

## 1. Airthmetic Operations:

```
harish123@66c459cb7f2a51a: ~/practise
GNU nano 7.2 arithmetic_op.sh
#!/bin/bash
x=8
y=2
echo "x=8, y=2"

echo "Addition of x & y"
echo $(( x + y ))

echo "Subtraction of x & y"
echo $(( x - y ))

echo "Multiplication of x & y"
echo $(( x * y ))

echo "Division of x by y"
echo $(( x / y ))

echo "Exponentiation of x,y"
echo $(( x ** y ))

echo "Modular Division of x,y"
echo $(( x % y ))

echo "Incrementing x by 5, then x="
(( x += 5 ))
echo $x

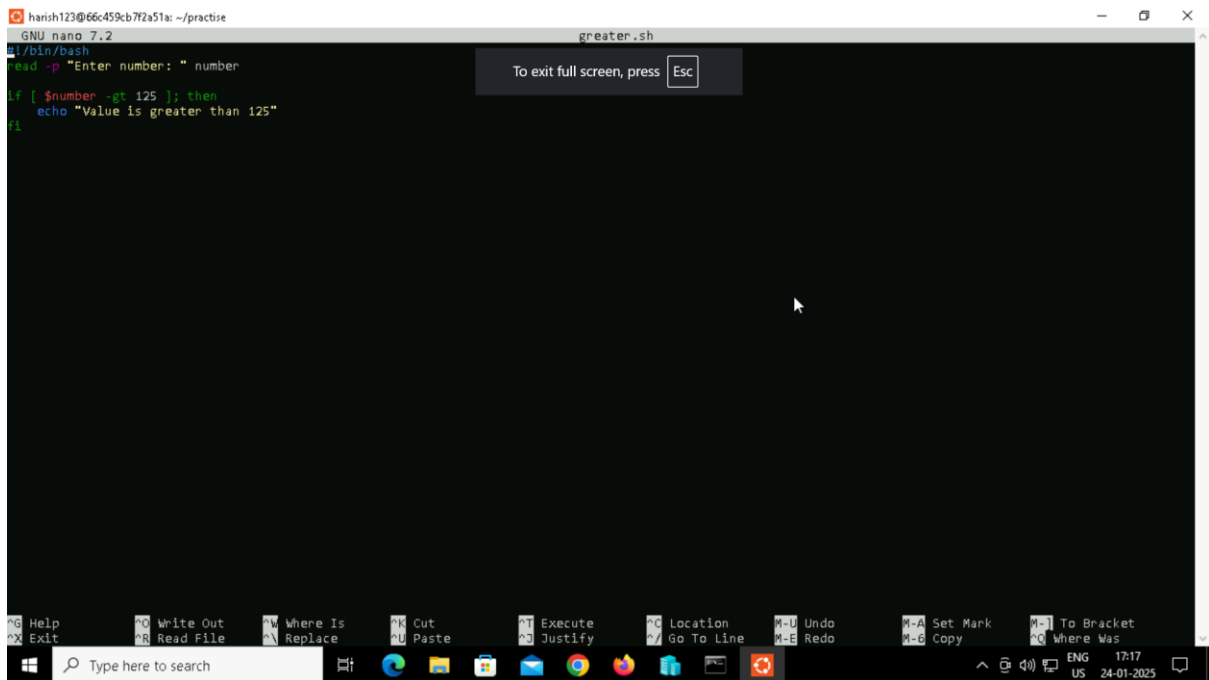
echo "Decrementing x by 5, then x="
(( x -= 5 ))
echo $x

echo "Multiply of x by 5, then x="
(( x *= 5 ))
echo $x

echo "Dividing x by 5, x="
(( x /= 5 ))
```

