

LAB Manual

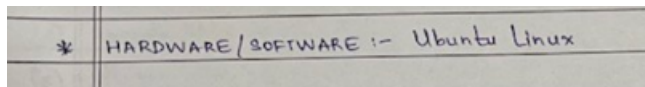
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| Semester : IV                        |  | Year AY 23-24    |  |
| Subject Title: Operating Systems Lab |  |                  |  |
| EXPERIMENT No : 4                    |  | Assignment No: 5 |  |
| TITLE : Arithmetic Operations        |  | DoP : 17/2/2024  |  |

**Aim:** Implement and demonstrate arithmetic operations

**Learning Outcomes:** 1. To understand the arithmetic operation

2. To Demonstrate the arithmetic operations using Linux command.

**Hardware/Software:**

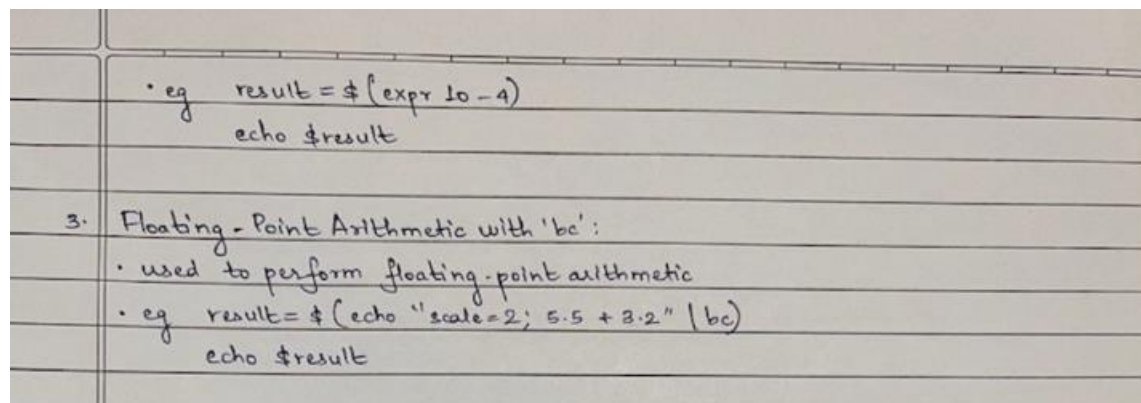
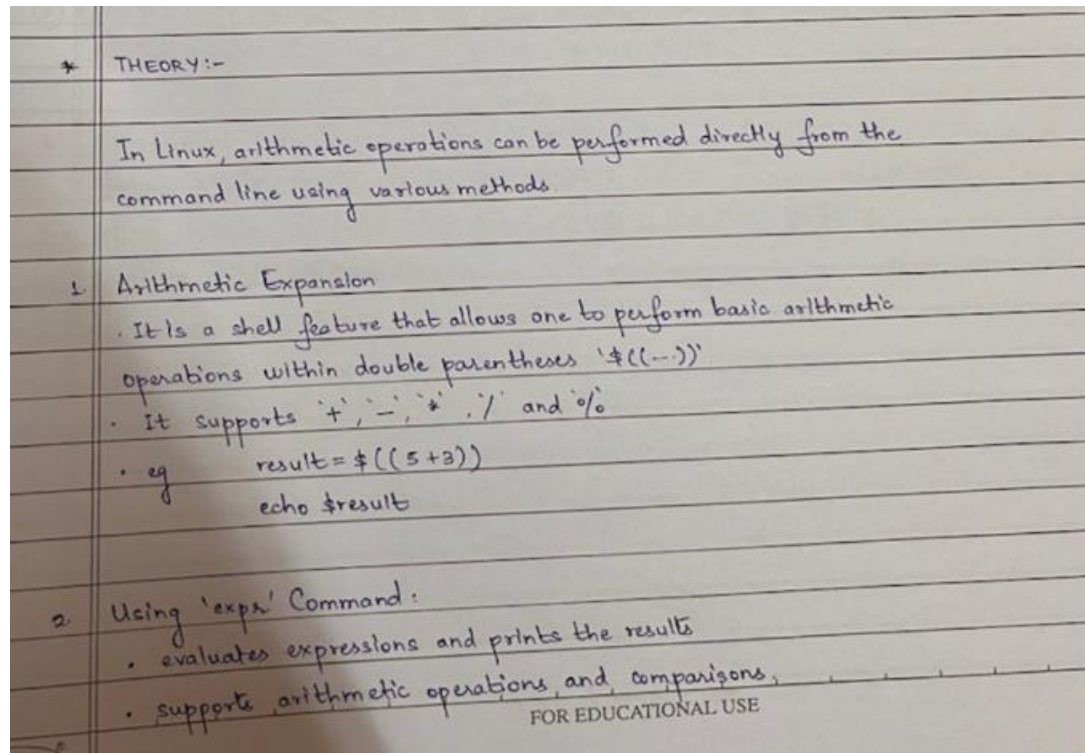


**Problem Definition:**

A program should be written where all the following conditions should be satisfied.

