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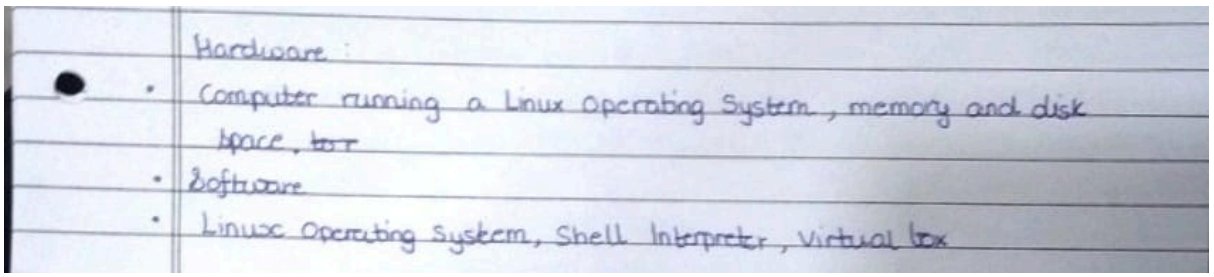
Semester: IV	**Year AY 23-24**
Subject Title: Operating Systems Lab	
EXPERIMENT No: 5	**Assignment No : 7**
TITLE: Conditional Statement	**DoP :21/02/2024**

Aim: Implement shell script to demonstrate conditional statements

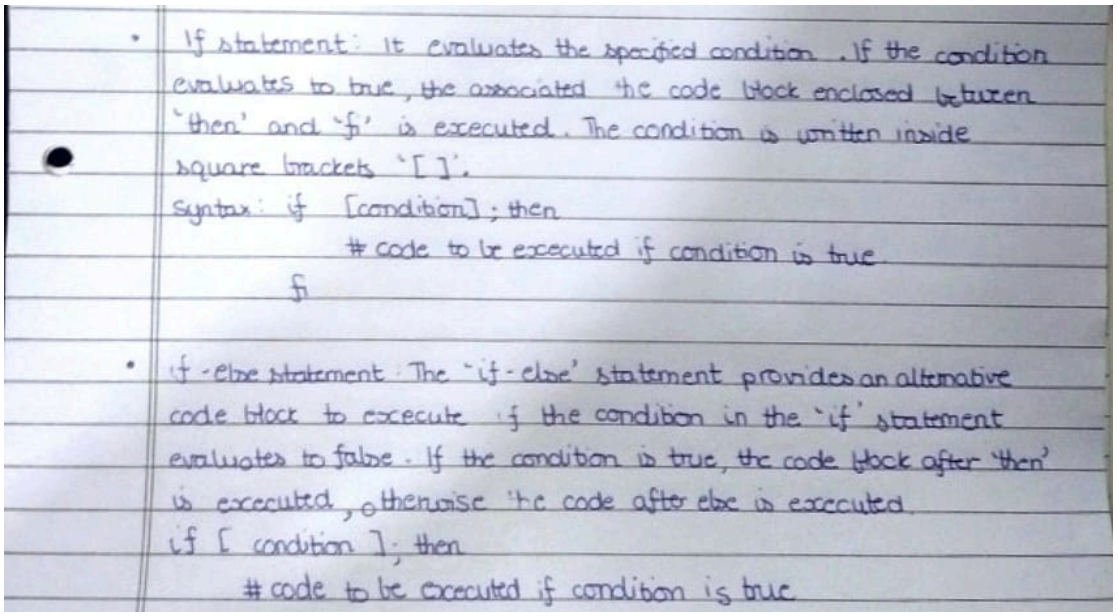
Learning Outcomes: *1. To understand the* conditional statements

