

# BASH

## ARITHMETIC OPERATORS:

```
pravalika18@d73d6822db255ef:~  
pravalika18@d73d6822db255ef:~$ touch operators.sh  
pravalika18@d73d6822db255ef:~$ chmod +x operators.sh  
pravalika18@d73d6822db255ef:~$ gedit operators.sh  
Command 'gedit' not found, but can be installed with:  
sudo snap install gedit # version 46.1, or  
sudo apt install gedit # version 46.1-3  
See 'snap info gedit' for additional versions.  
pravalika18@d73d6822db255ef:~$ sudo snap install gedit  
[sudo] password for pravalika18:  
2025-01-24T10:05:05Z INFO Waiting for automatic snapd restart...  
gedit 46.1 from CanonicalM installed  
pravalika18@d73d6822db255ef:~$ gedit operators.sh  
touch: cannot touch '/home/pravalika18/snap/gedit/common/.cache/desktop-runtime-date': No such file or directory  
  
(gedit:2131): IBUS-WARNING **: 10:07:05.449: Failed to mkdir /home/pravalika18/snap/gedit/604/.config/ibus/bus: Not a directory  
  
** (gedit:2131): WARNING **: 10:07:31.832: atk-bridge: get_device_events_reply: unknown signature  
^C  
pravalika18@d73d6822db255ef:~$ ./operators.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=
```

## ARITHMETIC USING BLACKTICK & EXPR:

```
Select pravalika18@d73d6822db255ef:~  
3  
pravalika18@d73d6822db255ef:~$ touch expr.sh  
pravalika18@d73d6822db255ef:~$ chmod +x expr.sh  
pravalika18@d73d6822db255ef:~$ gedit expr.sh  
  
(gedit:2550): IBUS-WARNING **: 10:15:39.566: Failed to mkdir /home/pravalika18/snap/gedit/604/.config/ibus/bus: Not a directory  
  
** (gedit:2550): WARNING **: 10:16:05.798: atk-bridge: get_device_events_reply: unknown signature  
^C  
pravalika18@d73d6822db255ef:~$ cat expr.sh  
#!/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  
echo "c= `expr $a + $b`"  
pravalika18@d73d6822db255ef:~$ ./expr.sh  
a=10, b=3  
c is the value of addition c=a+b  
c= 13  
pravalika18@d73d6822db255ef:~$
```

## IF STATEMENT:

### 1. Check if the value is greater than 125.

```
pravalika18@d73d6822db255ef:~  
pravalika18@d73d6822db255ef:~$ touch if_ex1.sh  
pravalika18@d73d6822db255ef:~$ chmod +x if_ex1.sh  
pravalika18@d73d6822db255ef:~$ gedit if_ex1.sh  
(gedit:571): IBUS-WARNING **: 12:03:30.507: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
** (gedit:571): WARNING **: 12:03:57.654: atk-bridge: get_device_events_reply: unknown signature  
^C  
pravalika18@d73d6822db255ef:~$ ./if_ex1  
-bash: ./if_ex1: No such file or directory  
pravalika18@d73d6822db255ef:~$ ./if_ex1.sh  
Enter number : 43  
pravalika18@d73d6822db255ef:~$  
pravalika18@d73d6822db255ef:~$ ./if_ex1.sh  
Enter number : 126  
Value is greater than 125  
pravalika18@d73d6822db255ef:~$ cat if_ex1.sh  
#!/bin/bash  
  
read -p "Enter number : " number  
  
if [ $number -gt 125 ]  
then  
echo "Value is greater than 125"  
fi  
pravalika18@d73d6822db255ef:~$
```

### 2. Comparing two strings

```
pravalika18@d73d6822db255ef:~  
if [ $number -gt 125 ]  
then  
echo "Value is greater than 125"  
fi  
pravalika18@d73d6822db255ef:~$ touch if_string.sh  
pravalika18@d73d6822db255ef:~$ chmod +x if_string.sh  
pravalika18@d73d6822db255ef:~$ gedit if_string.sh  
(gedit:718): IBUS-WARNING **: 12:07:50.634: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
** (gedit:718): WARNING **: 12:08:16.972: atk-bridge: get_device_events_reply: unknown signature  
^C  
pravalika18@d73d6822db255ef:~$ ./if_string.sh  
true condition  
pravalika18@d73d6822db255ef:~$ cat if_string.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  
pravalika18@d73d6822db255ef:~$
```