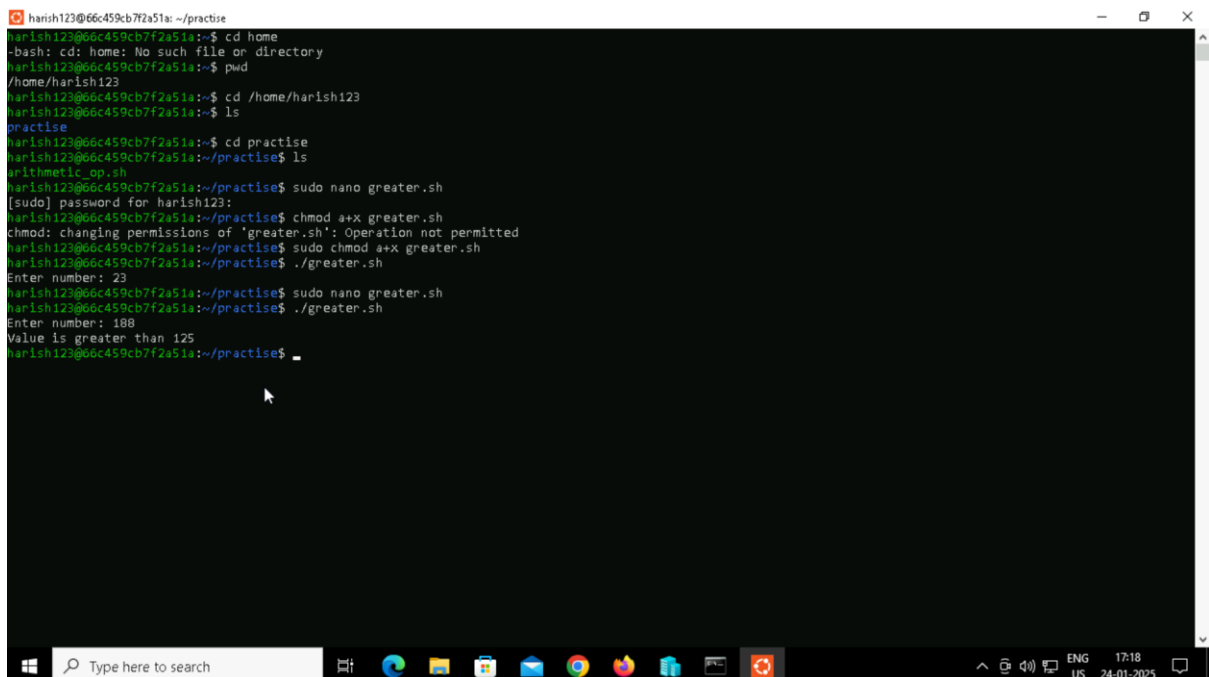
```
harish123@66c459cb7f2a51a: ~/practise
harish123@66c459cb7f2a51a:~/practise$ sudo nano arithmetic_op.sh
harish123@66c459cb7f2a51a:~/practise$ ./arithmetic_op.sh
x=8, y=2
Addition of x & y
10
Subtraction of x & y
6
Multiplication of x & y
16
Division of x by y
4
Exponentiation of x,y
64
Modular Division of x,y
0
Incrementing x by 5, then x=
13
Decrementing x by 5, then x=
8
Multiply of x by 5, then x=
40
Dividing x by 5, x=
8
Remainder of Dividing x by 5, x=
3
harish123@66c459cb7f2a51a:~/practise$
```

## 2. Greater than



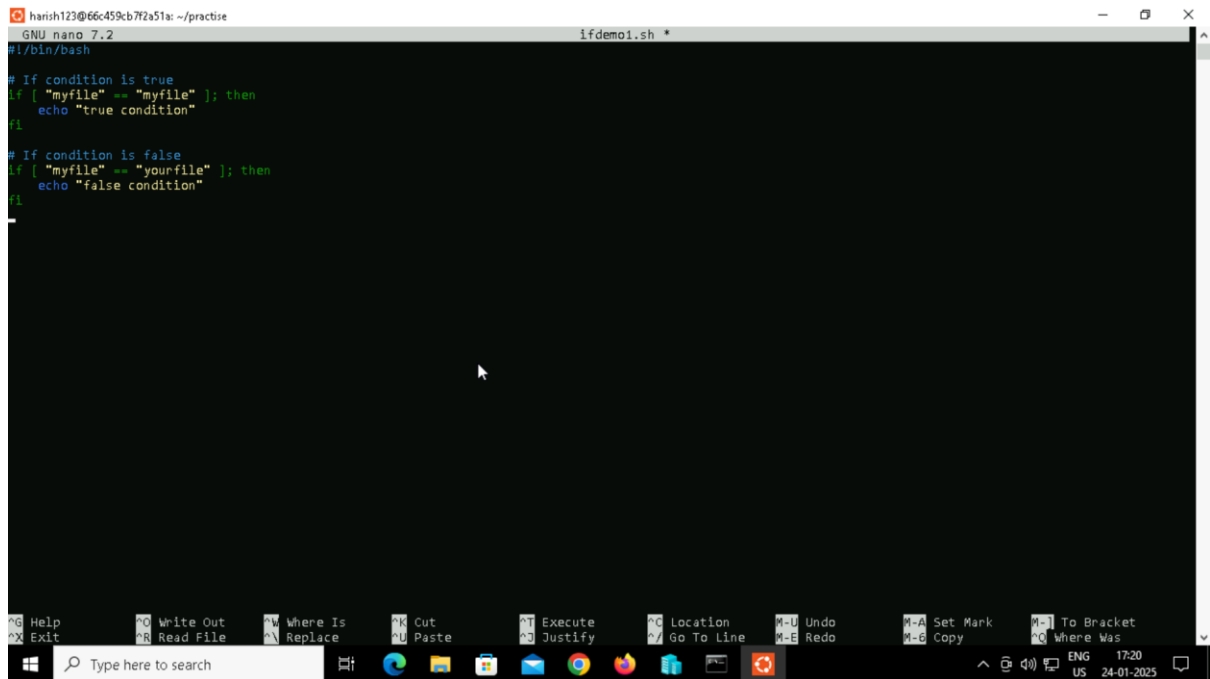
```
harish123@66c459cb7f2a51a: ~/practise
GNU nano 7.2
greater.sh
/bin/bash
read -p "Enter number: " number
if [ $number -gt 125 ]; then
    echo "Value is greater than 125"
fi
```

