) INPUT

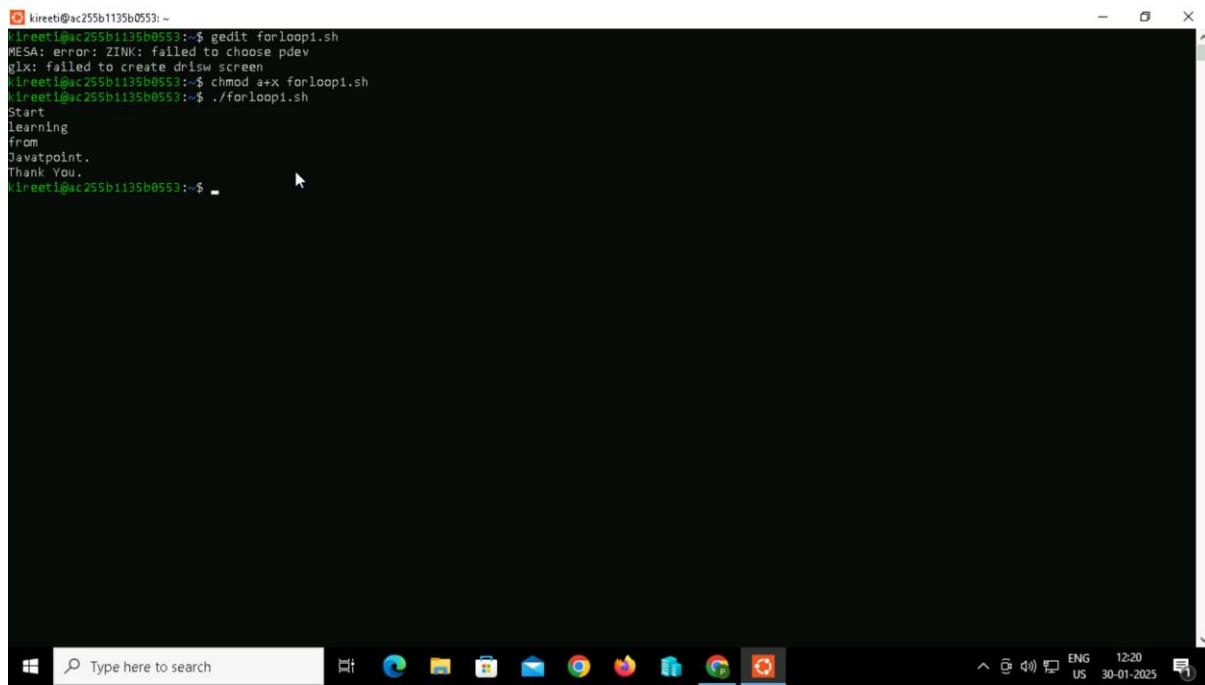


A screenshot of a Windows desktop environment. In the center is a terminal window titled "forloop1.sh" containing the following bash script:

```
1#!/bin/bash
2#This is the basic example of 'for loop'.
3
4learn="Start learning from Javatpoint."
5
6for learn in $learn
7do
8echo $learn
9done
10
11echo "Thank You."
```

The terminal window has a standard Windows-style title bar and a taskbar at the bottom with various icons.

OUTPUT:

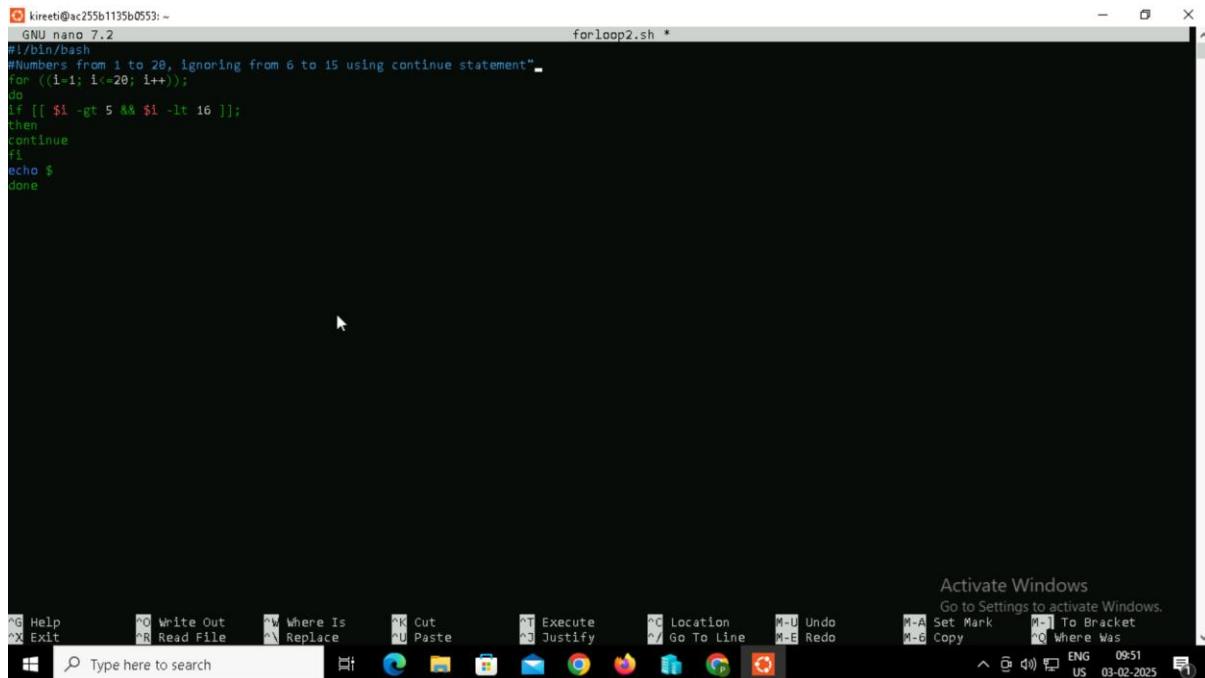


A screenshot of a Windows desktop environment showing the terminal output of the script. The terminal window shows the command to run the script and its execution:

```
kireeti@ac255b1135b0553:~$ gedit forloop1.sh
MESA: error: ZINK: failed to choose pdev
glx: failed to create driSW screen
kireeti@ac255b1135b0553:~$ chmod a+x forloop1.sh
kireeti@ac255b1135b0553:~$ ./forloop1.sh
Start
learning
from
Javatpoint.
Thank You.
kireeti@ac255b1135b0553:~$
```

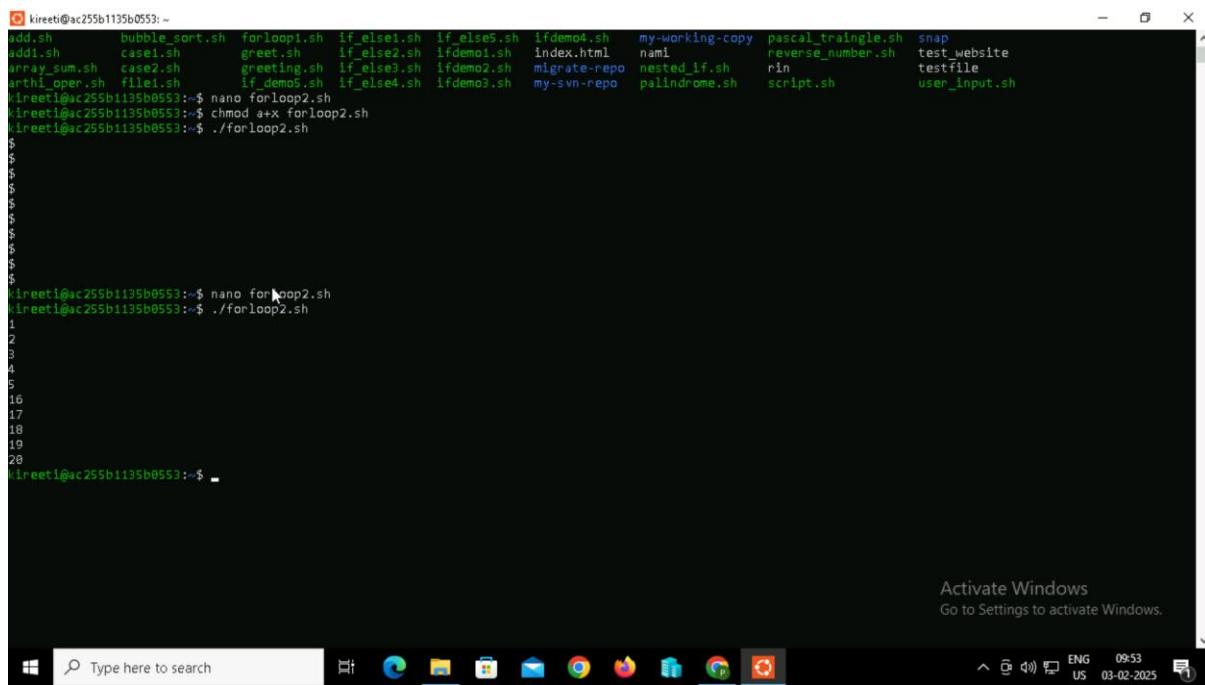
The terminal window has a standard Windows-style title bar and a taskbar at the bottom with various icons.