### 3.Comparing two numbers using if statement

```
pravalika10@d73d6822db255ef: ~  
if [ "myfile" == "yourfile" ];  
then  
echo "false condition"  
fi  
pravalika10@d73d6822db255ef:~$ touch if_numbers.sh  
pravalika10@d73d6822db255ef:~$ chmod +x if_numbers.sh  
pravalika10@d73d6822db255ef:~$ gedit if_numbers.sh  
(gedit:835): IBUS-WARNING **: 12:10:29.516: Failed to mkdir /home/pravalika10/snap/gedit/684/.config/ibus/bus: Not a directory  
^C  
pravalika10@d73d6822db255ef:~$ ./if_numbers.sh  
10 is greater than 3.  
3 is less than 10.  
10 is equal to 10.  
pravalika10@d73d6822db255ef:~$ cat if_numbers.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 (lesser than) is true  
if [ 3 -lt 10 ];  
then  
echo "3 is less than 10."  
fi  
  
#if condition (lesser than) is false  
if [ 10 -lt 3 ];  
then  
echo "10 is not less than 3."  
fi
```

```
pravalika10@d73d6822db255ef: ~  
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 (lesser than) is true  
if [ 3 -lt 10 ];  
then  
echo "3 is less than 10."  
fi  
  
#if condition (lesser 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  
pravalika10@d73d6822db255ef:~$
```

## 4.Using AND operator with multiple if expressions.

```
pravalika18@d73d6822db255ef: ~  
if [ 10 -eq 9 ];  
then  
echo "10 is not equal to 9"  
fi  
pravalika18@d73d6822db255ef:~$ touch if_add.sh  
pravalika18@d73d6822db255ef:~$ chmod +x if_add.sh  
pravalika18@d73d6822db255ef:~$ gedit if_add.sh  
(gedit:947): IBUS-WARNING **: 12:13:08.936: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
** (gedit:947): WARNING **: 12:13:35.526: atk-bridge: get_device_events_reply: unknown signature  
^C  
pravalika18@d73d6822db255ef:~$ ./if_add.sh  
Conditions are true  
pravalika18@d73d6822db255ef:~$ cat if_add.sh  
#!/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  
pravalika18@d73d6822db255ef:~$
```

## 5.Using OR operator with multiple if expressions.

```
pravalika18@d73d6822db255ef: ~  
fi  
pravalika18@d73d6822db255ef:~$ touch if_or.sh  
pravalika18@d73d6822db255ef:~$ chmod +x if_or.sh  
pravalika18@d73d6822db255ef:~$ gedit if_or.sh  
(gedit:1069): IBUS-WARNING **: 12:15:41.363: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
^C  
pravalika18@d73d6822db255ef:~$ ./if_or.sh  
Condition is true.  
pravalika18@d73d6822db255ef:~$ cat if_or.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  
pravalika18@d73d6822db255ef:~$
```

## 6.Using AND & OR operators with multiple IF expressions.

```
Select pravalika18@d73d6822db255ef: ~
echo " Condition is false. "
fi
pravalika18@d73d6822db255ef:~$ touch if_and_or.sh
pravalika18@d73d6822db255ef:~$ chmod +x if_and_or.sh
pravalika18@d73d6822db255ef:~$ gedit if_and_or.sh

(gedit:1186): IBUS-WARNING **: 12:17:27.412: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory
^C
pravalika18@d73d6822db255ef:~$ ./if_and_or.sh
Condition is true.
pravalika18@d73d6822db255ef:~$ cat if_and_or.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 [[ 0 -eq 0 && 0 -gt 10 || 0 -lt 5 ]];
then
echo "Condition is false"
fi
pravalika18@d73d6822db255ef:~$
```

