LAB Manual

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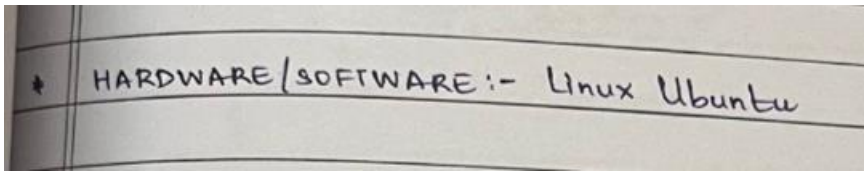
Semester: IV	**Year AY 22-23**
Subject Title: Operating Systems Lab	
EXPERIMENT No: 5	
TITLE: Conditional Statement	**DoP : 29-02-2024**

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*:**



Problem Definition:

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

b) Shell script to print the largest of three numbers

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

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 balance is less than withdrawal amount then print insufficient balance vii. Print amount withdrawn along with tax deducted

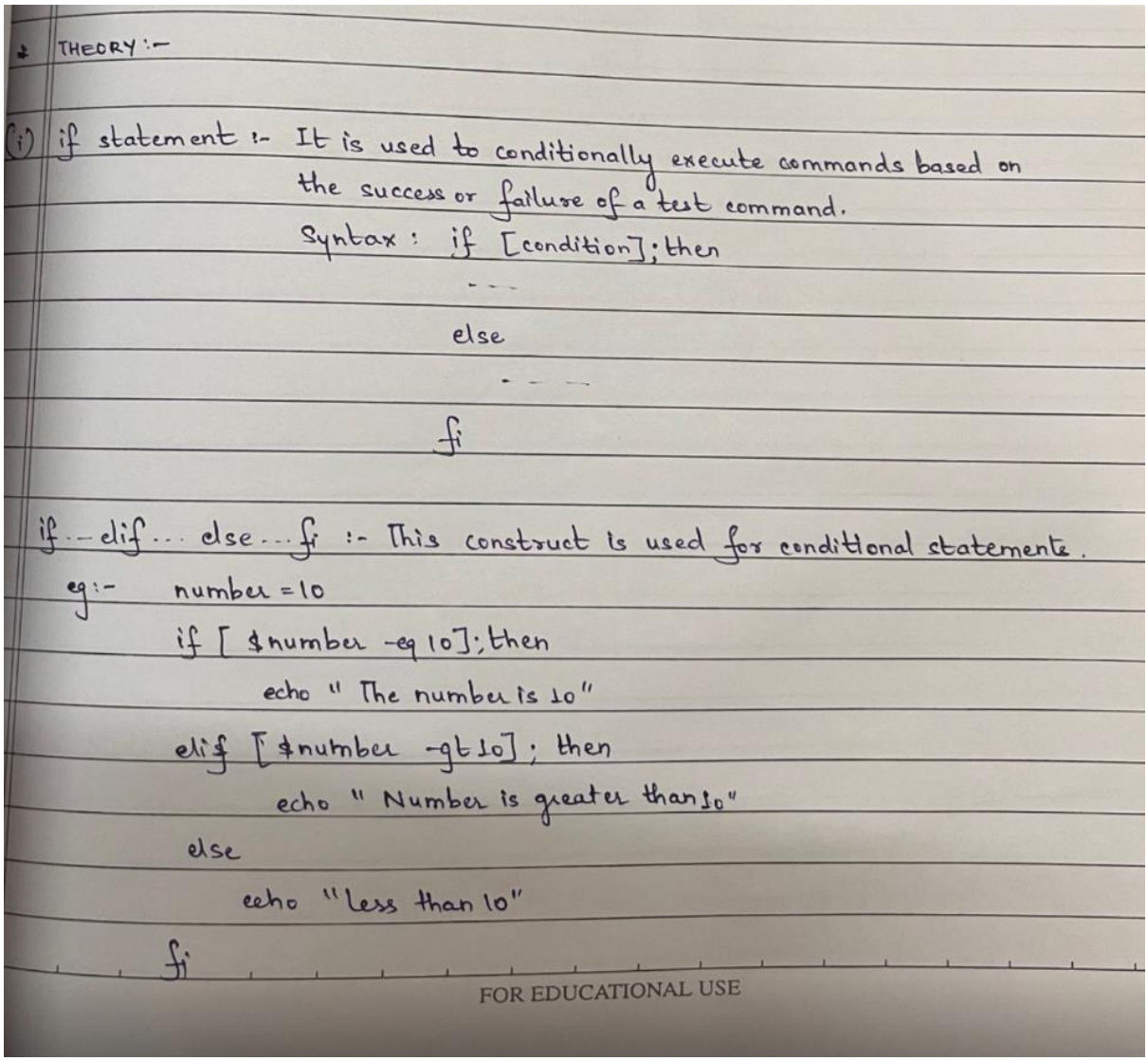
Theory: Write theory about Conditional statements:

• if statement •

if-else statement

• if..elif..else..fi statement (Else If ladder)

• if..then..else..if..then..fi..fi..(Nested



THEORY :-

(i) if statement :- It is used to conditionally execute commands based on the success or failure of a test command.

Syntax : if [condition]; then

...

else

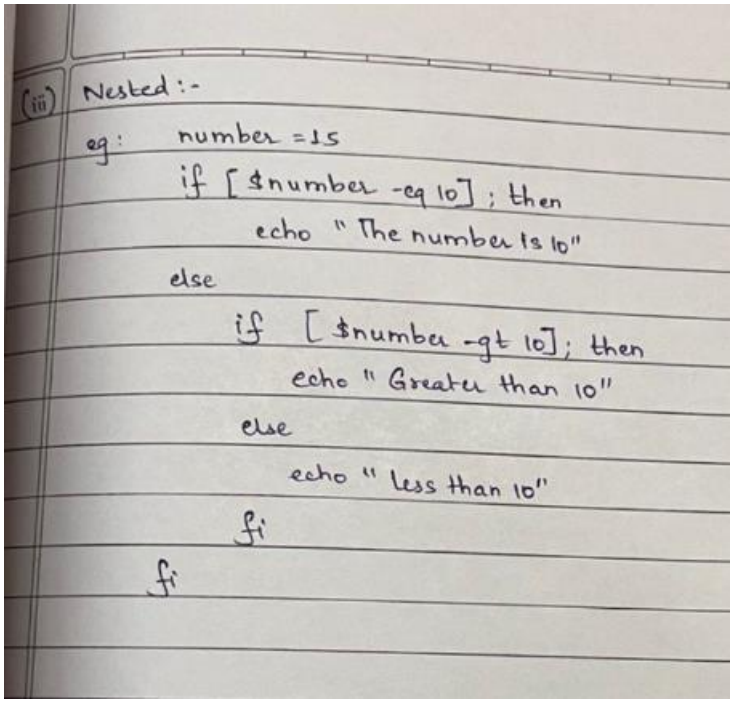
...

fi

if...elif... else... fi :- This construct is used for conditional statements.

eg:-

```
number = 10
if [ $number -eq 10]; then
    echo " The number is 10"
elif [ $number -gt 10] ; then
    echo " Number is greater than 10"
else
    echo "Less than 10"
fi
```



Program: softcopy

Open

ass4a.sh
~/jay_dir

```
#!/bin/bash

echo -n "Enter a number: "

read n

rem=$((n % 2))

if [ $rem -eq 0 ]; then

    echo "$n is even"

else

    echo "$n is odd"

fi

```

Open

ass4b.sh
~/jay_dir

```
#!/bin/bash

echo "Enter 3 numbers :"

read a
read b
read c

if (($a > $b && $a > $c)); then

    echo "$a is the largest number."

elif (($b > $c)); then

    echo "$b is the largest number."

else

    echo "$c is the largest number."
fi
```