2) INPUT



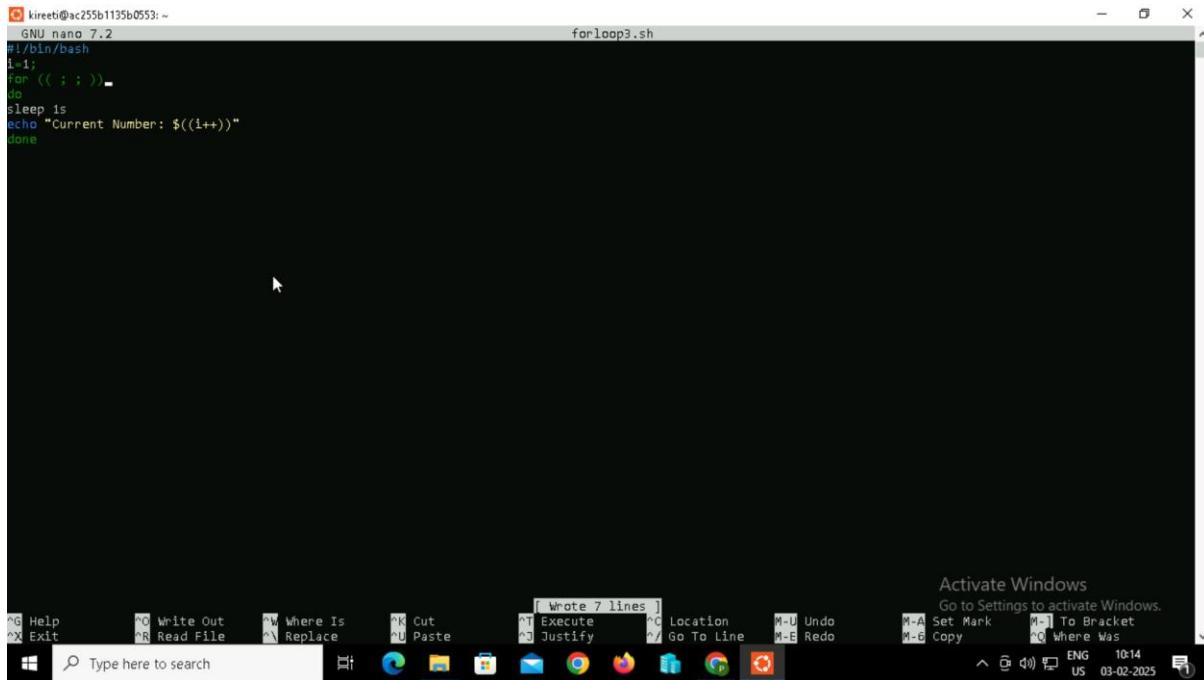
```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
#Numbers from 1 to 20, ignoring from 6 to 15 using continue statement  
for ((i=1; i<=20; i++));  
do  
if [[ $i -gt 5 && $i -lt 16 ]];  
then  
continue  
fi  
echo $  
done
```

OUTPUT:



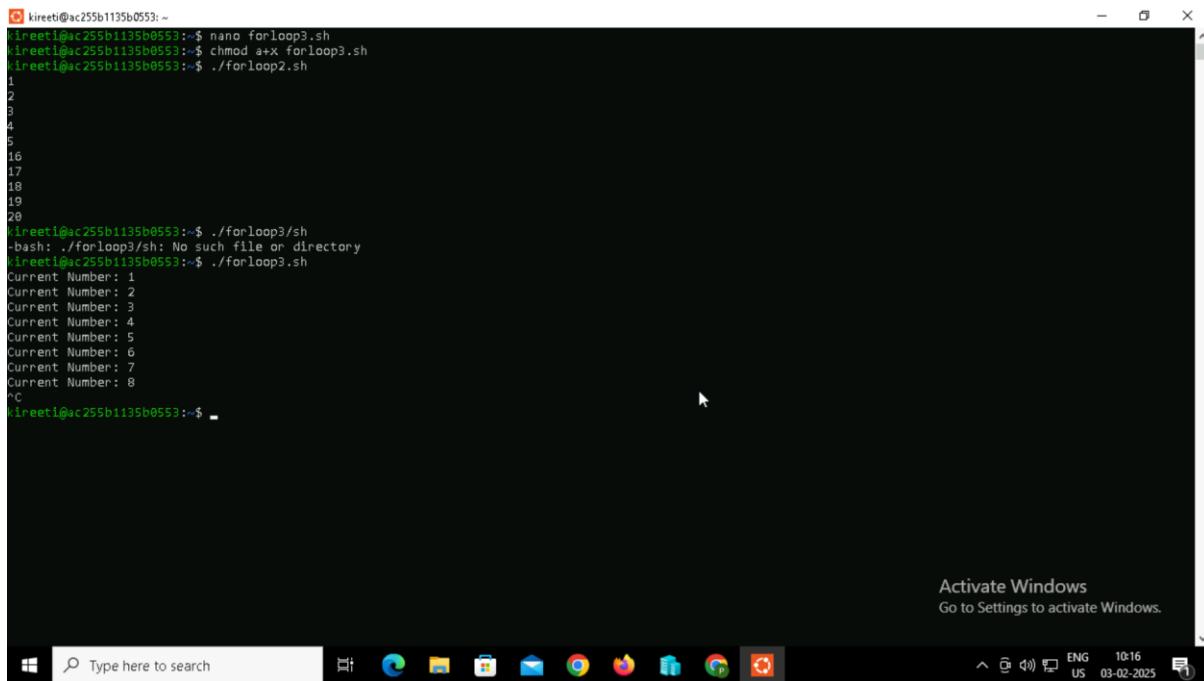
```
kireeti@ac255b1135b0553:~  
add.sh      bubble_sort.sh  forloop1.sh  if_else1.sh  if_else5.sh  lfdemo4.sh   my-working-copy  pascal_triangle.sh  snap  
add1.sh     case1.sh       greet.sh    if_else2.sh  ifdemo1.sh   index.html  nami          reverse_number.sh  test_website  
array_sum.sh case2.sh       greeting.sh if_else3.sh  ifdemo2.sh   migrate-repo  nested_if.sh   rin           testfile  
arthi_open.sh file1.sh     if_demo5.sh if_else4.sh  ifdemo3.sh   my-svn-repo  palindrome.sh  script.sh    user_input.sh  
kireeti@ac255b1135b0553:~$ nano forloop2.sh  
kireeti@ac255b1135b0553:~$ chmod +x forloop2.sh  
kireeti@ac255b1135b0553:~$ ./forloop2.sh  
1  
2  
3  
4  
5  
6  
16  
17  
18  
19  
20  
kireeti@ac255b1135b0553:~$
```

3) INPUT



```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
i=1;  
for (( ; ; ));  
do  
sleep 1s  
echo "Current Number: $((i++))"  
done
```

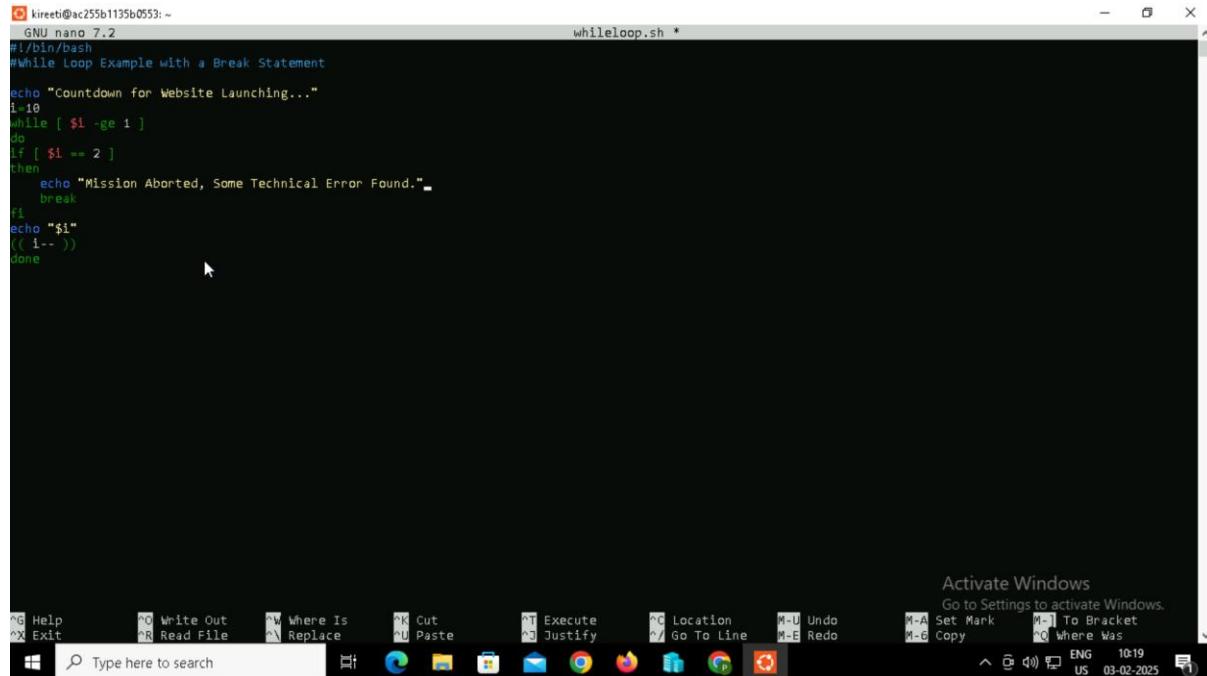
OUTPUT:



```
kireeti@ac255b1135b0553:~$ nano forloop3.sh  
kireeti@ac255b1135b0553:~$ chmod +x forloop3.sh  
kireeti@ac255b1135b0553:~$ ./forloop3.sh  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
kireeti@ac255b1135b0553:~$ ./forloop3.sh  
-bash: ./forloop3.sh: No such file or directory  
kireeti@ac255b1135b0553:~$ ./forloop3.sh  
Current Number: 1  
Current Number: 2  
Current Number: 3  
Current Number: 4  
Current Number: 5  
Current Number: 6  
Current Number: 7  
Current Number: 8  
^C  
kireeti@ac255b1135b0553:~$ -
```

