

Experiment [4] : [Bash Scripting]

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AIM:

- [To Learn Basics of Bash Scripting.]

Requirements:

- [Any Linux Distro, any kind of text editor (vs code, vim,nano, etc)]

Theory:

- Bash (Bourne Again SHell) is a command-line shell and scripting language for Unix-based operating systems.
- A shell script is a file containing commands.
- TYPES OF SHELL VARIABLES

1- user-defined

```
prapti1011@asus:~$      name="Prapti"
echo "Hello $name"
Hello Prapti
```

2- system variables

```
prapti1011@asus:~$ echo $USER
prapti1011
prapti1011@asus:~$ echo $PWD
/home/prapti1011
prapti1011@asus:~$ echo $SHELL
/bin/bash
```

- KEYWORDS

Reserved words like- if, then, fi, while,etc.

- OPERATORS

1- Arithmetic operators

+, -, *, %

2- Comparision operators

-eq -ne -lt -le -gt -ge

- POSITINAL PARAMETERS

It is used to send inputs as arguments while executing a script.

command syntax- ./script.sh arg1 arg2

\$0- script name, \$1- first argument, \$2- second argument

Procedure & Observations

Task 1: [Hello World Script]

Task Statement:

- [Basic Usage of Shell Scripts]

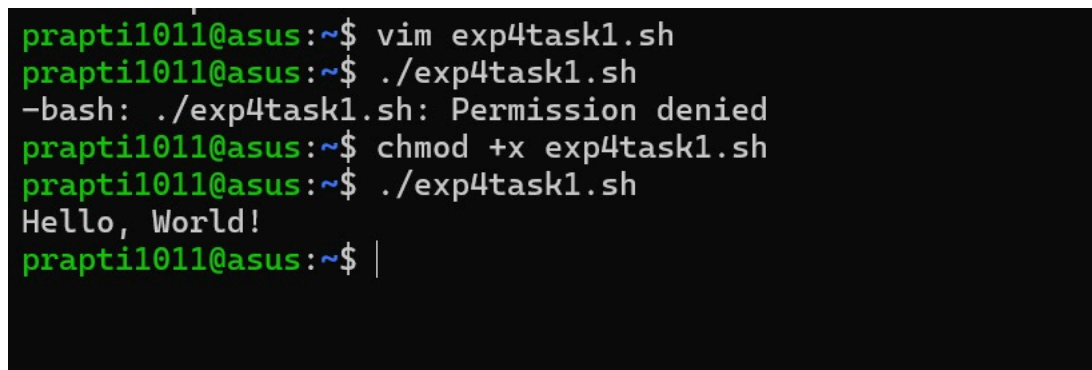
Explanation:

- [Writing Begginer level Shell Scripts]

Command(s):

```
#!/bin/bash  
echo "Hello, World!"
```

Output:

A terminal window with a black background and green text. The user 'prapti1011@asus' is in the home directory '~'. They run 'vim exp4task1.sh' to create a file. Then they run './exp4task1.sh' but get a permission denied error. They then run 'chmod +x exp4task1.sh' to make it executable. Finally, they run './exp4task1.sh' again, and the terminal outputs 'Hello, World!'.

```
prapti1011@asus:~$ vim exp4task1.sh  
prapti1011@asus:~$ ./exp4task1.sh  
-bash: ./exp4task1.sh: Permission denied  
prapti1011@asus:~$ chmod +x exp4task1.sh  
prapti1011@asus:~$ ./exp4task1.sh  
Hello, World!  
prapti1011@asus:~$ |
```

Task 2: [personalized greeting Script]

Task Statement:

- [Basic Shell Script to callout user defined function.]

Explanation:

- [This Shell script will take input from user and store it in a variable and then call the variable which will output the stored value.]

Command(s):

```
#!/bin/bash  
echo "What is your name?"  
read name  
echo "Hello, $name! Welcome to Shell Scripting."
```

Output:

```
prapti1011@asus:~$ vim exp4task2.sh
prapti1011@asus:~$ ./exp4task2.sh
-bash: ./exp4task2.sh: Permission denied
prapti1011@asus:~$ chmod +x exp4task2.sh
prapti1011@asus:~$ ./exp4task2.sh
Enter your name:
Prapti
Hello, Prapti! Welcome to Shell Scripting.
prapti1011@asus:~$ |
```

Task 3: [Arithmetic Operations in Shell Scripting]

Task Statement:

- [Using Basic Arithmetic Operations in Shell Scripts]

Command(s):

```
#!/bin/bash
echo "Enter first number: "
read num1
echo "Enter second number: "
read num2
echo "Addition: $((num1 + num2))"
echo "Subtraction: $((num1 - num2))"
echo "Multiplication: $((num1 * num2))"
echo "Division: $((num1 / num2))"
```

Output:

```
prapti1011@asus:~$ vim exp4task3.sh
prapti1011@asus:~$ ./exp4task3.sh
-bash: ./exp4task3.sh: Permission denied
prapti1011@asus:~$ chmod +x exp4task3.sh
prapti1011@asus:~$ ./exp4task3.sh
enter first number:
8
enter second number:
9
Addition: 17
Subtraction: -1
Multiplication: 72
Division: 0
prapti1011@asus:~$ |
```