Open

ass4c.sh
~/jay_dir

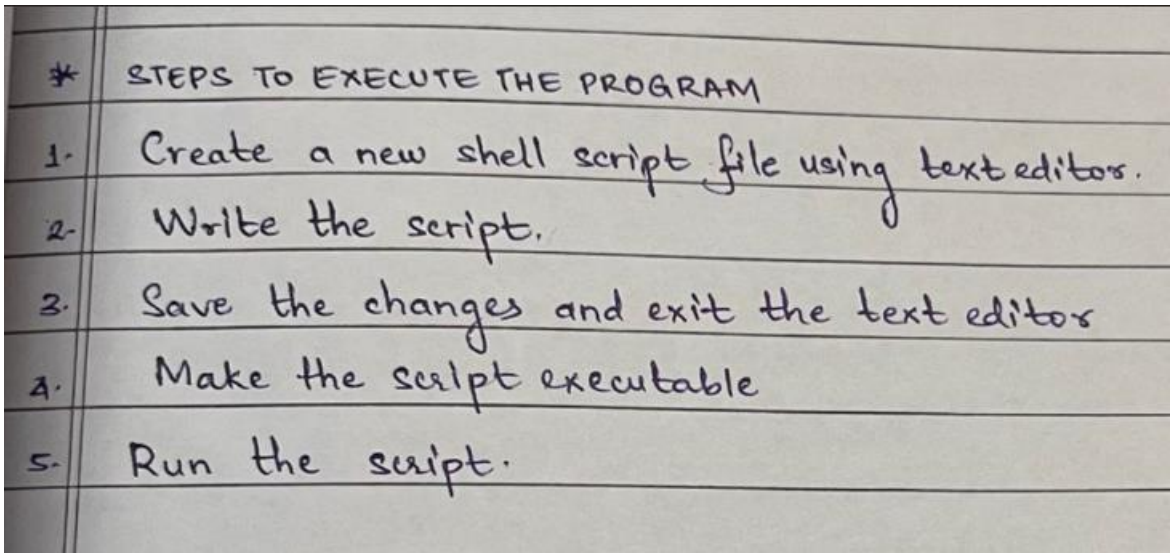
```
#!/bin/bash

echo -n "Enter a year (YYYY): "
read y

if [ $((y % 4)) -eq 0 ]; then

    if [ $((y % 100)) -eq 0 ]; then

        if [ $((y % 400)) -eq 0 ]; then

            echo "$y is a leap year"

        else
            echo "$y is not a leap year"

        fi

    else

        echo "$y is a leap year"

    fi

else

    echo "$y is not a leap year"

fi
```

Open

ass4d.sh
~/jay_dir

```
#!/bin/bash

echo "Enter your account balance: "
read balance

echo "Enter withdrawal amount: "
read withdrawal

if [ $withdrawal -le $balance ]; then
    if [ $withdrawal -lt 1500 ]; then
        tax=$(echo "scale=2; $withdrawal * 0.03" | bc)
    elif [ $withdrawal -ge 1500 ] && [ $withdrawal -lt 3000 ]; then
        tax=$(echo "scale=2; $withdrawal * 0.04" | bc)
    else
        tax=$(echo "scale=2; $withdrawal * 0.05" | bc)
    fi

    echo "Withdrawal amount: $withdrawal"
    echo "Tax deducted: $tax"
    balance=$(echo "scale=2; $balance - $withdrawal - $tax" | bc)
    echo "Remaining balance: $balance"
else
    echo "Insufficient balance"
fi
```