WHILE LOOP

1) INPUT

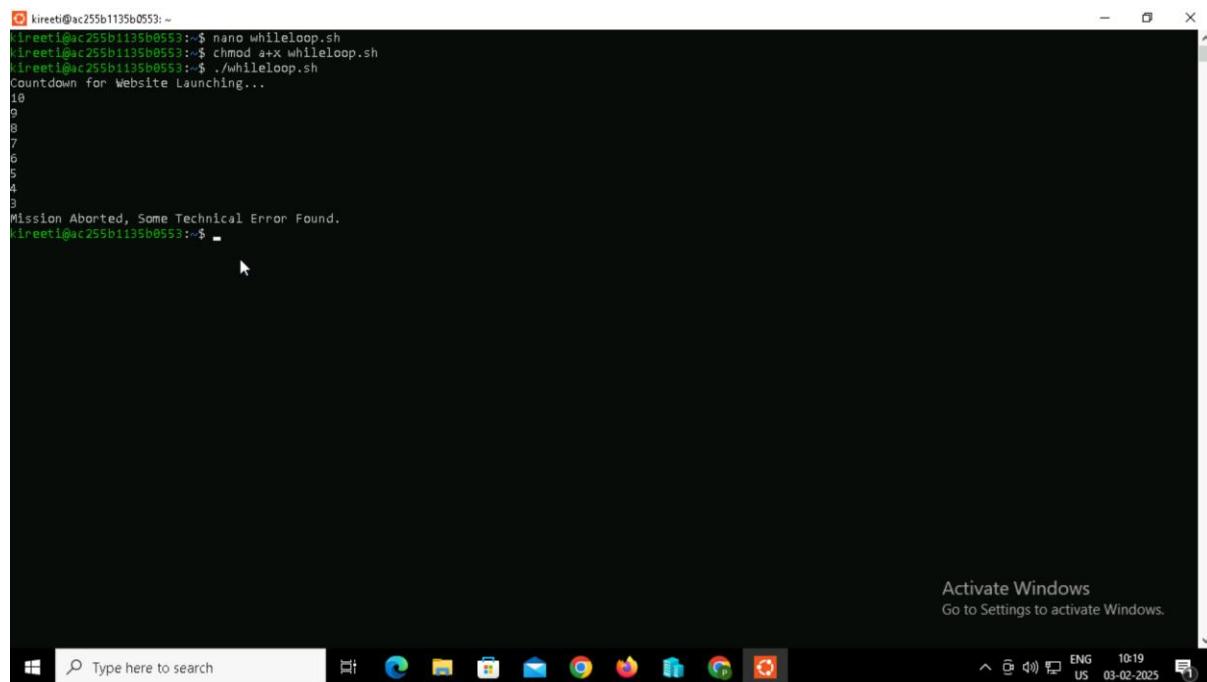


A screenshot of a Windows desktop environment. At the top, there's a taskbar with various icons for apps like File Explorer, Edge, and Mail. Below the taskbar is a search bar. The main area shows a terminal window titled "whileloop.sh *". The script content is:

```
GNU nano 7.2
#!/bin/bash
#While Loop Example with a Break Statement
echo "Countdown for Website Launching..."
i=10
while [ $i -ge 1 ]
do
if [ $i == 2 ]
then
    echo "Mission Aborted, Some Technical Error Found."
    break
fi
echo "$i"
(( i-- ))
done
```

The terminal window has a dark background and light-colored text. At the bottom right of the screen, there's a system tray with icons for battery, signal, and time (10:19). A status bar at the very bottom shows "Activate Windows" and the date "03-02-2025".

OUTPUT



A screenshot of a Windows desktop environment, similar to the previous one. The taskbar, search bar, and system tray are visible. The terminal window shows the execution of the script:

```
kireeti@ac255b1135b0553:~$ nano whileloop.sh
kireeti@ac255b1135b0553:~$ chmod a+x whileloop.sh
kireeti@ac255b1135b0553:~$ ./whileloop.sh
countdown for Website Launching...
10
9
8
7
6
5
4
3
Mission Aborted, Some Technical Error Found.
kireeti@ac255b1135b0553:~$
```

The terminal window has a dark background and light-colored text. The system tray and status bar are identical to the first screenshot.

2) INPUT

A screenshot of a Windows desktop environment. At the top is a black terminal window titled "whileloop2.sh *". It contains the following bash script code:

```
#!/bin/bash
#While Loop Example with a Continue Statement

i=0
while [ $i -le 10 ]
do
((i++))
if [[ "$i" == 5 ]]; then
    continue
fi
echo "Current Number : $i"
done
echo "Skipped number 5 using Continue Statement."
```

The terminal window has a menu bar at the top with options like Help, Exit, Write Out, Read File, Where Is, Replace, Cut, Paste, Execute, Justify, Location, Go To Line, Undo, Redo, Set Mark, To Bracket, Copy, and Where Was. Below the menu is a toolbar with icons for Help, Exit, Write Out, Read File, Where Is, Replace, Cut, Paste, Execute, Justify, Location, Go To Line, Undo, Redo, Set Mark, To Bracket, Copy, and Where Was. A search bar says "Type here to search" is visible. The taskbar at the bottom shows various pinned icons including File Explorer, Edge, Mail, Photos, OneDrive, Google Chrome, and others. The system tray shows the date and time as "03-02-2025 10:23" and language as "ENG US". An "Activate Windows" watermark is present in the center of the screen.

OUTPUT

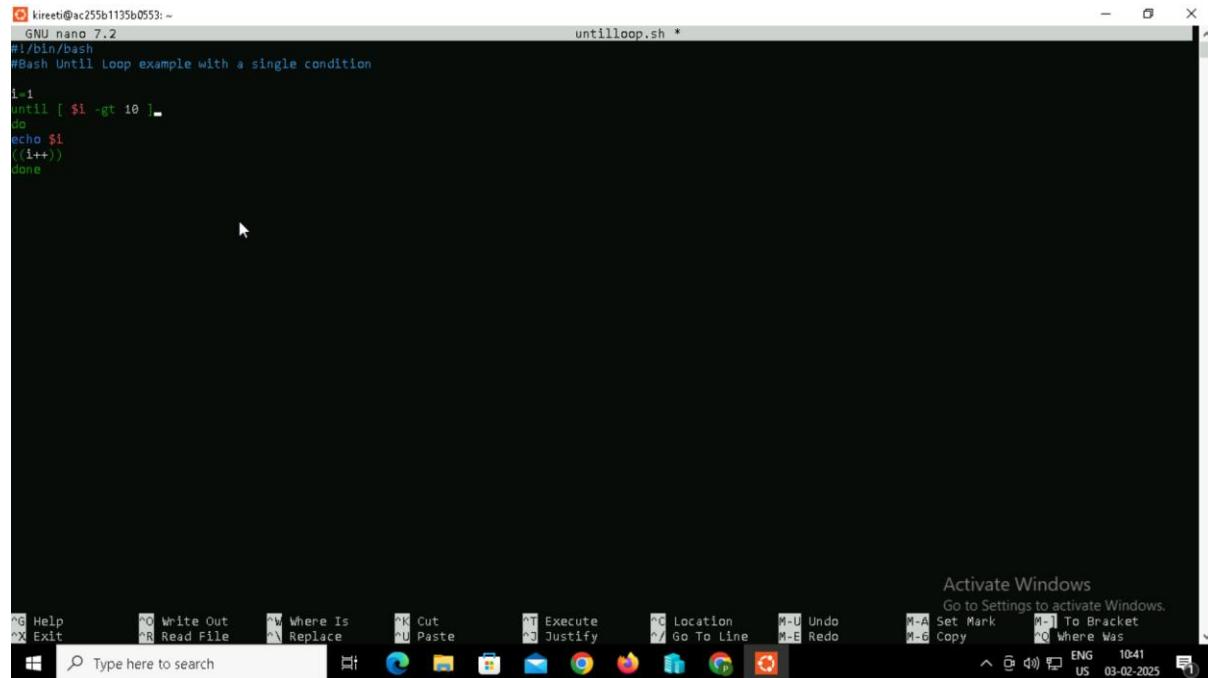
A screenshot of a Windows desktop environment showing the terminal output of the script. The terminal window displays the following execution:

```
kireeti@ac255b1135b0553:~$ nano whileloop2.sh
kireeti@ac255b1135b0553:~$ chmod +x whileloop2.sh
kireeti@ac255b1135b0553:~$ ./whileloop2.sh
Current Number : 1
Current Number : 2
Current Number : 3
Current Number : 4
Current Number : 5
Current Number : 6
Current Number : 7
Current Number : 8
Current Number : 9
Current Number : 10
Current Number : 11
Skipped number 5 using Continue Statement.
kireeti@ac255b1135b0553:~$
```

The terminal window interface is identical to the input screenshot, including the menu bar, toolbar, search bar, taskbar, and system tray. An "Activate Windows" watermark is also present.