To exit full screen, press **Esc**



```
harish123@66c459cb7f2a51a: ~/practise
harish123@66c459cb7f2a51a:~$ cd home
-bash: cd: home: No such file or directory
harish123@66c459cb7f2a51a:~$ pwd
/home/harish123
harish123@66c459cb7f2a51a:~$ cd /home/harish123
harish123@66c459cb7f2a51a:~$ ls
practise
harish123@66c459cb7f2a51a:~$ cd practise
harish123@66c459cb7f2a51a:~/practise$ ls
arithmetic_op.sh
harish123@66c459cb7f2a51a:~/practise$ sudo nano greater.sh
[sudo] password for harish123:
harish123@66c459cb7f2a51a:~/practise$ chmod a+x greater.sh
chmod: changing permissions of 'greater.sh': Operation not permitted
harish123@66c459cb7f2a51a:~/practise$ sudo chmod a+x greater.sh
harish123@66c459cb7f2a51a:~/practise$ ./greater.sh
Enter number: 23
harish123@66c459cb7f2a51a:~/practise$ sudo nano greater.sh
harish123@66c459cb7f2a51a:~/practise$ ./greater.sh
Enter number: 188
Value is greater than 125
harish123@66c459cb7f2a51a:~/practise$
```

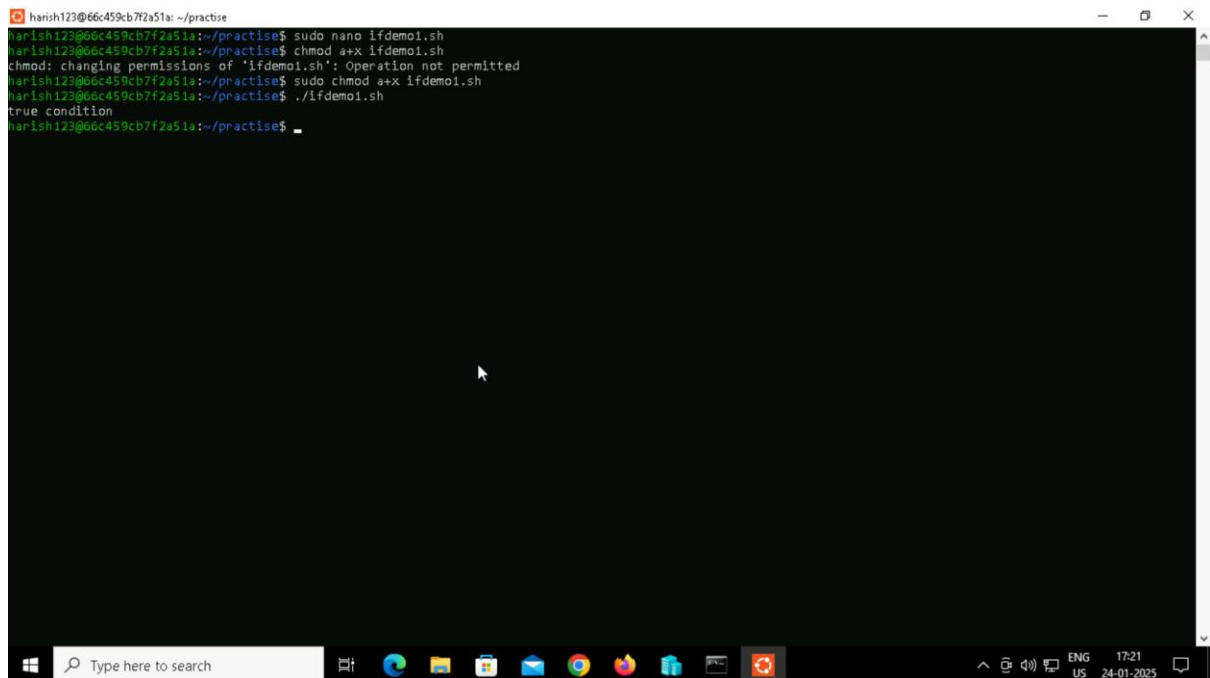
### 3. IF Condition demo



```
harish123@66c459cb7f2a51a: ~/practise
GNU nano 7.2 ifdemo1.sh
#!/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
```



```
harish123@66c459cb7f2a51a: ~/practise
harish123@66c459cb7f2a51a:~/practise$ sudo nano ifdemo1.sh
harish123@66c459cb7f2a51a:~/practise$ chmod a+x ifdemo1.sh
chmod: changing permissions of 'ifdemo1.sh': Operation not permitted
harish123@66c459cb7f2a51a:~/practise$ sudo chmod a+x ifdemo1.sh
harish123@66c459cb7f2a51a:~/practise$ ./ifdemo1.sh
true condition
harish123@66c459cb7f2a51a:~/practise$
```

#### 4. if demo

```
harish123@66c459cb772a51a: ~/practise
GNU nano 7.2 ifdemo2.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
```

```
harish123@66c459cb772a51a: ~/practise
harish123@66c459cb772a51a:~/practise$ sudo nano ifdemo1.sh
harish123@66c459cb772a51a:~/practise$ chmod a+x ifdemo1.sh
chmod: changing permissions of 'ifdemo1.sh': Operation not permitted
harish123@66c459cb772a51a:~/practise$ sudo chmod a+x ifdemo1.sh
harish123@66c459cb772a51a:~/practise$ ./ifdemo1.sh
true condition
harish123@66c459cb772a51a:~/practise$ ll
total 4
drwxr-xr-x 1 harish123 harish123 512 Jan 24 11:50 ./
drwxr-xr-x 1 harish123 harish123 512 Jan 24 11:22 ../
-rwxr-xr-x 1 root root 606 Jan 24 11:07 arithmetic_op.sh*
-rwxr-xr-x 1 root root 115 Jan 24 11:48 greater.sh*
-rwxr-xr-x 1 root root 191 Jan 24 11:50 ifdemo1.sh*
harish123@66c459cb772a51a:~/practise$ cp ifdemo1.sh ifdemo2.sh
harish123@66c459cb772a51a:~/practise$ sudo nano ifdemo2.sh
harish123@66c459cb772a51a:~/practise$ ./ifdemo2.sh
10 is greater than 3.
3 is less than 10.
10 is equal to 10.
harish123@66c459cb772a51a:~/practise$
```