2. To Demonstrate the shell script to demonstrate conditional statements *using Linux command.*

***Hardware/Software*:**



Theory:



```
else
    # code block to execute if condition false
fi
```

- if .. elif .. else .. fi statement (else if ladder):
The 'if..elif..else' statement allows testing multiple conditions sequentially. It starts with an 'if' statement, followed by zero or more 'elif' statements, and ends with an optional 'else' statement. Each condition is evaluated in order, and the corresponding code block is executed for the first true condition encountered.

```
syntax: if [ condition1 ] ; then
            # code block to executed if condition1 is true
        elif [ condition2 ] ; then
            # code block to execute if condition2 is true
        else
            # code block to execute if all conditions are false
        fi
```

- if .. then .. else .. if .. then (nested): It allows conditional structures within other conditional structures. The inner 'if' statement is evaluated only if the outer 'if' statement's condition is true. This enables more complex decision-making by evaluating conditions within conditions.

```
syntax: if [ condition1 ] ; then
            if [condition2] ; then
                # code block to execute if both conditions are true
            fi
        else
            # code to be executed if condition1 is false
        fi
```

Program: softcopy

a) Shell script to print whether the number entered by the user is even or odd

```
#odd or even
echo "Enter a number"
read n
if [ $n -eq 0 ]
then
echo "neither odd nor even"
elif [ `expr $n % 2` -eq 0 ]
then
echo "even"
else
echo "odd"
fi
echo " "
```

b) Shell script to print the largest of three numbers

```

#largest of 3 numbers
echo "Enter 3 numbers"
read a
read b
read c
if [ $a -ge $b ]
then
if [ $a -ge $c ]
then
echo "$a is the greatest number"
else
echo "$c is the greatest number"
fi
else
if [ $b -ge $c ]
then
echo "$b is the greatest number"
else
echo "$c is the greatest number"
fi
fi
echo " "

```

c) Shell script to print whether the year entered by the user is leap year or not

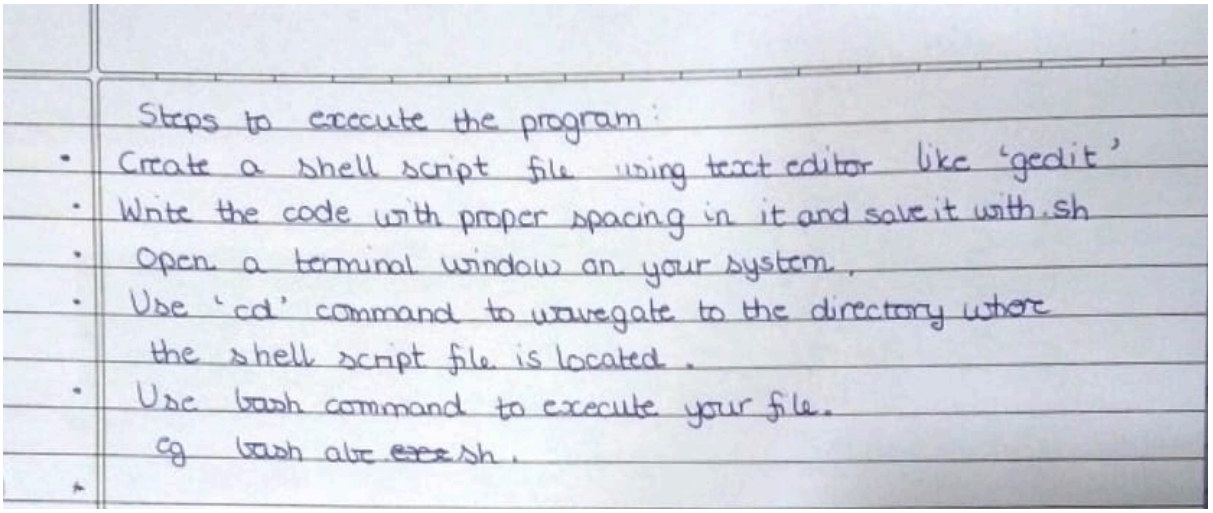
```
#leap year or not
echo "Enter a year:"
read y

if [ $((y % 4)) -eq 0 ] && [ $((y % 100)) -ne 0 ]; then
    echo "$y is a leap year."
elif [ $((y % 400)) -eq 0 ]; then
    echo "$y is a leap year."
else
    echo "$y is not a leap year."
fi