1. Perform basic operations like Addition, Subtraction, Multiplication, and Division. Accept input from a user.
2. Calculate the area and perimeter of the circle. Accept radius from a user. (Assume  $\pi=3.14$ )
3. Calculate employees' gross salary, where DA is 1.65% of the basic salary, and HRA is 0.30% of the basic salary. Accept the value of basic salary from a user.
4. Calculate the mean salary given by a company if the basic salary of employees A, B, C, and D are Rs.1200, 1400, 1350, and 1800 respectively.

## Theory:



## Algorithm :

(i) Basic operations

1. Start
2. Accept input for the first number (num1)
3. Accept input for the second number (num2)
4. Accept input for the operation (op)

5. If op is '+':
  6. result = num1 + num2
7. If op is '-':
  8. result = num1 - num2
9. If op is '\*':
  10. result = num1 \* num2
11. If op is '/':
  12. result = num1 / num2
13. Display result
14. End

(ii) Circle Area and Perimeter

1. Start
2. Accept input for the radius of the circle (radius)
3. Set pi = 3.14
4. Calculate area =  $\pi * (\text{radius}^2)$
5. Calculate perimeter =  $2 * \pi * \text{radius}$
6. Display area and perimeter
7. End

(iii) Employee Gross Salary

1. Start
2. Accept input for basic salary (basicSalary)
3. Set DA = 1.65% of basicSalary
4. Set HRA = 0.30% of basicSalary
5. Calculate grossSalary = basicSalary + DA + HRA
6. Display grossSalary
7. End

(iv) Mean Salary Calculation

1. Start
2. Calculate  $\text{meanSalary} = (\text{salaryA} + \text{salaryB} + \text{salaryC} + \text{salaryD}) / 4$
3. Display meanSalary
4. End

**Program:**

```

1 #BASIC OPERATIONS
2 echo "basic operations"
3 echo "Enter 2 numbers:"
4 echo "1st->"
5 read a
6 echo "2nd->"
7 read b
8
9 echo "Addition of entered numbers is: `expr $a + $b`"
10 echo "Subtraction of entered numbers is: `expr $a - $b`"
11 echo "Multiplication of entered numbers is: `expr $a \* $b`"
12 echo "Division of entered numbers is: `expr $a / $b`"
13 echo ""
14
15 #AREA AND PERIMETER
16
17 echo "Enter Radius of Circle"
18 read r
19 echo "Area of circle is: $(echo "3.14 * $r * $r"|bc) sq.units"
20 echo "Perimeter of circle is: $(echo "2 *$r * 3.14"|bc)sq.units"
21 echo ""
22
23 # 3. GROSS SALARY
24 #DA 1.65%, HRA 0.30% of basic salary
25
26 echo "enter your salary: "
27 read sal
28 echo "Gross Salary is: Rs. $(echo "0.0165 * $sal + 0.003 * $sal + $sal"|bc)
29 echo ""
30
31 #4. Calculate Mean Salary if basic salary are 1200, 1400, 1350, 1800
32 val=$(echo 1200+1400+1350+1800|bc)
33 val=$(echo $val/4 |bc)
34 echo "Mean Basic Salary is: $val"
35

```

**Steps to execute the program:**

\* STEPS TO EXECUTE THE PROGRAM:-

- (1) Create a Bash Script: Open a text editor and create a new file. Save it with a '.sh' extension. Eg. 'basicops.sh'
- (2) Write the script
- (3) Make the Script Executable
- (4) Execute the script.
- (5) Follow the prompts : The script will prompt the user for inputs and display the results for each of the specified conditions.

**Conclusion:**

\* CONCLUSION:-

Hence, we learnt how to perform various basic arithmetic operations using Linux command. We can now apply this knowledge to perform more complex tasks.

**Output:**

```
student@ubuntu:~/Desktop$ bash assgn3.sh
basic operations
Enter 2 numbers:
1st->
10
2nd->
5
Addition of entered numbers is: 15
Subtraction of entered numbers is: 5
Multiplication of entered numbers is: 50
Division of entered numbers is: 2

Enter Radius of Circle
7
Area of circle is: 153.86 sq.units
Perimeter of circle is: 43.96sq.units

enter your salary:
250
Gross Salary is: Rs. 254.8750

Mean Basic Salary is: 1437
student@ubuntu:~/Desktop$
```