## 5. AND operator

```
harish123@66c459cb7f2a51a: ~/practise
GNU nano 7.2                                and-oper.sh
#!/bin/bash

# TRUE && TRUE
if [ 0 -eq 0 ] && [ 10 -eq 10 ]; then
    echo "Conditions are true"
fi

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

```
harish123@66c459cb7f2a51a: ~/practise
harish123@66c459cb7f2a51a:~/practise$ sudo nano ifdemo1.sh
harish123@66c459cb7f2a51a:~/practise$ chmod a+x ifdemo1.sh
chmod: changing permissions of 'ifdemo1.sh': Operation not permitted
harish123@66c459cb7f2a51a:~/practise$ sudo chmod a+x ifdemo1.sh
harish123@66c459cb7f2a51a:~/practise$ ./ifdemo1.sh
true condition
harish123@66c459cb7f2a51a:~/practise$ ll
total 4
drwxr-xr-x 1 harish123 harish123 512 Jan 24 11:50 ./
drwxr-xr-x 1 harish123 harish123 512 Jan 24 11:22 ../
-rwxr-xr-x 1 root      root      606 Jan 24 11:07 arithmetic_op.sh*
-rwxr-xr-x 1 root      root      115 Jan 24 11:40 greater.sh*
-rwxr-xr-x 1 root      root      191 Jan 24 11:50 ifdemo1.sh*
harish123@66c459cb7f2a51a:~/practise$ cp ifdemo1.sh ifdemo2.sh
harish123@66c459cb7f2a51a:~/practise$ sudo nano ifdemo2.sh
harish123@66c459cb7f2a51a:~/practise$ ./ifdemo2.sh
10 is greater than 3.
3 is less than 10.
10 is equal to 10.
harish123@66c459cb7f2a51a:~/practise$ cp ifdemo1.sh and-oper.sh
harish123@66c459cb7f2a51a:~/practise$ sudo nano and-oper.sh
harish123@66c459cb7f2a51a:~/practise$ sudo nano and-oper.sh
harish123@66c459cb7f2a51a:~/practise$ ./and-oper.sh
Conditions are true
harish123@66c459cb7f2a51a:~/practise$
```

## 6. OR operator

```
harish123@66c459cb7f2a51a: ~/practise
GNU nano 7.2 or-oper.sh
#!/bin/bash

# TRUE || FALSE
if [ 8 -gt 7 ] || [ 10 -eq 3 ]; then
    echo "Condition is true."
fi

# FALSE || FALSE
if [ "mylife" == "yourlife" ] || [ 3 -gt 10 ]; then
    echo "Condition is false."
fi
```

Help Write Out Where Is Cut Execute Location Undo Set Mark To Bracket  
Exit Read File Replace Paste Justify Go To Line Redo Copy Where Was

Type here to search

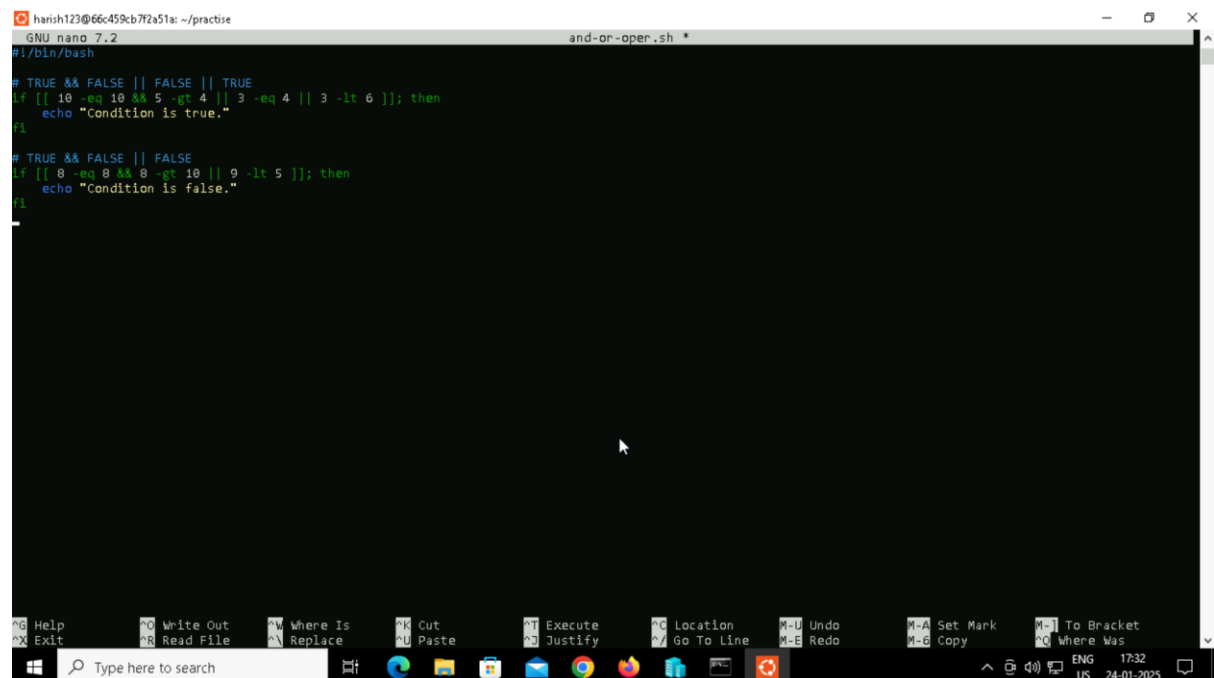
ENG 17:30  
US 24-01-2025