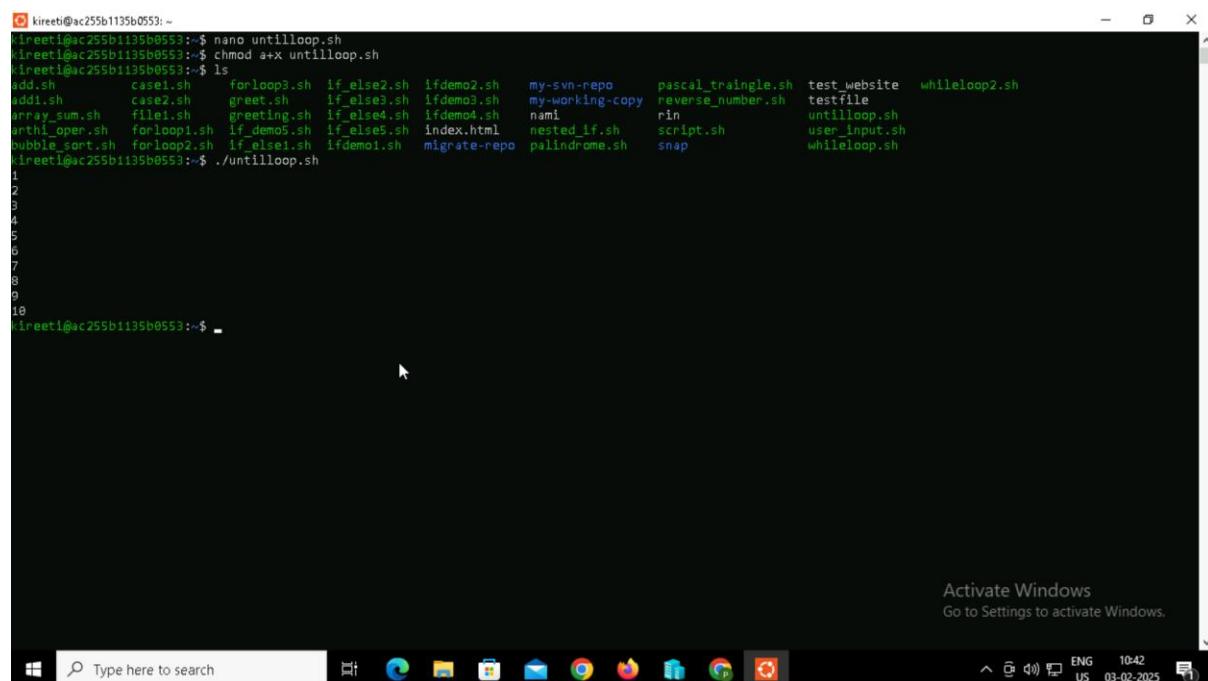
UNTIL LOOP:

INPUT:



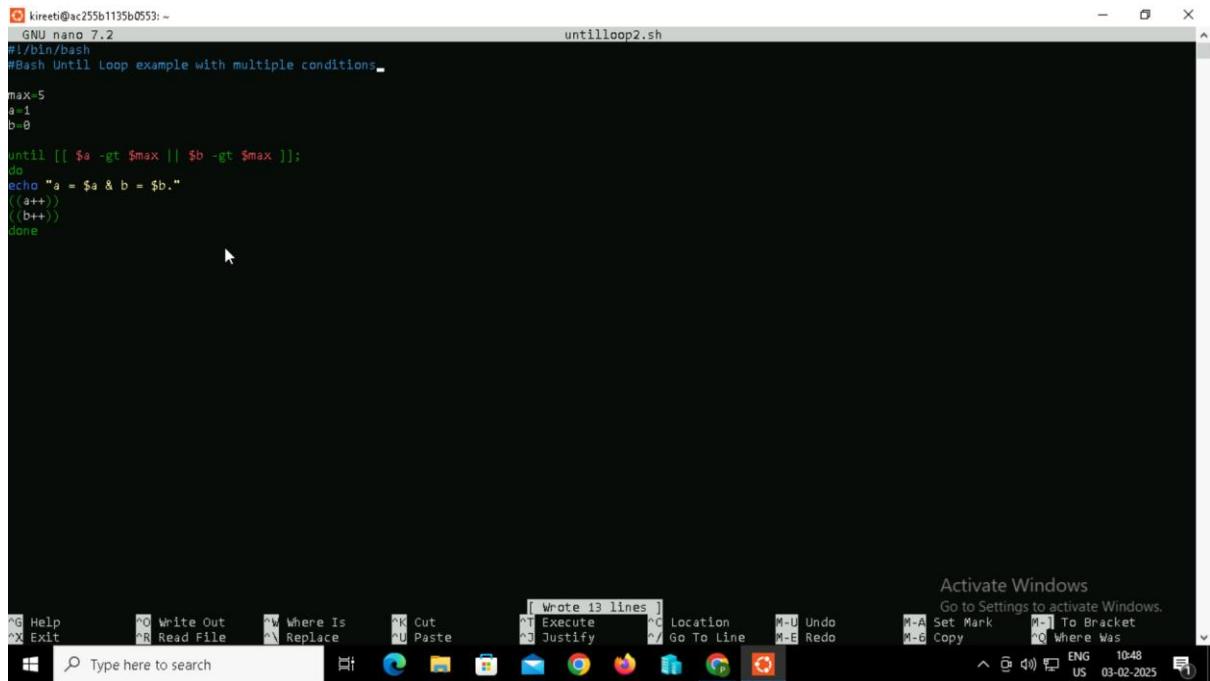
```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
#Bash Until Loop example with a single condition  
  
i=1  
until [ $i -gt 10 ];  
do  
echo $i  
((i++))  
done
```

OUTPUT:



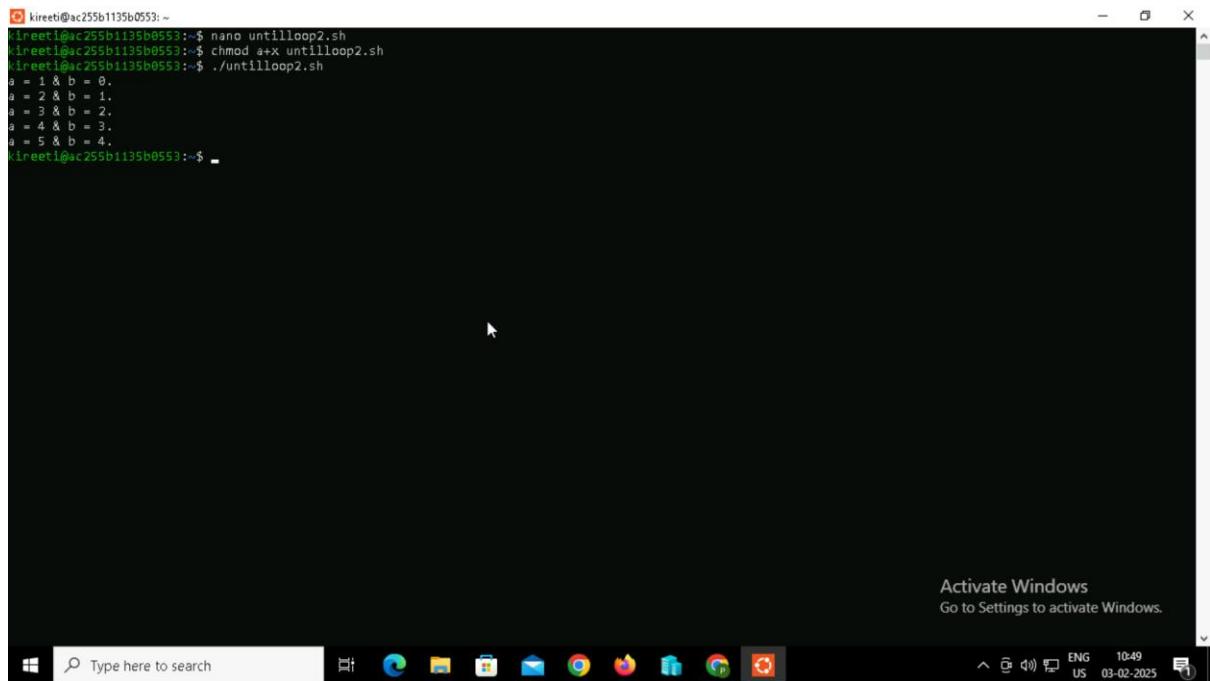
```
kireeti@ac255b1135b0553:~$ nano untilloop.sh  
kireeti@ac255b1135b0553:~$ chmod a+x untilloop.sh  
kireeti@ac255b1135b0553:~$ ls  
add.sh           case1.sh      forloop3.sh  if else2.sh  ifdemo2.sh   my-svn-repo    pascal_triangle.sh  test_website  whileloop2.sh  
add1.sh          case2.sh      greet.sh     if else3.sh  ifdemo3.sh   my-working-copy  reverse_number.sh  testfile  
array_sum.sh     file1.sh     greeting.sh  if else4.sh  ifdemo4.sh   nami          rin          untilloop.sh  
arthi_open.sh    forloop1.sh  if demo5.sh  if else5.sh  index.html  nested_if.sh   script.sh    user_input.sh  
bubble_sort.sh   forloop2.sh  if else1.sh  ifdemo1.sh  ifdemo1.sh   migrate-repo  palindrome.sh  snap  
kireeti@ac255b1135b0553:~$ ./untilloop.sh  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```

2) INPUT