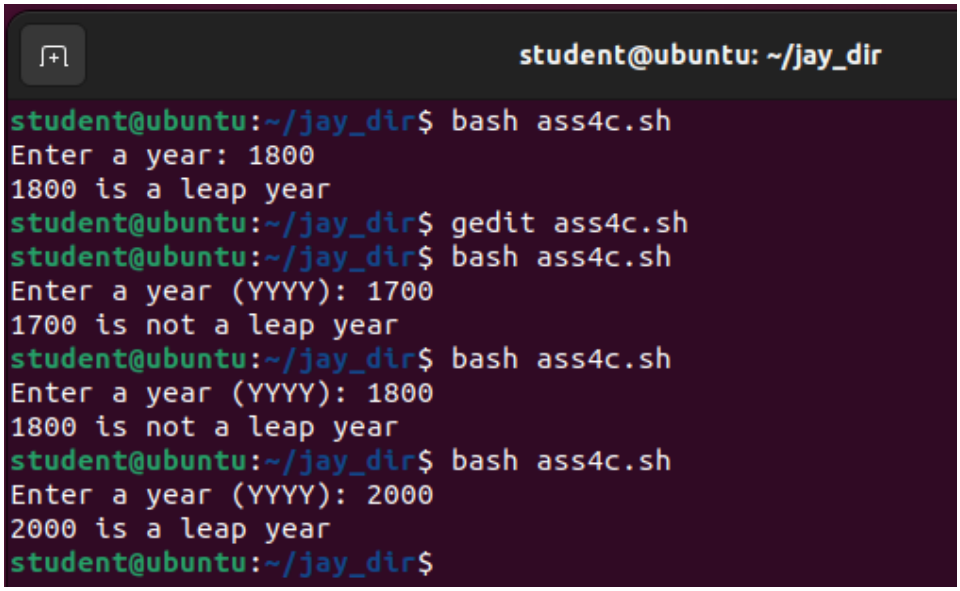
Steps to execute the program:

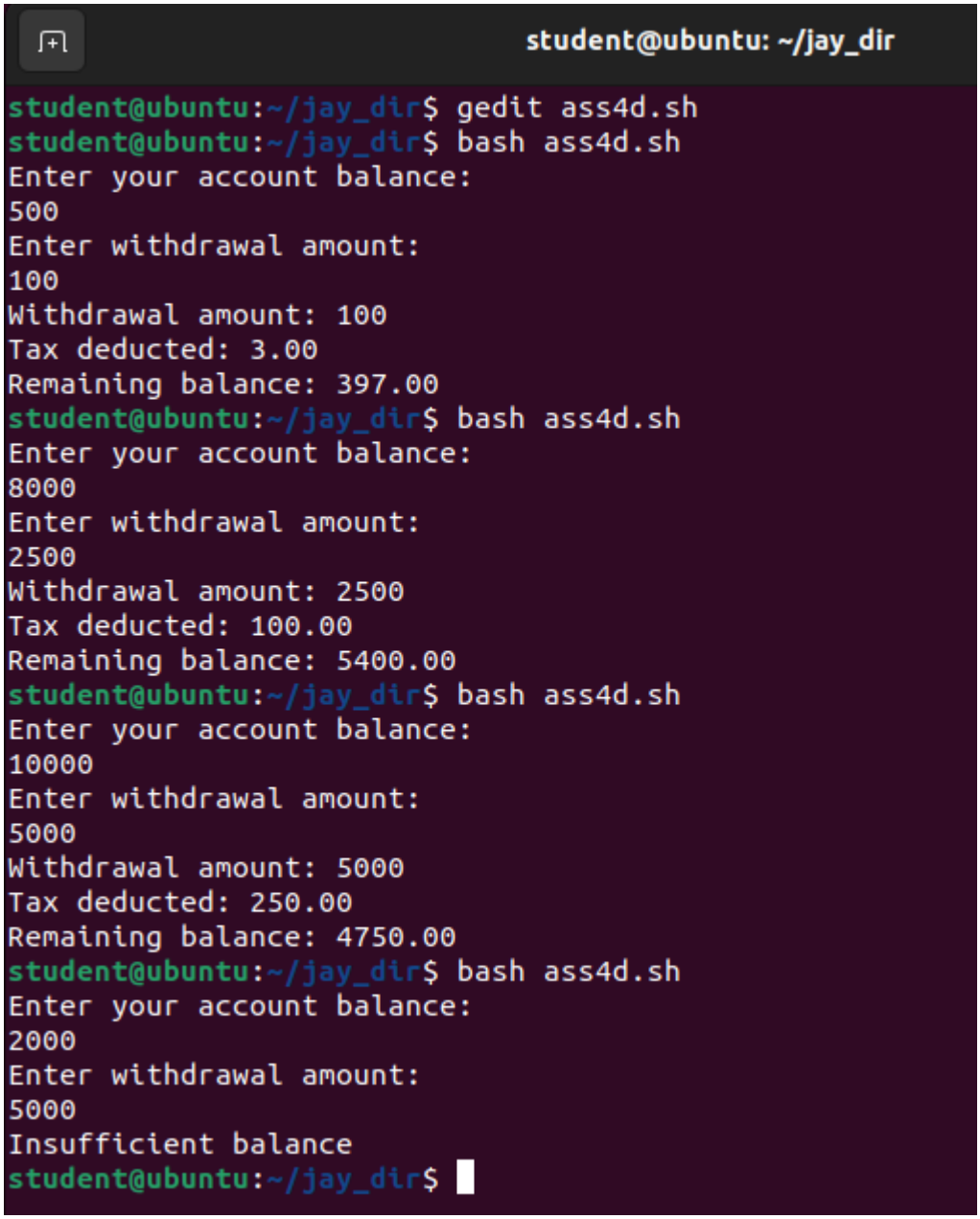


Output: snapshots of the demonstration softcopy

```
student@ubuntu:~/jay_dir$ ./ass4a.sh
Enter a number: 22
22 is even
student@ubuntu:~/jay_dir$ ./ass4a.sh
Enter a number: 11
11 is odd
```

```
student@ubuntu: ~/jay_dir
student@ubuntu:~/jay_dir$ gedit ass4b.sh
student@ubuntu:~/jay_dir$ bash ass4b.sh
Enter 3 numbers :
34
56
44
56 is the largest number.
```


student@ubuntu: ~/jay_dir
student@ubuntu:~/jay_dir$ bash ass4c.sh
Enter a year: 1800
1800 is a leap year
student@ubuntu:~/jay_dir$ gedit ass4c.sh
student@ubuntu:~/jay_dir$ bash ass4c.sh
Enter a year (YYYY): 1700
1700 is not a leap year
student@ubuntu:~/jay_dir$ bash ass4c.sh
Enter a year (YYYY): 1800
1800 is not a leap year
student@ubuntu:~/jay_dir$ bash ass4c.sh
Enter a year (YYYY): 2000
2000 is a leap year
student@ubuntu:~/jay_dir$


student@ubuntu: ~/jay_dir
student@ubuntu:~/jay_dir$ gedit ass4d.sh
student@ubuntu:~/jay_dir$ bash ass4d.sh
Enter your account balance:
500
Enter withdrawal amount:
100
Withdrawal amount: 100
Tax deducted: 3.00
Remaining balance: 397.00
student@ubuntu:~/jay_dir$ bash ass4d.sh
Enter your account balance:
8000
Enter withdrawal amount:
2500
Withdrawal amount: 2500
Tax deducted: 100.00
Remaining balance: 5400.00
student@ubuntu:~/jay_dir$ bash ass4d.sh
Enter your account balance:
10000
Enter withdrawal amount:
5000
Withdrawal amount: 5000
Tax deducted: 250.00
Remaining balance: 4750.00
student@ubuntu:~/jay_dir$ bash ass4d.sh
Enter your account balance:
2000
Enter withdrawal amount:
5000
Insufficient balance
student@ubuntu:~/jay_dir$

* CONCLUSION:-

Hence, we learnt how to use conditional statements. We can now extend this knowledge to more complex examples.