```
harish123@66c459cb7f2a51a: ~/practise
harish123@66c459cb7f2a51a:~/practise$ sudo nano and-oper.sh
harish123@66c459cb7f2a51a:~/practise$ ./and-oper.sh
Conditions are true
harish123@66c459cb7f2a51a:~/practise$ cp ifdemo1.sh or-oper.sh
harish123@66c459cb7f2a51a:~/practise$ sudo nano or-oper.sh
harish123@66c459cb7f2a51a:~/practise$ ./or-oper.sh
Condition is true.
harish123@66c459cb7f2a51a:~/practise$
```

Type here to search

ENG 17:30  
US 24-01-2025

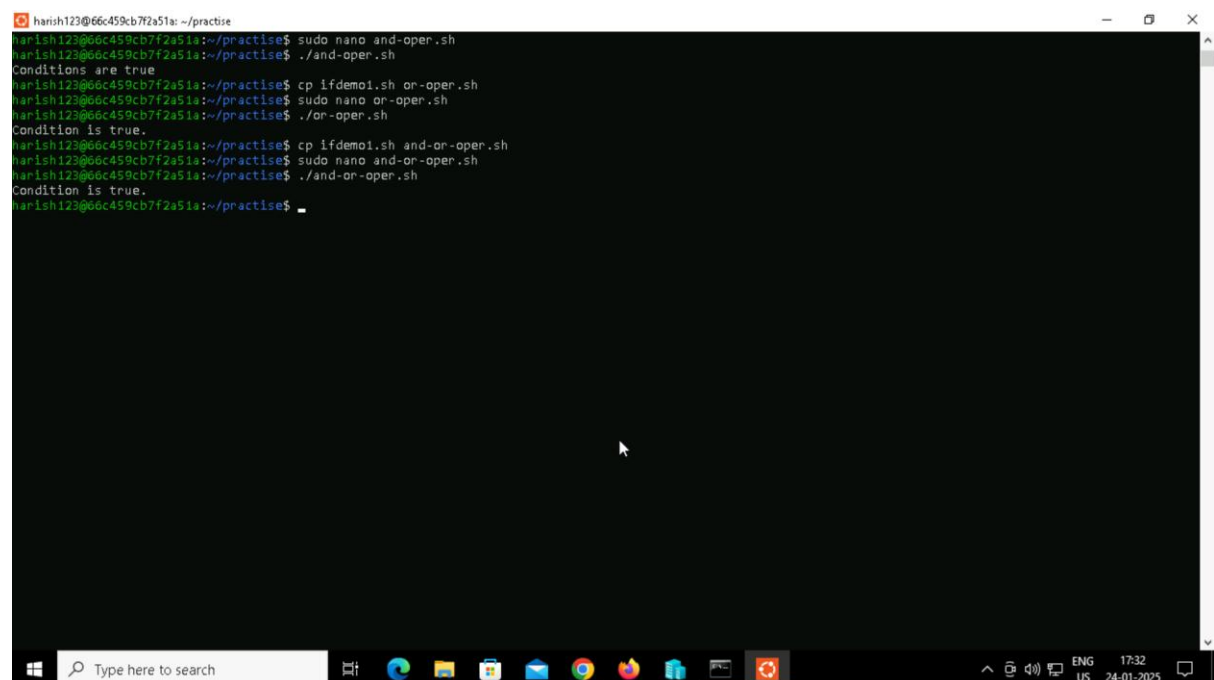
## 7. AND and OR Operators



```
harish123@66c459cb7f2a51a: ~/practise
GNU nano 7.2                                and-or-oper.sh *
#!/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 && 8 -gt 10 || 9 -lt 5 ]]; then
    echo "Condition is false."
fi
```



```
harish123@66c459cb7f2a51a: ~/practise
harish123@66c459cb7f2a51a:~/practise$ sudo nano and-oper.sh
harish123@66c459cb7f2a51a:~/practise$ ./and-oper.sh
Conditions are true
harish123@66c459cb7f2a51a:~/practise$ cp ifdemo1.sh or-oper.sh
harish123@66c459cb7f2a51a:~/practise$ sudo nano or-oper.sh
harish123@66c459cb7f2a51a:~/practise$ ./or-oper.sh
Condition is true.
harish123@66c459cb7f2a51a:~/practise$ cp ifdemo1.sh and-or-oper.sh
harish123@66c459cb7f2a51a:~/practise$ sudo nano and-or-oper.sh
harish123@66c459cb7f2a51a:~/practise$ ./and-or-oper.sh
Condition is true.
harish123@66c459cb7f2a51a:~/practise$
```

## 8. Nested If