```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
#Bash Until Loop example with multiple conditions.  
  
max=5  
a=1  
b=0  
  
until [[ $a -gt $max || $b -gt $max ]];  
do  
echo "a = $a & b = $b."  
((a++))  
((b++))  
done
```

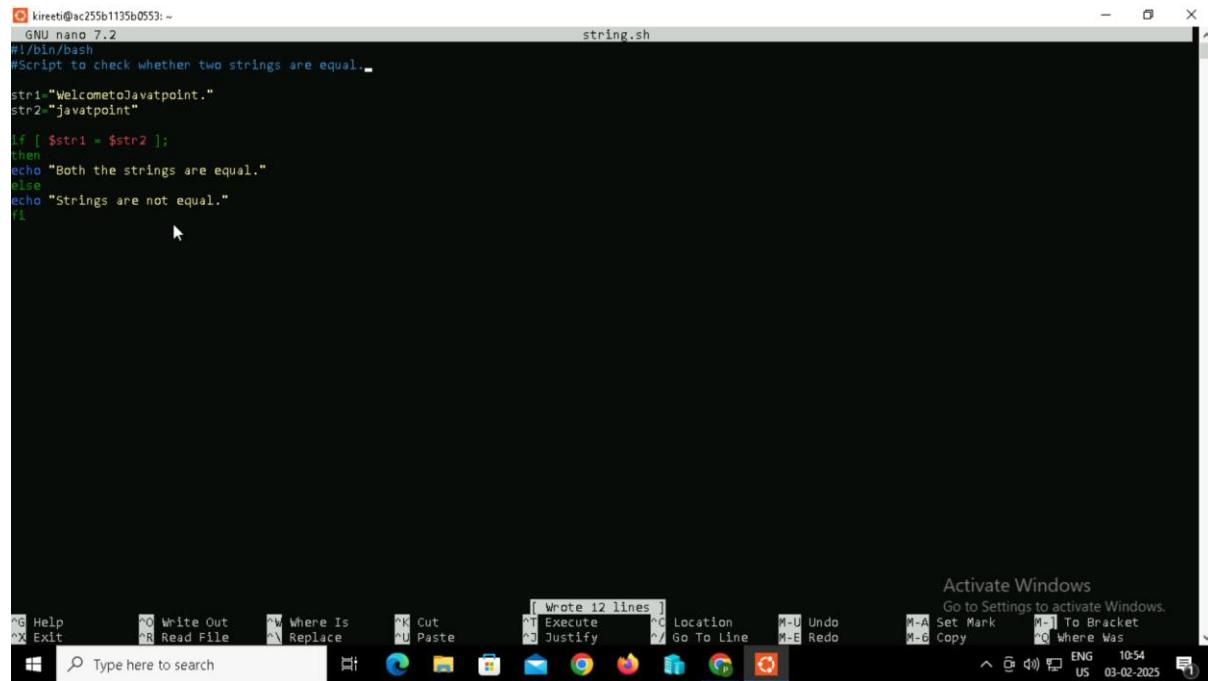
OUTPUT:



```
kireeti@ac255b1135b0553:~$ nano untilloop2.sh  
kireeti@ac255b1135b0553:~$ chmod +x untilloop2.sh  
kireeti@ac255b1135b0553:~$ ./untilloop2.sh  
a = 1 & b = 0.  
a = 2 & b = 1.  
a = 3 & b = 2.  
a = 4 & b = 3.  
a = 5 & b = 4.  
kireeti@ac255b1135b0553:~$
```

STRING:

1)



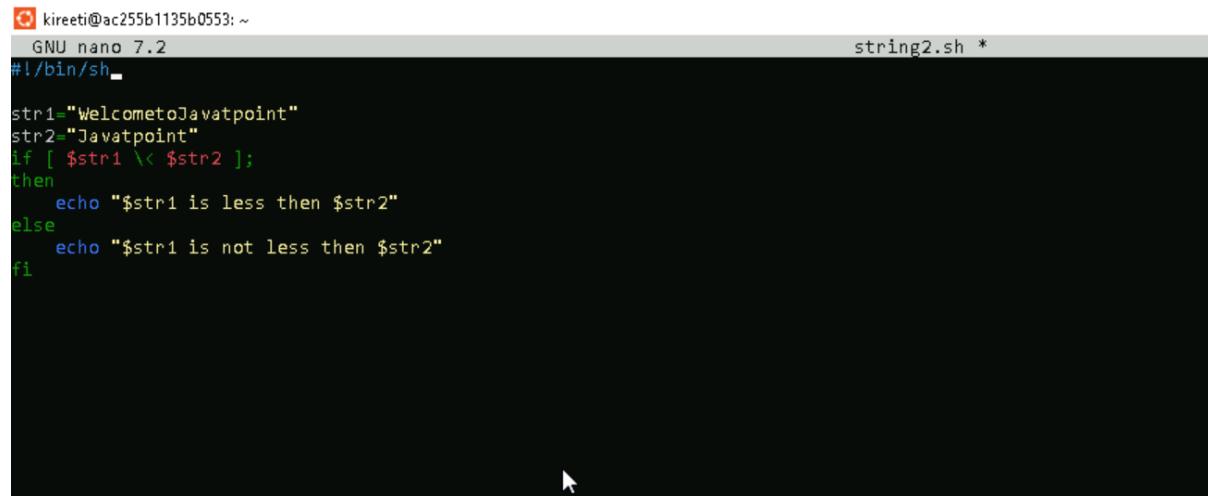
```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
#Script to check whether two strings are equal.  
  
str1="WelcometoJavatpoint."  
str2 "javatpoint"  
  
if [ $str1 == $str2 ];  
then  
echo "Both the strings are equal."  
else  
echo "Strings are not equal."  
fi
```

OUTPUT:



```
kireeti@ac255b1135b0553:~$ nano string.sh  
kireeti@ac255b1135b0553:~$ chmod a+x string.sh  
chmod: cannot access 'string.sh': No such file or directory  
kireeti@ac255b1135b0553:~$ chmod a+x string.sh  
kireeti@ac255b1135b0553:~$ ./string.sh  
Strings are not equal.  
kireeti@ac255b1135b0553:~$
```

2)



```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/sh  
  
str1="WelcometoJavatpoint"  
str2="Javatpoint"  
if [ $str1 < $str2 ];  
then  
echo "$str1 is less than $str2"  
else  
echo "$str1 is not less than $str2"  
fi
```

OUTPUT

```
kireeti@ac255b1135b0553:~$ nano string2.sh
kireeti@ac255b1135b0553:~$ chmod a+x string2.sh
kireeti@ac255b1135b0553:~$ ./string2.sh
WelcometoJavatpoint is not less than Javatpoint
kireeti@ac255b1135b0553:~$ -
```

3)

```
kireeti@ac255b1135b0553:~$ 
GNU nano 7.2                                         string3.sh
#!/bin/sh

str="WelcometoJavatpoint"

if [ -n $str ];
then
    echo "String is not empty"
else
    echo "String is empty"
fi
```

Output:

```
kireeti@ac255b1135b0553:~$ nano string3.sh
kireeti@ac255b1135b0553:~$ nano string3.sh
kireeti@ac255b1135b0553:~$ chmod a+x string3.sh
kireeti@ac255b1135b0553:~$ ./string3.sh
String is not empty
kireeti@ac255b1135b0553:~$ -
```

FIND STRING:

1)

The screenshot shows a Linux desktop environment with a terminal window and a file editor window.

File Editor Window (GNU nano 7.2):

```
GNU nano 7.2
#!/bin/bash
#Bash script to find the length of a string
str="Welcome to Javatpoint"
length= expr length "$str"
echo "Length of '$str' is $length"
```

Terminal Window:

```
kireeti@ac255b1135b0553:~$ nano findstr.sh
kireeti@ac255b1135b0553:~$ chmod a+x findstr.sh
kireeti@ac255b1135b0553:~$ ls
add.sh           case1.sh      forloop2.sh  if_else1.sh  ifdemo1.sh  migrate-repo  palindrome.sh    snap        testfile    whileloop2.sh
add1.sh          case2.sh      forloop3.sh  if_else2.sh  ifdemo2.sh  my-svn-repo   pascal_triangle.sh string.sh  untilloop.sh
array_sum.sh    file1.sh      greet.sh     if_else3.sh  ifdemo3.sh  my-working-copy reverse_number.sh string2.sh untilloop2.sh
arith1_open.sh   findstr.sh   greeting.sh  if_else4.sh  ifdemo4.sh  nami          rin          string3.sh user_input.sh
bubble_sort.sh   forloop1.sh  if_demo5.sh  if_else5.sh  index.html  nested_if.sh  script.sh    test_website whileloop.sh
kireeti@ac255b1135b0553:~$ ./findstr.sh
Length of 'Welcome to Javatpoint' is 21
kireeti@ac255b1135b0553:~$
```

2)

The screenshot shows a Linux terminal window displaying a Bash script.

