	COURSE: Operating System		MARKS:
	TOPIC: if...else in Shell Scripting	CODE: BCN2053	
	ASSESSMENT: Lab Sheet	NO: 7	
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Instruction:

1. Read and follow the simple notes given
2. Do the exercise given
3. Submit the exercise via moodle

Lab exercises outcome:

At the end of this lab section students will be able to:

1. understand how to use the test command and its symbol
2. use if...else statement correctly with the test command in shell scripting
3. solve a problem by using if...else statement in shell scripting
4. apply nested if...else statement

Test Command

Notes

Test command is a command to test any condition is true or false. If true then it return 0 otherwise return non zero.

syntax

test expression OR [expression]

Example:

Given script determine whether the argument is bigger than 5


```
$ cat > isbiggerthanfive
#!/bin/sh
#
# Script to see whether argument is bigger than 5
#
if test $1 -gt 5
then
echo "$1 number is bigger than 5"
fi
```

Run it as follows

\$ chmod 755 isbiggerthanfive

\$ isbiggerthanfive 6

6 number is bigger than 5

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\$isbiggerthanfive 0

Nothing is printed

\$isbiggerthanfive

./isbiggerthanfive: test: -gt: unary operator expected

Detailed explanation

The line, if test \$1 -gt 5 , test to see if first command line argument(\$1) is greater than 5. If it is true(0) then test will return 0 and output will printed as 6 number is bigger than 5 but for 0

argument there is no output because the condition is false (-0) (no 0 is not bigger than 5)

hence echo statement is skipped. And for last statement we have not supplied any argument hence error. ./ispostive: test: -gt: unary operator expected, is generated by shell, to avoid such error we can test whether command line argument is supplied or not.


Symbol

Some references for create the test command

Remember: == is equal, != is not equal.

For number use following operator in Shell Script

Mathematical Operator in Shell Script	Meaning	Normal Arithmetical/ Mathematical Statements	But in Shell	
			For test statement with if command	For [expr] statement with if command
-eq	is equal to	5 == 6	if test 5 -eq 6	if [5 -eq 6]
-ne	is not equal to	5 != 6	if test 5 -ne 6	if [5 -ne 6]
-lt	is less than	5 < 6	if test 5 -lt 6	if [5 -lt 6]
-le	is less than or equal to	5 <= 6	if test 5 -le 6	if [5 -le 6]

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-gt	is greater than	5 > 6	if test 5 -gt 6	if [5 -gt 6]
-ge	is greater than or equal to	5 >= 6	if test 5 -ge 6	if [5 -ge 6]

For string Comparisons use

Operator	Meaning
string1 = string2	string1 is equal to string2
string1 != string2	string1 is NOT equal to string2
string1	string1 is NOT NULL or not defined
-n string1	string1 is NOT NULL and does exist
-z string1	string1 is NULL and does exist

Shell also test for file and directory types


Test	Meaning
-s file	Non empty file
-f file	Is File exist or normal file and not a directory
-d dir	Is Directory exist and not a file
-w file	Is writeable file
-r file	Is read-only file
-x file	Is file is executable

Logical Operators

Logical operators are used to combine two or more condition at a time

Operator	Meaning
! expression	Logical NOT
expression1 -a expression2	Logical AND
expression1 -o expression2	Logical OR

If...else

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if...else statement is a statement for decision where if given condition is true then command1 is executed otherwise command2 is executed.

