

Practical No. 5

Aim: Write a shell script using `expr` to perform arithmetic operations.

Course Outcome: Develop shell program for solving different problems.

Resource requirement: Laptop or Computer (with Linux terminal), basic knowledge of conditional statements in Linux.

Theory:

Arithmetic Operators:

The arithmetic operators are used to perform mathematical operations

The following arithmetic operators are supported by Bourne Shell.

Assume variable **a** holds 10 and variable **b** holds 20 then –

Operator	Description	Example
+ (Addition)	Adds values on either side of the operator	<code>`expr \$a + \$b`</code> will give 30
- (Subtraction)	Subtracts right hand operand from left hand operand	<code>`expr \$a - \$b`</code> will give -10
* (Multiplication)	Multiplies values on either side of the operator	<code>`expr \$a * \$b`</code> will give 200
/ (Division)	Divides left hand operand by right hand operand	<code>`expr \$b / \$a`</code> will give 2
% (Modulus)	Divides left hand operand by right hand operand and returns remainder	<code>`expr \$b % \$a`</code> will give 0

`expr` Command:

The **`expr`** command in Unix evaluates a given expression and displays its corresponding output. It is used for:

- Basic operations like addition, subtraction, multiplication, division, and modulus on integers.
- Evaluating regular expressions, string operations like substring, length of strings etc.

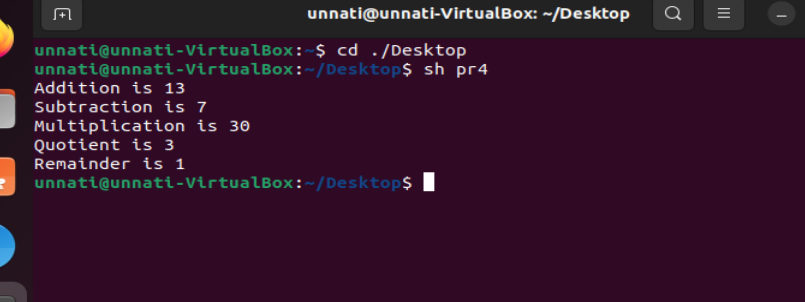
Syntax:

`$expr expression`

Program:

[illegible]

Output:



The screenshot shows a terminal window titled "Terminal" with the date and time "Mar 28 21:57". The terminal is running on a system named "unnati@unnati-VirtualBox" with the current directory set to "~/Desktop". The user has executed the command `cd ./Desktop` and then `sh pr4`. The script `pr4` has executed and displayed the following output:

```
unnati@unnati-VirtualBox:~$ cd ./Desktop
unnati@unnati-VirtualBox:~/Desktop$ sh pr4
Addition is 13
Subtraction is 7
Multiplication is 30
Quotient is 3
Remainder is 1
unnati@unnati-VirtualBox:~/Desktop$
```

The terminal window has a dark theme with a purple background. On the left side, there is a vertical dock with several application icons: a Firefox browser icon, a file manager icon, an application store icon, a help icon (question mark), a terminal icon, a text editor icon, and a settings icon (gear). The top of the window features a title bar with the "Terminal" title and standard window controls (minimize, maximize, close). The top right corner of the window shows system status icons for network, sound, and power.

Conclusion:

In this practical, we have successfully developed program to perform mathematical operations using `expr` command.