```
GNU nano 7.2
#!/bin/bash
#Bash script to find the length of a string

str="Welcome to Javatpoint"
length=`echo $str | wc -c`

echo "Length of '$str' is $length"
```

```
kireeti@ac255b1135b0553:~  
kireeti@ac255b1135b0553:~$ nano findstr2.sh  
kireeti@ac255b1135b0553:~$ chmod a+x findstr2.sh  
kireeti@ac255b1135b0553:~$ ls  
add.sh           case1.sh    forloop1.sh  if_demo5.sh  if_else5.sh  index.html      nested_if.sh    script.sh    test_website  whileloop.sh  
addi.sh          case2.sh    forloop2.sh  if_demo5.sh  if_else1.sh  migrate-repo  palindrome.sh  snap        testfile     whileloop2.sh  
array_sum.sh    file1.sh    forloop3.sh  if_else2.sh  if_demo2.sh  my-svn-repo   pascal_triangle.sh string.sh   untilloop.sh  
arith_open.sh   findstr.sh  forloop3.sh  if_else3.sh  if_demo3.sh  my-working-copy reverse_number.sh string2.sh  untilloop2.sh  
bubble_sort.sh  findstr2.sh greeting.sh if_else4.sh  if_demo4.sh  nami            rin          string3.sh  user_input.sh  
kireeti@ac255b1135b0553:~$ ./findstr2.sh  
Length of 'Welcome to Javatpoint' is 22  
kireeti@ac255b1135b0553:~$
```

3)

```
GNU nano 7.2                                         findstr3.sh *  
#!/bin/bash  
#Bash script to find the length of a string  
  
str="Welcome to Javatpoint"  
length=`echo $str | awk '{print length}'`  
  
echo "Length of '$str' is $length"
```

```
kireeti@ac255b1135b0553:~$ nano findstr3.sh  
kireeti@ac255b1135b0553:~$ chmod a+x findstr3.sh  
kireeti@ac255b1135b0553:~$ ls  
add.sh           case1.sh    findstr3.sh  greeting.sh  if_else4.sh  ifdemo4.sh    nami            rin          string3.sh  user_input.sh  
addi.sh          case2.sh    forloop1.sh  if_demo5.sh  if_else5.sh  index.html      nested_if.sh    script.sh    test_website  whileloop.sh  
array_sum.sh    file1.sh    forloop2.sh  if_demo5.sh  if_else1.sh  migrate-repo  palindrome.sh  snap        testfile     whileloop2.sh  
arith_open.sh   findstr.sh  forloop3.sh  if_else2.sh  if_demo2.sh  my-svn-repo   pascal_triangle.sh string.sh   untilloop.sh  
bubble_sort.sh  findstr2.sh greeting.sh if_else3.sh  if_demo3.sh  my-working-copy reverse_number.sh string2.sh  untilloop2.sh  
kireeti@ac255b1135b0553:~$ ./findstr3.sh  
Length of 'Welcome to Javatpoint' is 21  
kireeti@ac255b1135b0553:~$
```

SPLIT STRING:

1)

```
○ kireeti@ac255b1135b0553:~  
GNU nano 7.2 splitstr.sh  
#!/bin/bash  
#Example for bash split string by Symbol (comma)  
  
read -p "Enter Name, State and Age separated by a comma: "  
  
IFS=','  
  
read -a strarr <<< "$entry" #reading str as an array as tokens separated by IFS  
  
echo "Name : ${strarr[0]} "  
echo "State : ${strarr[1]} "  
echo "Age : ${strarr[2]} "
```

```
○ kireeti@ac255b1135b0553:~  
kireeti@ac255b1135b0553:~$ nano splitstr.sh  
kireeti@ac255b1135b0553:~$ nano splitstr.sh  
kireeti@ac255b1135b0553:~$ chmod a+x splitstr.sh  
  
kireeti@ac255b1135b0553:~$ ./splitstr.sh  
Enter Name, State and Age separated by a comma: kireeti,vizianagaram,22  
Name : kireeti  
State : vizianagaram  
Age : 22  
kireeti@ac255b1135b0553:~$
```

2)

```
○ kireeti@ac255b1135b0553:~  
GNU nano 7.2 splitstr2.sh *  
#!/bin/bash  
#Example for bash split string without $IFS  
  
read -p "Enter any string separated by colon(:) " str #reading string value  
  
readarray -d : -t strarr <<< "$str" #split a string based on the delimiter ':'  
  
printf "\n"  
  
#Print each value of Array with the help of loop  
for (( n=0; n < ${#strarr[*]}; n++ ))  
do  
echo "${strarr[n]}"  
done
```

```
kireeti@ac255b1135b0553:~$ nano splitstr2.sh
kireeti@ac255b1135b0553:~$ chmod a+x splitstr2.sh
kireeti@ac255b1135b0553:~$ ./splitstr2.sh
Enter any string separated by colon(:) hello:world

hello
world

kireeti@ac255b1135b0553:~$
```

3)

```
GNU nano 7.2                                         splitstr3.sh *
#!/bin/bash
#Example for bash split string by another string

str="WeLearnWelcomeLearnYouLearnOnLearnJavaPoint"
delimiter=Learn_
s=$str$delimiter
array=();
while [[ $s ]];
do
array+=(" ${s%%$delimiter}*");
s=${s#$delimiter};
done;
declare -p array
```

```
kireeti@ac255b1135b0553:~$ nano splitstr3.sh
kireeti@ac255b1135b0553:~$ chmod a+x splitstr3.sh
kireeti@ac255b1135b0553:~$ ./splitstr3.sh
declare -a array=( [0]="We" [1]="Welcome" [2]="You" [3]="On" [4]="JavaPoint")
kireeti@ac255b1135b0553:~$
```

4)

```
GNU nano 7.2                                         splitstr4.sh *
#!/bin/bash
#Example to split a string using trim (tr) command

my_str="We;welcome;you;on;javatpoint."
my_arr=($(echo $my_str | tr ";" "\n"))

for i in "${my_arr[@]}"
do
echo $i
done
```

```
kireeti@ac255b1135b0553: ~  
kireeti@ac255b1135b0553:~$ nano splitstr4.sh  
kireeti@ac255b1135b0553:~$ chmod a+x splitstr4.sh  
kireeti@ac255b1135b0553:~$ ./splitstr4.sh  
we  
welcome  
you  
on  
javatpoint.  
kireeti@ac255b1135b0553:~$ -
```

1. Substring

```
kireeti@ac255b1135b0553:~  
GNU nano 7.2  
#!/bin/bash  
# Script to extract the first 10 characters of a string  
  
str="We welcome you on Javatpoint."  
  
echo "String: $str"  
echo "Total characters in the string: ${#str}"  
  
# Extracting the first 10 characters  
substr="${str:0:10}"  
  
echo "Substring: $substr"  
echo "Total characters in the substring: ${#substr}"
```

The screenshot shows a Windows desktop environment with a terminal window open. The terminal window has a title bar 'substri.sh *'. The command 'ls' is run to show the directory contents, which include various shell scripts like add.sh, case2.sh, forloop.sh, if_else.sh, etc. Then, 'nano substr1.sh' is opened in the terminal, and the provided bash script is typed in. After saving, the script is executed with './substr1.sh'. The output shows the original string, its total length, the extracted substring, and its length.

```
kireeti@ac255b1135b0553:~$ ls  
add.sh      case2.sh    forloop.sh  if_else.sh  ifdemo3.sh    nami      script.sh   string.sh   untilloop2.sh  
add1.sh     file1.sh    forloop3.sh if_else3.sh  ifdemo4.sh    nested_if.sh snap      string2.sh  user_input.sh  
array_sum.sh findstr.sh  greet.sh   if_else4.sh  index.html  palindrome.sh splitstr.sh string3.sh  whileloop.sh  
arthi_open.sh findstr2.sh greeting.sh if_else5.sh  migrate-repo pascal_triangle.sh splitstr2.sh test_website whileloop2.sh  
bubble_sort.sh findstr3.sh if_demo5.sh ifdemo1.sh my svn-repo reverse_number.sh splitstr3.sh testfile  
case1.sh    forloop1.sh if_else1.sh ifdemo2.sh my-working-copy rin      splitstr4.sh untilloop.sh  
kireeti@ac255b1135b0553:~$ nano substr1.sh  
kireeti@ac255b1135b0553:~$ chmod a+x substr1.sh  
kireeti@ac255b1135b0553:~$ ./substr1.sh  
String: We welcome you on Javatpoint.  
Total characters in the string: 29  
Substring: We welcome  
Total characters in the substring: 10
```

This screenshot continues from the previous one, showing the execution of the script. The terminal window now displays the output of the script execution, which includes the original string, its total length, the extracted substring, and its length. The desktop taskbar at the bottom shows various application icons.

2.