Syntax:

```

if condition
then
    condition is zero (true - 0)
    execute all commands up to else statement

else
    if condition is not true then
    execute all commands up to fi

fi

```

For e.g. write Script as follows:

```

$ vi isnump_n
#!/bin/sh
#
# Script to see whether argument is positive or negative
#
if [ $# -eq 0 ]
then
echo "$0 : You must give/supply one integers"
exit 1
fi

if test $1 -gt 0
then
echo "$1 number is positive"
else
echo "$1 number is negative"
fi

```


Try it as follows:

```
$ chmod 755 isnump_n
```

```
$ isnump_n 5
5 number is positive
```

```
$ isnump_n -45
-45 number is negative
```

```
$ isnump_n
./ispos_n : You must give/supply one integers
```

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```
$ isnum_n 0
0 number is negative
```

Detailed explanation

First script checks whether command line argument is given or not, if not given then it print error message as **"/ispos_n : You must give/supply one integers"**. if statement checks whether number of **argument (\$#)** passed to script **is not equal (-eq)** to 0, if we passed any argument to script then this if statement **is false** and if no command line argument is given then this if statement **is true**. The echo command i.e.

echo "\$0 : You must give/supply one integers"

```
1      2
|      |
|      |
```

1 will print Name of script

2 will print this error message

And finally statement exit 1 causes normal program termination with exit status 1 (nonzero means script is not successfully run).

The last sample run **\$ isnum_n 0** , gives output as "0 number is negative", because given argument is not **> 0**, hence condition is false and it's taken as negative number. To avoid this replace second if statement with **if test \$1 -ge 0**.

Exercise

Task to do


Task 1:

Write a shell script, which to determine the bigger number from 2 number that has been input by user.

Task 2:

Write a shell script, to determine correct password that enter by user. Your system should cover

- ask the user to enter the password
- check the password that has been enter by user with one that has been initialize
- if the password correct display message as "Welcome authorize user! You have full privilege. Have a nice day".

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- iv. If the password incorrect display message as "ALERT!! Intruder! Intruder! Intruder! Your system has been Hack"

Nested If...else

The nested if-else statement is a statement that has several if or else inside an if or else body.

Example:

Determine the user selection. If user not select 1 then the else statement will be executed. There is another condition that needs to be considered in the else statement.

```
$ vi nestedif.sh
osch=0

echo "1. Unix (Sun Os)"
echo "2. Linux (Red Hat)"
echo -n "Select your os choice [1 or 2]? "
read osch

if [ $osch -eq 1 ] ; then
    echo "You Pick up Unix (Sun Os)"
else #### nested if i.e. if within if #####
    if [ $osch -eq 2 ] ; then
        echo "You Pick up Linux (Red Hat)"
    else
        echo "What you don't like Unix/Linux OS."
    fi
fi
```

Run the above shell script as follows:

\$ chmod +x nestedif.sh

\$./nestedif.sh

1. Unix (Sun Os)

2. Linux (Red Hat)


Select your os choice [1 or 2]? 1

You Pick up Unix (Sun Os)

\$./nestedif.sh

1. Unix (Sun Os)

2. Linux (Red Hat)

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Select your choice [1 or 2]? 2
You Pick up Linux (Red Hat)

\$./nestedif.sh

1. Unix (Sun OS)
2. Linux (Red Hat)

Select your choice [1 or 2]? 3
What you don't like Unix/Linux OS.

Note that Second if-else construct is nested in the first else statement. If the condition in the first if statement is false the condition in the second if statement is checked. If it is false as well the final else statement is executed.

You can use the nested ifs as follows also:
Syntax:

```

if condition
then
    if condition
    then
        ....
        ..
        do this
    else
        ....
        ..
        do this
    fi
else
    ...
    ....
    do this
fi


```

Exercise

Task to do

Task 1:

Write a shell script, which to determine the bigger number from 3 numbers that has been input by user.

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Task 2:

Write a shell script, to determine correct password that enter by user. Your system should cover

- i. ask the user to enter the password
- ii. check the password that has been enter by user with one that has been initialize
(there are two correct password need to be consider)
- iii. if the password correct with the first initialize password than display message as
"Welcome authorize user! You have full privilege. Have a nice day".
- iv. if the password correct with the second initialize password than display message as
"Welcome Guest user! Have a nice day".
- v. If the password incorrect display message as "ALERT!! Intruder! Intruder! Intruder! Your
system has been Hack"