## NESTED IF :

**Finding if a given number is greater than 50 and if it is an even number by using nested if expression.**

```
pravalika18@d73d6822db255ef: ~
then
echo "Condition is false"
fi
pravalika18@d73d6822db255ef:~$ touch nested_if.sh
pravalika18@d73d6822db255ef:~$ chmod +x nested_if.sh
pravalika18@d73d6822db255ef:~$ gedit nested_if.sh

(gedit:1301): IBUS-WARNING **: 12:19:29.357: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory
^C
pravalika18@d73d6822db255ef:~$ ./nested_if.sh
./nested_if.sh: line 4: [: -gt: unary operator expected
pravalika18@d73d6822db255ef:~$ ./nested_if.sh 100
Number is greater than 50.
and it is an even number.
pravalika18@d73d6822db255ef:~$ cat nested_if.sh
#!/bin/bash
#Nested if statement
if [ $1 -gt 50 ]
then
echo "Number is greater than 50."
if (( $1 % 2 == 0 ))
then
echo "and it is an even number."
fi
fi
pravalika18@d73d6822db255ef:~$
```

## IF-ELSE

1. Two different scenarios where in the first if-else statement, the condition is true, and in the second if-else statement, the condition is false.

```
pravalika18@d73d6822db255ef: ~  
if (( $1 % 2 == 0 ))  
then  
    echo "and it is an even number."  
fi  
pravalika18@d73d6822db255ef:~$ touch if_else_ex1.sh  
pravalika18@d73d6822db255ef:~$ chmod +x if_else_ex1.sh  
pravalika18@d73d6822db255ef:~$ gedit if_else_ex1.sh  
(gedit:1962): IBUS-WARNING **: 04:48:22.150: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
^C  
pravalika18@d73d6822db255ef:~$ ./if_else_ex1.sh  
10 is greater than 3.  
3 is not greater than 10.  
pravalika18@d73d6822db255ef:~$ cat if_else_ex1.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  
pravalika18@d73d6822db255ef:~$
```

2. Used multiple conditions with the if-else statement in Bash. We use bash logical operators to join multiple conditions.

```
pravalika18@d73d6822db255ef: ~  
echo "3 is not greater than 10."  
fi  
pravalika18@d73d6822db255ef:~$ touch if_else_ex2.sh  
pravalika18@d73d6822db255ef:~$ chmod +x if_else_ex2.sh  
pravalika18@d73d6822db255ef:~$ gedit if_else_ex2.sh  
(gedit:2077): IBUS-WARNING **: 04:51:12.405: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
** (gedit:2077): WARNING **: 04:51:38.600: atk-bridge: get_device_events_reply: unknown signature  
^C  
pravalika18@d73d6822db255ef:~$ ^C  
pravalika18@d73d6822db255ef:~$ ./if_else_ex2.sh  
Given condition is true.  
Given condition is not true.  
pravalika18@d73d6822db255ef:~$ cat if_else_ex2.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 || 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  
pravalika18@d73d6822db255ef:~$
```

### 3. Demonstrating how to use if-else statement in a single line:

```
pravalika18@d73d6822db255ef: ~  
fl  
pravalika18@d73d6822db255ef:~$ touch if_else_ex3.sh  
pravalika18@d73d6822db255ef:~$ touch if_else_ex3.sh  
pravalika18@d73d6822db255ef:~$ chmod +x if_else_ex3.sh  
pravalika18@d73d6822db255ef:~$ gedit if_else_ex3.sh  
(gedit:2192): IBUS-WARNING **: 04:54:41.509: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
^C  
pravalika18@d73d6822db255ef:~$ cat if_else_ex3.sh  
cat: if_else_ex3.sh: No such file or directory  
pravalika18@d73d6822db255ef:~$ cat if_else_ex3.sh  
#!/bin/bash  
  
read -p "Enter a value:" value  
if [ $value -gt 9 ]; then echo "The value you typed is greater than 9."; else echo "The value you typed is not greater than 9."; fi  
pravalika18@d73d6822db255ef:~$ ./if_else_ex3.sh  
Enter a value:25  
The value you typed is greater than 9.  
pravalika18@d73d6822db255ef:~$
```