```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash
# Script to print from the 11th character onwards

str="We welcome you on Javatpoint."
substr="\${str:11}"
echo "$substr"
-
```

Output:

```
kireeti@ac255b1135b0553:~$ cp substr1.sh substr2.sh
kireeti@ac255b1135b0553:~$ nano substr2.sh
kireeti@ac255b1135b0553:~$ ./substr2.sh
you on Javatpoint.
kireeti@ac255b1135b0553:~$ -
```

3.

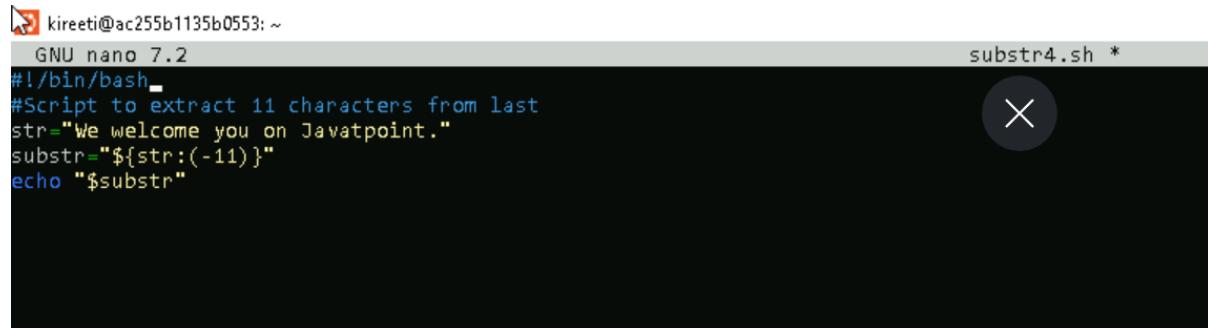
```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash
# Script to print the 11th character of a string

str="We welcome you on Javatpoint."
substr="\${str:10:1}"
echo "$substr"
-
```

Output:

```
kireeti@ac255b1135b0553:~$ nano substr3.sh
kireeti@ac255b1135b0553:~$ ./substr3.sh
-
kireeti@ac255b1135b0553:~$ -
```

4.



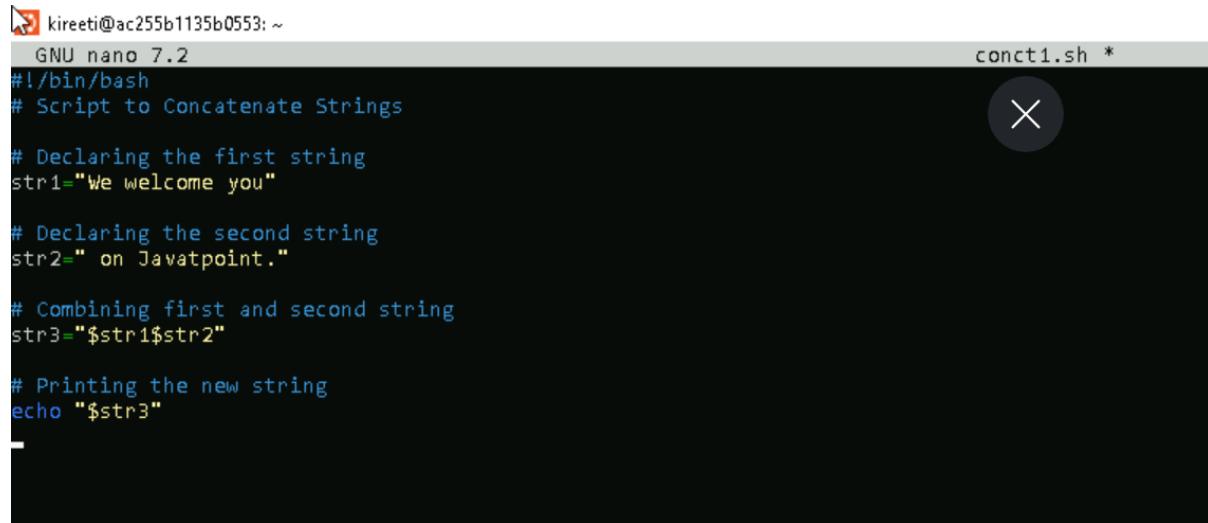
```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash
#Script to extract 11 characters from last
str="We welcome you on Javatpoint."
substr="${str: -11}"
echo "$substr"
```

Output

```
kireeti@ac255b1135b0553:~$ cp substr1.sh substr4.sh
kireeti@ac255b1135b0553:~$ nano substr4.sh
kireeti@ac255b1135b0553:~$ ./substr4.sh
Javatpoint.
kireeti@ac255b1135b0553:~$
```

Concatenate Strings:

1.



```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash
# Script to Concatenate Strings

# Declaring the first string
str1="We welcome you"

# Declaring the second string
str2=" on Javatpoint."

# Combining first and second string
str3="$str1$str2"

# Printing the new string
echo "$str3"
```

Output

```
kireeti@ac255b1135b0553:~$ cp substr3.sh conct1.sh
kireeti@ac255b1135b0553:~$ nano conct1.sh
kireeti@ac255b1135b0553:~$ ./conct1.sh
We welcome you on Javatpoint.
kireeti@ac255b1135b0553:~$
```

2.

The screenshot shows a terminal window with the following content:

```
GNU nano 7.2
#!/bin/bash
# Script to Concatenate Strings

# Declaring String Variable
str="We welcome you"

# Add the variable within the string
echo "$str on Javatpoint."
```

Output

```
kireeti@ac255b1135b0553:~$ cp substr3.sh conct2.sh
kireeti@ac255b1135b0553:~$ nano conct2.sh
kireeti@ac255b1135b0553:~$ ./conct2.sh
We welcome you on Javatpoint.
kireeti@ac255b1135b0553:~$
```

3.

The screenshot shows a terminal window with the following content:

```
GNU nano 7.2
#!/bin/bash
echo "Printing the name of the programming languages"
#Initializing the variable before combining
lang=""
#for loop for reading the list
for value in 'java''python''C''C++';
do
lang+="$value " #Combining the list values using append operator
done
#Printing the combined values
echo "$lang"
```

Output

```
kireeti@ac255b1135b0553:~$ cp substr3.sh conct3.sh
kireeti@ac255b1135b0553:~$ nano conct3.sh
kireeti@ac255b1135b0553:~$ ./conct3.sh
Printing the name of the programming languages
javapythonCC++
kireeti@ac255b1135b0553:~$
```

4.

```
kireeti@ac255b1135b0553: ~
  GNU nano 7.2
#!/bin/bash
# String Concatenation by Character (,) with User Input

read -p "Enter First Name: " name
read -p "Enter State: " state
read -p "Enter Age: " age

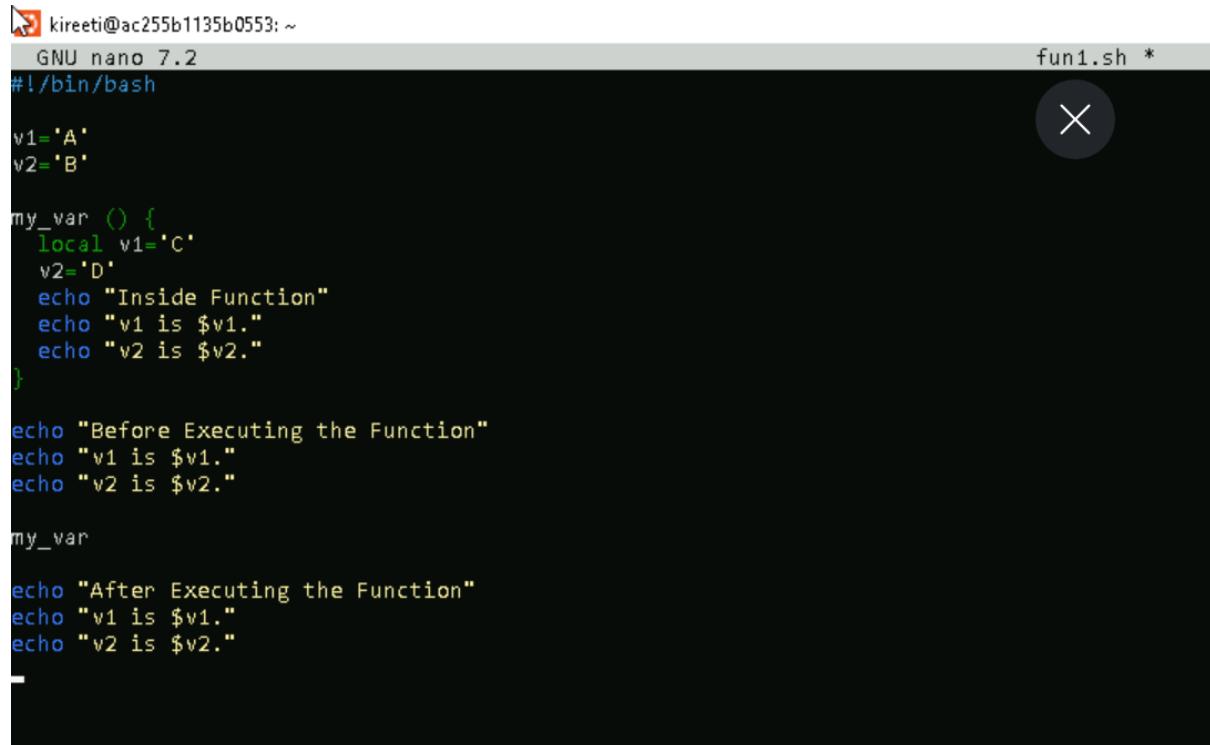
combine="$name,$state,$age"

echo "Name, State, Age: $combine"
-
```

Output:

```
kireeti@ac255b1135b0553:~$ cp substr3.sh conct4.sh
kireeti@ac255b1135b0553:~$ nano conct4.sh
kireeti@ac255b1135b0553:~$ ./conct4.sh
Enter First Name: kireeti
Enter State: andhrapradesh
Enter Age: 28
Name, State, Age: kireeti, andhrapradesh, 28
kireeti@ac255b1135b0553:~$
```

Functions:



The screenshot shows a terminal window titled "fun1.sh *". The code inside the window is as follows:

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

v1='A'
v2='B'

my_var () {
    local v1='C'
    v2='D'
    echo "Inside Function"
    echo "v1 is $v1."
    echo "v2 is $v2."
}

echo "Before Executing the Function"
echo "v1 is $v1."
echo "v2 is $v2."

my_var

echo "After Executing the Function"
echo "v1 is $v1."
echo "v2 is $v2."