```

d) Shell script to calculate balance of the account based on the following conditions:

i. Accept the account balance from the user
ii. Accept withdrawal amount from the user
iii. If withdrawal amount < 1500 then calculate the tax as 3% of the withdrawal amount
iv. If withdrawal amount >1500 and less than 3000 then calculate the tax as 4% of the withdrawal amount
v. If withdrawal amount > 3000 then calculate the tax as 5% of the withdrawal amount
vi. If the balance is less than the withdrawal amount, then print insufficient balance
vii. Print amount withdrawn along with tax deducted

```
echo "Enter balance: "
read bal

echo "Enter withdrawal: "
read wd

if (( wd > bal )); then
    echo "Insufficient balance"
else
    tax=0
    if (( wd < 1500 )); then
        tax=$(( wd * 3 / 100 ))
    elif (( wd >= 1500 && wd < 3000 )); then
        tax=$(( wd * 4 / 100 ))
    else
        tax=$(( wd * 5 / 100 ))
    fi

    k=$(( wd - tax ))

    echo "Amount withdrawn: $wd"
    echo "Tax deducted: $tax"
    echo "Amount withdrawn after tax: $k"
fi
```

Steps to execute the program:



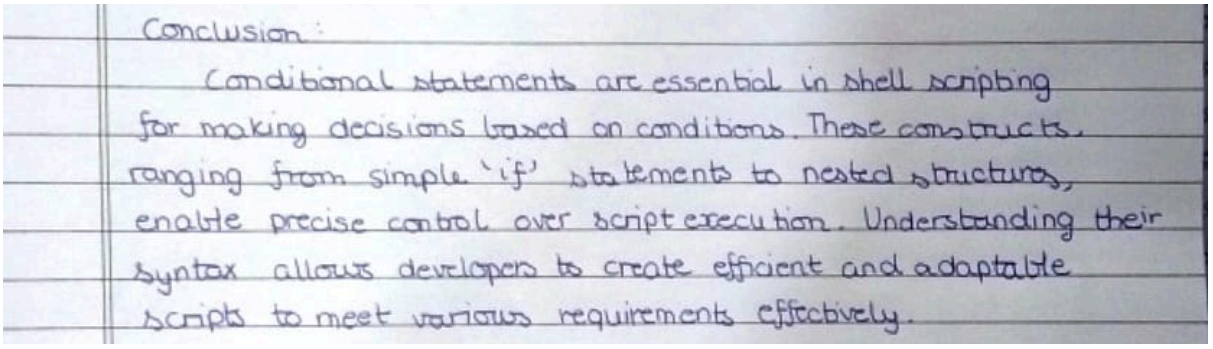
Steps to execute the program:

- Create a shell script file using text editor like 'gedit'
- Write the code with proper spacing in it and save it with .sh
- Open a terminal window on your system.
- Use 'cd' command to navigate to the directory where the shell script file is located.
- Use bash command to execute your file.
  eg bash abc.~~exe~~sh.

Output:

```
user@satviki:~/Documents$ bash exp5.sh
Enter a number
4
even

Enter 3 numbers
4
5
5
5 is the greatest number

Enter a year:
2004
2004 is a leap year.
Enter balance:
5000
Enter withdrawal:
1000
Amount withdrawn: 1000
Tax deducted: 30
Amount withdrawn after tax: 970
```

Conclusion:



Conclusion:

Conditional statements are essential in shell scripting for making decisions based on conditions. These constructs, ranging from simple 'if' statements to nested structures, enable precise control over script execution. Understanding their syntax allows developers to create efficient and adaptable scripts to meet various requirements effectively.

assessment schemes.

Attendance	Discipline	Short oral	Correctness of Lab Report	Timely completion of Lab Report	Total marks (10)	Signature of Teacher with Date