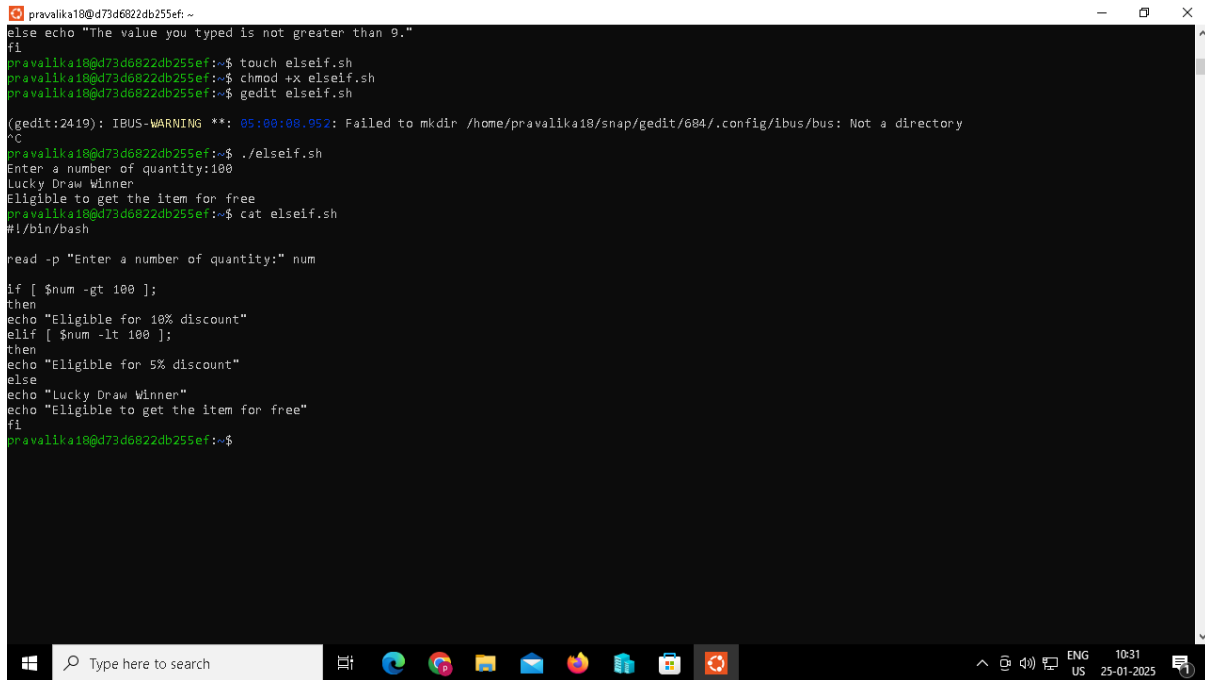
## Bash Nested If Else

### 1. Example explaining how to make use of the nested if-else statement in Bash:

```
pravalika18@d73d6822db255ef: ~  
pravalika18@d73d6822db255ef:~$ ./if_else_ex3.sh  
Enter a value:25  
The value you typed is greater than 9.  
pravalika18@d73d6822db255ef:~$ touch nested_ifelse.sh  
pravalika18@d73d6822db255ef:~$ chmod +x nested_ifelse.sh  
pravalika18@d73d6822db255ef:~$ gedit nested_ifelse.sh  
(gedit:2308): IBUS-WARNING **: 04:57:37.888: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
^C  
pravalika18@d73d6822db255ef:~$ ./nested_ifelse.sh  
Enter a value:10  
10>9, 10<11  
pravalika18@d73d6822db255ef:~$ cat nested_ifelse.sh  
#!/bin/bash  
  
read -p "Enter a value:" value  
if [ $value -gt 9 ];  
then  
    if [ $value -lt 11 ];  
    then  
        echo "$value>9, $value<11"  
    else  
        echo "The value you typed is greater than 9."  
    fi  
else echo "The value you typed is not greater than 9."  
fi  
pravalika18@d73d6822db255ef:~$
```