```

Output:

```
kireeti@ac255b1135b0553:~$ cp substr3.sh fun1.sh
kireeti@ac255b1135b0553:~$ nano fun1.sh
kireeti@ac255b1135b0553:~$ ./fun1.sh
Before Executing the Function
v1 is A.
v2 is B.
Inside Function
v1 is C.
v2 is D.
After Executing the Function
v1 is A.
v2 is D.
kireeti@ac255b1135b0553:~$
```

2.

```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash
# Setting up a return status for a function

print_it () {
    echo Hello $1
    return 5
}

print_it User
print_it Reader
echo The previous function returned a value of $?
```

Output:

```
kireeti@ac255b1135b0553:~$ nano fun2.sh
kireeti@ac255b1135b0553:~$ ./fun2.sh
Hello User
Hello Reader
The previous function returned a value of 5
kireeti@ac255b1135b0553:~$ _
```

3.

```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash
# Script to override command using function

echo () {
    builtin echo -n "$(date +"[%m-%d %H:%M:%S]")"
    builtin echo "$1"
}

echo "Welcome to Javatpoint."
```

Output:

```
kireeti@ac255b1135b0553:~$ ./fun3.sh
[02-03 07:07:03]:Welcome to Javatpoint.
kireeti@ac255b1135b0553:~$
```

ARRAYS:

INPUT:



The screenshot shows a terminal window with the following content:

```
kireeti@ac255b1135b0553: ~
GNU nano 7.2
#!/bin/bash
# Script to loop through an array in C-style

declare -a example_array=("Welcome" "To" "Javatpoint")

# Length of the Array
length=${#example_array[@]}

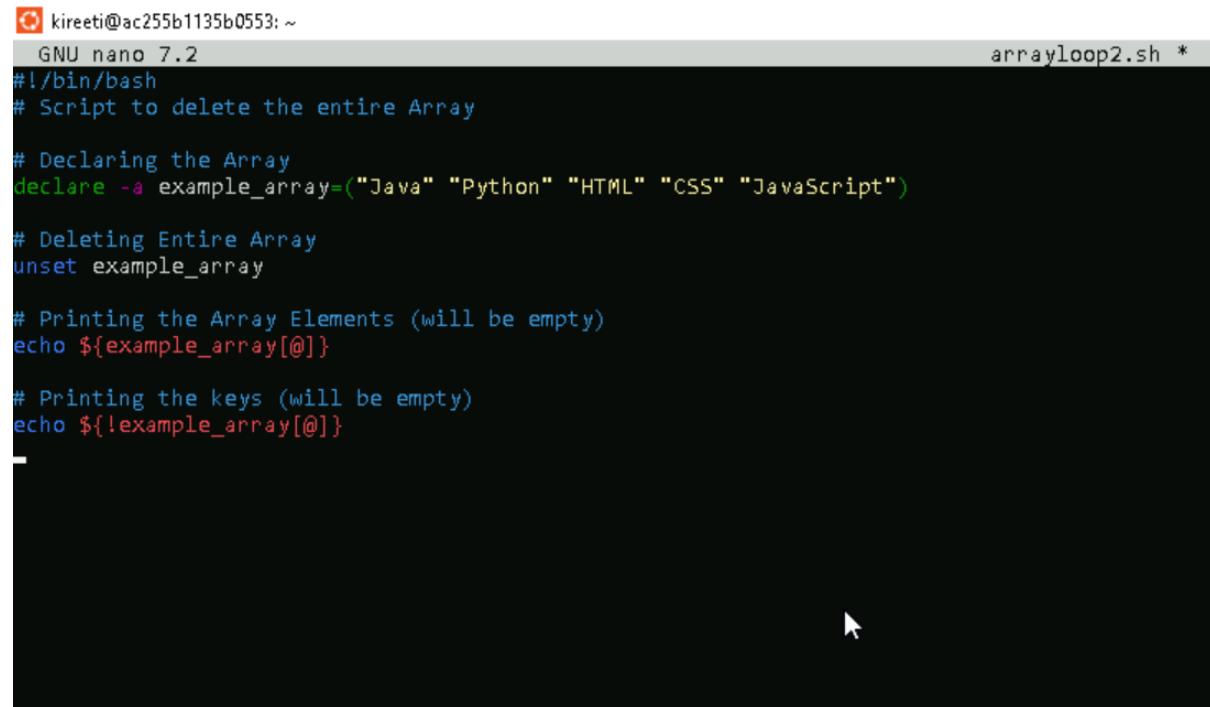
# Array Loop
for (( i=0; i < ${length}; i++ ))
do
    echo ${example_array[$i]}
done
```

OUTPUT:

```
kireeti@ac255b1135b0553: ~
kireeti@ac255b1135b0553:~$ nano arrayloop.sh
kireeti@ac255b1135b0553:~$ chmod a+x arrayloop.sh
kireeti@ac255b1135b0553:~$ nano arrayloop.sh
kireeti@ac255b1135b0553:~$ ./arrayloop.sh
0 Welcome
1 To
2 Javatpoint
kireeti@ac255b1135b0553:~$
```

2.DELETING AN ARRAY

INPUT:



```
kireeti@ac255b1135b0553: ~
GNU nano 7.2                                         arrayloop2.sh *
#!/bin/bash
# Script to delete the entire Array

# Declaring the Array
declare -a example_array=("Java" "Python" "HTML" "CSS" "JavaScript")

# Deleting Entire Array
unset example_array

# Printing the Array Elements (will be empty)
echo ${example_array[@]}

# Printing the keys (will be empty)
echo ${!example_array[@]}
-
```

OUTPUT:



```
kireeti@ac255b1135b0553: ~
kireeti@ac255b1135b0553:~$ nano arrayloop2.sh
kireeti@ac255b1135b0553:~$ chmod a+x arrayloop2.sh
kireeti@ac255b1135b0553:~$ ./arrayloop2.sh
kireeti@ac255b1135b0553:~$ ./arrayloop2.sh
```

3.SLICE ARRAY:

INPUT:



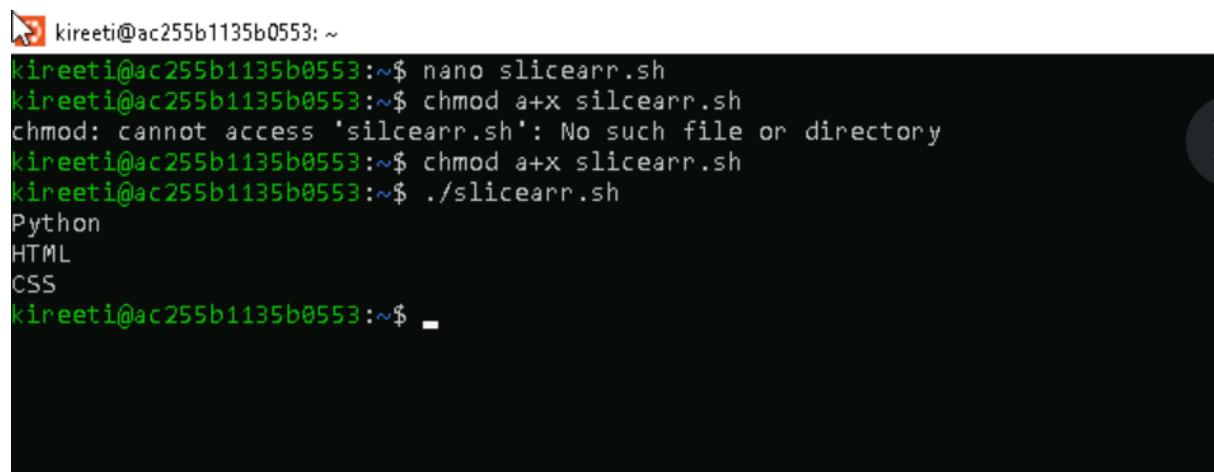
```
GNU nano 7.2
#!/bin/bash
# Script to slice Array Element from index 1 to index 3

# Declaring the Array
example_array=("Java" "Python" "HTML" "CSS" "JavaScript")

# Slicing the Array
sliced_array=("${example_array[@]:1:3}")

# Applying for loop to iterate over each element in Array
for i in "${sliced_array[@]}"
do
    echo $i
done
```

OUTPUT:



```
kireeti@ac255b1135b0553:~$ nano slicearr.sh
kireeti@ac255b1135b0553:~$ chmod a+x slicearr.sh
chmod: cannot access 'silcearr.sh': No such file or directory
kireeti@ac255b1135b0553:~$ chmod a+x slicearr.sh
kireeti@ac255b1135b0553:~$ ./slicearr.sh
Python
HTML
CSS
kireeti@ac255b1135b0553:~$
```