Task 4: [Voting Eligibility]

Task Statement:

- [Using Conditionals in Shell script]

Command(s):

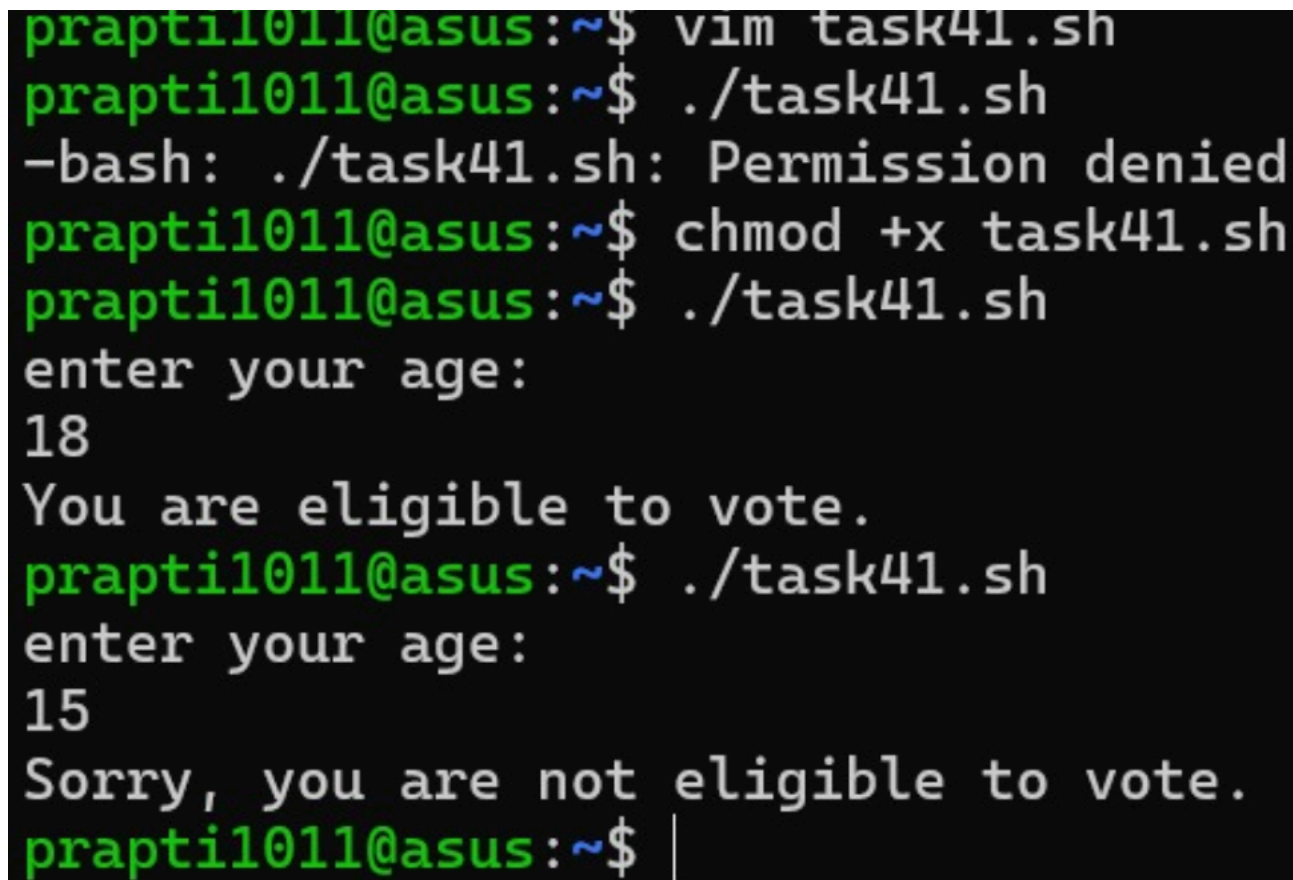
```
#!/bin/bash
echo "What is your age?"
read age
if [ $age -ge 18 ]; then

    echo "You are eligible to vote!"

else
    echo "You are not eligible to vote!"

fi
```

Output:

A terminal window with a black background and green text. The user 'prapti1011' is at the 'asus' machine in the '~' directory. They run 'vim task41.sh', then './task41.sh'. The script prompts 'enter your age:' and the user enters '18'. The script outputs 'You are eligible to vote.'. The user runs './task41.sh' again, enters '15', and the script outputs 'Sorry, you are not eligible to vote.'. The prompt returns to the user.

```
prapti1011@asus:~$ vim task41.sh
prapti1011@asus:~$ ./task41.sh
-bash: ./task41.sh: Permission denied
prapti1011@asus:~$ chmod +x task41.sh
prapti1011@asus:~$ ./task41.sh
enter your age:
18
You are eligible to vote.
prapti1011@asus:~$ ./task41.sh
enter your age:
15
Sorry, you are not eligible to vote.
prapti1011@asus:~$ |
```

Challenges faced and learning outcomes:

- Did not face any challenge as just, just need to practice.

Result

- The tasks were successfully completed for Basic Shell Scripting.