```
harish123@66c459cb7f2a51a: ~/practise
GNU nano 7.2 nestif.sh
#!/bin/bash
# Nested if statement with input validation

if [[ $1 =~ ^[0-9]+$ ]]; then
    if [ $1 -gt 50 ]; then
        echo "Number is greater than 50."
        if (( $1 % 2 == 0 )); then
            echo "and it is an even number."
        fi
    else
        echo "Number is 50 or less."
    fi
else
    echo "Please provide a valid positive integer."
fi
```

```
harish123@66c459cb7f2a51a: ~/practise
harish123@66c459cb7f2a51a:~$ ls
practise
harish123@66c459cb7f2a51a:~$ ls -l practise
total 5
-rwxr-xr-x 1 harish123 harish123 203 Jan 24 11:57 and-oper.sh
-rwxr-xr-x 1 harish123 harish123 244 Jan 24 12:02 and-or-oper.sh
-rwxr-xr-x 1 root root 606 Jan 24 11:07 arithmetic_op.sh
-rwxr-xr-x 1 root root 115 Jan 24 11:40 greater.sh
-rwxr-xr-x 1 root root 191 Jan 24 11:50 ifdemo1.sh
-rwxr-xr-x 1 harish123 harish123 503 Jan 24 11:53 ifdemo2.sh
-rwxr-xr-x 1 harish123 harish123 191 Jan 24 12:05 nestif.sh
-rwxr-xr-x 1 harish123 harish123 204 Jan 24 12:00 or-oper.sh
harish123@66c459cb7f2a51a:~$ cd practise
harish123@66c459cb7f2a51a:~/practise$ vi nestif.sh
[sudo] password for harish123:
harish123@66c459cb7f2a51a:~/practise$ ./nestif.sh
Please provide a valid positive integer.
harish123@66c459cb7f2a51a:~/practise$ sudo nano nestif.sh
harish123@66c459cb7f2a51a:~/practise$ ./nestif.sh 34
Number is 50 or less.
harish123@66c459cb7f2a51a:~/practise$ ./nestif.sh 87
Number is greater than 50.
harish123@66c459cb7f2a51a:~/practise$ ./nestif.sh 04
Number is 50 or less.
harish123@66c459cb7f2a51a:~/practise$
```



## 9. If-Else -1:

```
harish129@66c459cb772a51a: ~/practise
GNU nano 7.2 ifelse1.sh
#!/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
```

Output:

```
harish129@66c459cb772a51a: ~/practise
C:\Users\Administrator>ubuntu
harish129@66c459cb772a51a:~$ cd /home/harish129
harish129@66c459cb772a51a:~$ ls
harish129@66c459cb772a51a:~$ mkdir practise cd practise
mkdir: cannot create directory 'practise': File exists
harish129@66c459cb772a51a:~$ mkdir practise
mkdir: cannot create directory 'practise': File exists
harish129@66c459cb772a51a:~$ ll
total 36
drwxr-xr-x 5 harish129 harish129 4096 Jan 25 04:50 ./
drwxr-xr-x 3 root root 4096 Jan 25 04:15 ../
-rw-r--r-- 1 harish129 harish129 5 Jan 25 04:15 .bash_history
-rw-r--r-- 1 harish129 harish129 220 Jan 25 04:15 .bash_logout
-rw-r--r-- 1 harish129 harish129 3771 Jan 25 04:15 .bashrc
drwxr-xr-x 2 harish129 harish129 4096 Jan 25 04:15 .cache/
-rw-r--r-- 1 harish129 harish129 0 Jan 25 04:15 .motd.shown
-rw-r--r-- 1 harish129 harish129 807 Jan 25 04:15 .profile
-rw-r--r-- 1 harish129 harish129 0 Jan 25 04:17 .sudo_as_admin_successful
drwxr-xr-x 2 harish129 harish129 4096 Jan 25 04:50 cd/
drwxr-xr-x 2 harish129 harish129 4096 Jan 25 04:50 practise/
harish129@66c459cb772a51a:~$ rmdir cd
harish129@66c459cb772a51a:~$ cd practise
harish129@66c459cb772a51a:~/practise$ ll
total 8
drwxr-xr-x 2 harish129 harish129 4096 Jan 25 04:50 ./
drwxr-xr-x 4 harish129 harish129 4096 Jan 25 04:51 ../
harish129@66c459cb772a51a:~/practise$ sudo nano ifelse1.sh
[sudo] password for harish129:
harish129@66c459cb772a51a:~/practise$ sudo chmod +x ifelse1.sh
harish129@66c459cb772a51a:~/practise$ ./ifelse1.sh
10 is greater than 3.
3 is not greater than 10.
harish129@66c459cb772a51a:~/practise$
```

## 10. If-Else 2:

```
harish129@66c459cb7f2a51a: ~/practise
GNU nano 7.2 ifelse2.sh
#!/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 || FALSE
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
```

Output:

```
harish129@66c459cb7f2a51a: ~/practise
harish129@66c459cb7f2a51a:~/practise$ cp ifelse1.sh ifelse2.sh
harish129@66c459cb7f2a51a:~/practise$ sudo nano ifelse2.sh
harish129@66c459cb7f2a51a:~/practise$ ./ifelse2.sh
Given condition is true.
Given condition is not true.
harish129@66c459cb7f2a51a:~/practise$
```

## 11. If-Else 3 :

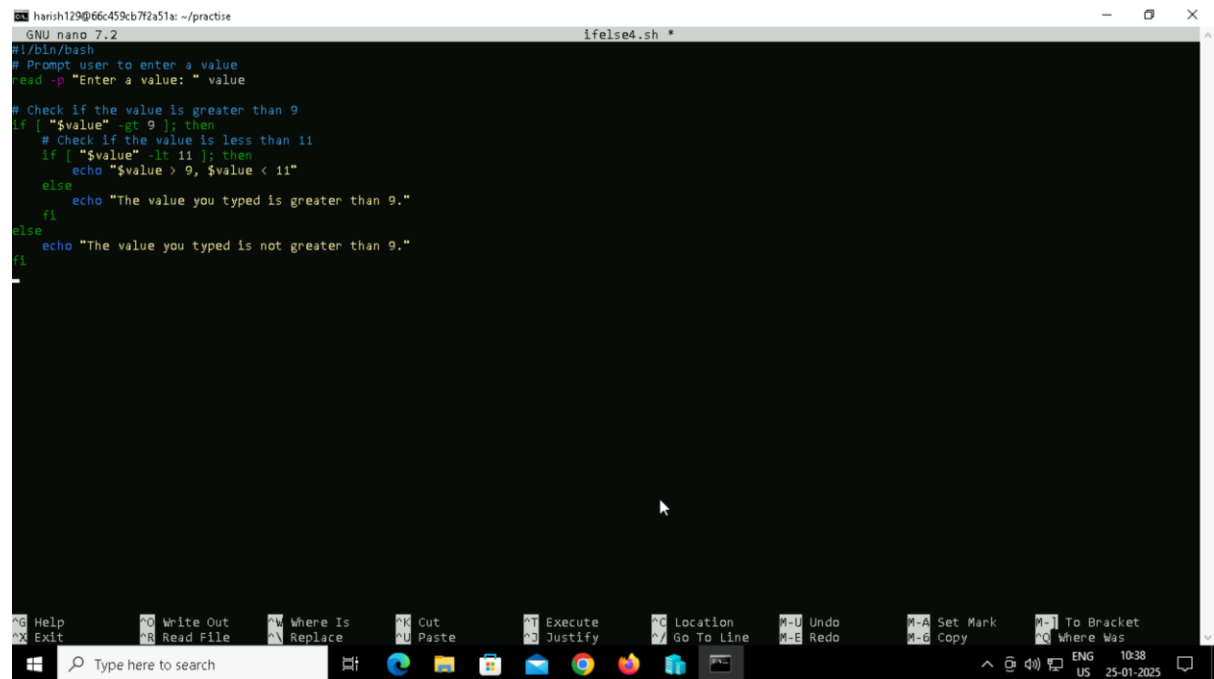
```
harish129@66c459cb7f2a51a: ~/practise
GNU nano 7.2 ifelse3.sh
#!/bin/bash
# Prompt user to enter a value
read -p "Enter a value: " value