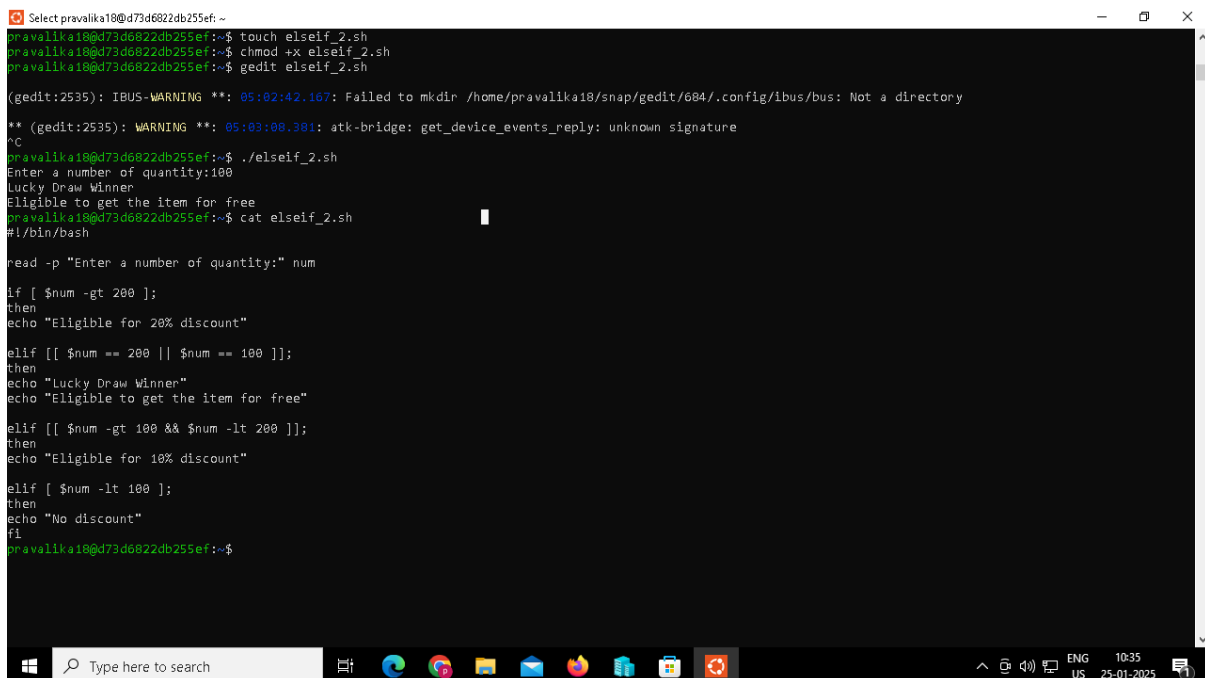
# Bash Else If

1. Two different scenarios wherein the first else-if statement, the condition is true, and in the second else-if statement, the condition is false.



```
pravalika18@d73d6822db255ef:~  
else echo "The value you typed is not greater than 9."  
fi  
pravalika18@d73d6822db255ef:~$ touch elseif.sh  
pravalika18@d73d6822db255ef:~$ chmod +x elseif.sh  
pravalika18@d73d6822db255ef:~$ gedit elseif.sh  
(gedit:2419): IBUS-WARNING **: 05:00:08.952: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
^C  
pravalika18@d73d6822db255ef:~$ ./elseif.sh  
Enter a number of quantity:100  
Lucky Draw Winner  
Eligible to get the item for free  
pravalika18@d73d6822db255ef:~$ cat elseif.sh  
#!/bin/bash  
  
read -p "Enter a number of quantity:" num  
  
if [ $num -gt 100 ];  
then  
echo "Eligible for 10% discount"  
elif [ $num -lt 100 ];  
then  
echo "Eligible for 5% discount"  
else  
echo "Lucky Draw Winner"  
echo "Eligible to get the item for free"  
fi  
pravalika18@d73d6822db255ef:~$
```

2. Demonstrating how to use multiple conditions with the else-if statement in Bash. We use bash logical operators to join multiple conditions.



```
Select pravalika18@d73d6822db255ef:~  
pravalika18@d73d6822db255ef:~$ touch elseif_2.sh  
pravalika18@d73d6822db255ef:~$ chmod +x elseif_2.sh  
pravalika18@d73d6822db255ef:~$ gedit elseif_2.sh  
(gedit:2535): IBUS-WARNING **: 05:02:42.167: Failed to mkdir /home/pravalika18/snap/gedit/684/.config/ibus/bus: Not a directory  
** (gedit:2535): WARNING **: 05:03:08.381: atk-bridge: get_device_events_reply: unknown signature  
^C  
pravalika18@d73d6822db255ef:~$ ./elseif_2.sh  
Enter a number of quantity:100  
Lucky Draw Winner  
Eligible to get the item for free  
pravalika18@d73d6822db255ef:~$ cat elseif_2.sh  
#!/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 [ $num -lt 100 ];  
then  
echo "No discount"  
fi  
pravalika18@d73d6822db255ef:~$
```