# Check if the value is greater than 9
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
```

Output:

```
harish129@66c459cb7f2a51a: ~/practise
harish129@66c459cb7f2a51a:~/practise$ cp ifelse1.sh ifelse2.sh
harish129@66c459cb7f2a51a:~/practise$ sudo nano ifelse2.sh
harish129@66c459cb7f2a51a:~/practise$ ./ifelse2.sh
Given condition is true.
Given condition is not true.
harish129@66c459cb7f2a51a:~/practise$ ll
total 16
drwxr-xr-x 2 harish129 harish129 4096 Jan 25 04:57 ./
drwxr-xr-x 4 harish129 harish129 4096 Jan 25 04:51 ../
-rwxr-xr-x 1 root root 273 Jan 25 04:52 ifelse1.sh*
-rwxr-xr-x 1 harish129 harish129 414 Jan 25 04:57 ifelse2.sh*
harish129@66c459cb7f2a51a:~/practise$ cp ifelse1.sh ifelse3.sh
harish129@66c459cb7f2a51a:~/practise$ ll
total 28
drwxr-xr-x 2 harish129 harish129 4096 Jan 25 05:04 ./
drwxr-xr-x 4 harish129 harish129 4096 Jan 25 04:51 ../
-rwxr-xr-x 1 root root 273 Jan 25 04:52 ifelse1.sh*
-rwxr-xr-x 1 harish129 harish129 414 Jan 25 04:57 ifelse2.sh*
-rwxr-xr-x 1 harish129 harish129 273 Jan 25 05:04 ifelse3.sh*
harish129@66c459cb7f2a51a:~/practise$ sudo nano ifelse3.sh
harish129@66c459cb7f2a51a:~/practise$ ./ifelse3.sh
Enter a value: 46
The value you typed is greater than 9.
harish129@66c459cb7f2a51a:~/practise$ ./ifelse3.sh
Enter a value: 82
The value you typed is greater than 9.
harish129@66c459cb7f2a51a:~/practise$ ./ifelse3.sh
Enter a value: 34
The value you typed is greater than 9.
harish129@66c459cb7f2a51a:~/practise$ ./ifelse3.sh
Enter a value: 2
The value you typed is not greater than 9.
harish129@66c459cb7f2a51a:~/practise$
```

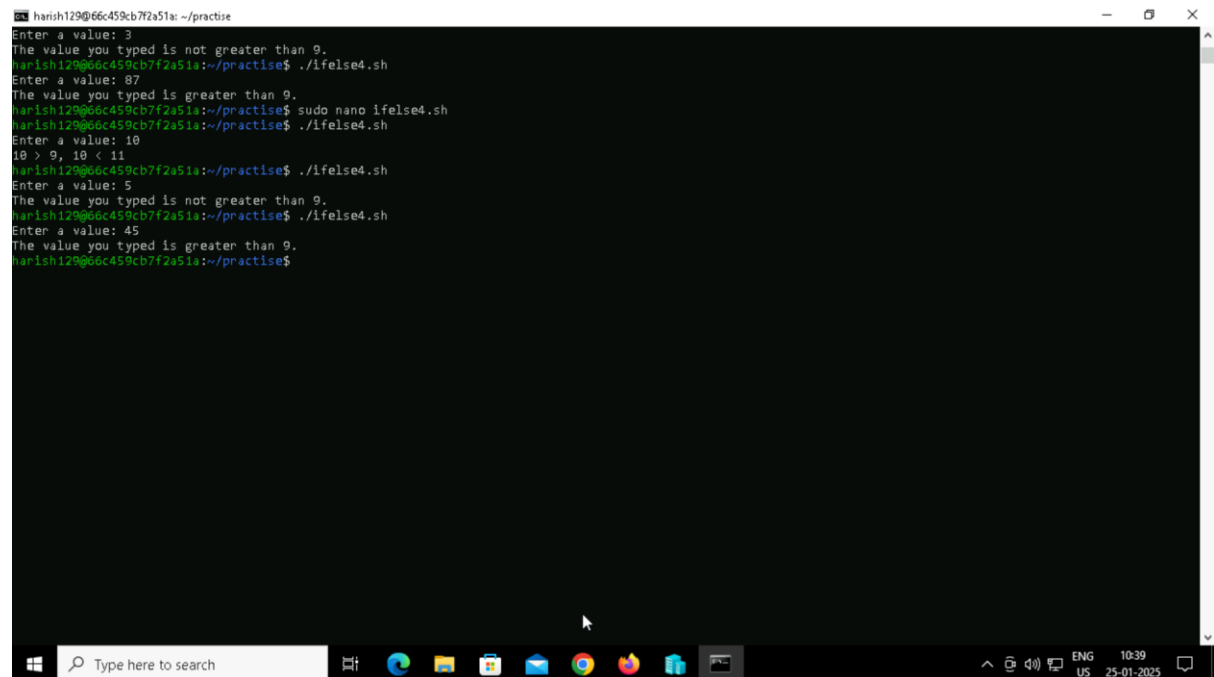
## 12. If-Else 4:



```
harish129@66c459cb7f2a51a: ~/practise
GNU nano 7.2 ifelse4.sh
#!/bin/bash
# Prompt user to enter a value
read -p "Enter a value: " value

# Check if the value is greater than 9
if [ "$value" -gt 9 ]; then
    # Check if the value is less than 11
    if [ "$value" -lt 11 ]; then
        echo "$value > 9, $value < 11"
    else
        echo "The value you typed is greater than 9."
    fi
else
    echo "The value you typed is not greater than 9."
fi
```

Output:



```
harish129@66c459cb7f2a51a: ~/practise
Enter a value: 3
The value you typed is not greater than 9.
harish129@66c459cb7f2a51a: ~/practise$ ./ifelse4.sh
Enter a value: 87
The value you typed is greater than 9.
harish129@66c459cb7f2a51a: ~/practise$ sudo nano ifelse4.sh
harish129@66c459cb7f2a51a: ~/practise$ ./ifelse4.sh
Enter a value: 10
10 > 9, 10 < 11
harish129@66c459cb7f2a51a: ~/practise$ ./ifelse4.sh
Enter a value: 5
The value you typed is not greater than 9.
harish129@66c459cb7f2a51a: ~/practise$ ./ifelse4.sh
Enter a value: 45
The value you typed is greater than 9.
harish129@66c459cb7f2a51a: ~/practise$
```

### 13. If-Else -5:

```
harish129@66c459cb772a51a: ~/practise
GNU nano 7.2 ifelse5.sh
#!/bin/bash

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

# Validate the input to ensure it's numeric
if ! [[ "$num" =~ ^[0-9]+$ ]]; then
    echo "Invalid input! Please enter a numeric value."
    exit 1
fi

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

Output:

```
harish129@66c459cb772a51a: ~/practise
harish129@66c459cb772a51a:~/practise$ cp ifelse1.sh ifelse5.sh
harish129@66c459cb772a51a:~/practise$ sudo nano ifelse5.sh
harish129@66c459cb772a51a:~/practise$ ./ifelse5.sh
Enter a number of quantity: 350
Eligible for 20% discount
harish129@66c459cb772a51a:~/practise$ ./ifelse5.sh
Enter a number of quantity: 543
Eligible for 20% discount
harish129@66c459cb772a51a:~/practise$ ./ifelse5.sh
Enter a number of quantity: 89
No discount
harish129@66c459cb772a51a:~/practise$ ./ifelse5.sh
Enter a number of quantity: 110
Eligible for 10% discount
harish129@66c459cb772a51a:~/practise$
```