Shell Script Programming

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What is a Shell Script

It is a text file that has one or multiple lines of programming language and UNIX commands to accomplish a small task automatically when executed.

To make a Shell Script, we need to know how to create a file in the UNIX or Linux editors, make the file executable and to run the file.

```
let a=3
let b=7
let c=16
let d=a+b*c
echo $d
```

Variables

There are different types of variables we can use in a Shell Script. Some are numbers and others are text strings.

Once we create a variable, we can see the quantity by typing **echo $answer** and the computer will reply **"The answer is"**

Variable are one word. If we want to show two words such as **Bite Size**, we write the variable **bite_size**.

We typically write scripts in lower case, because it is easier to troubleshoot code with more white space.

```
answer="The answer is"
a=3
b=7
c=16

echo $answer
 The answer is

Echo $a
 3
```

Adding the Date to a Variable

To capture the current date and set it to a variable, we type the variable name
now = `date`

To show just the month – day – year, we type

now = `date` +"%m-%d-%y"

now=`date`
echo $now

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Capture the Current Path in the Variable

Set the current path to a variable called path. Now, we can use this information in a script without typing a long sting of data.

```
path=$PATH
echo $path
```

Adding in a Shell Script

Adding is a simple task in Shell Scripting. We set the variable to a letter or name and then we use the plus operator to add two or more variables. We can also add regular numbers in the equations.

In our example shown, the variable a is added to the variable b and set to the variable c with the equal sign. When we echo the variable c, we see the answer 10.

```
a=3
b=7
c=a+b

echo $c
10
```

Subtracting in a Shell Script

Subtracting is also a easy task in Shell Scripting. We set the variable to a letter or name and then we use the negative sign (-) to subtract one or more variables. We can also subtract regular numbers in the equations.

In our example shown, the variable b is subtracted from the variable a and set to the variable c with the equal sign. When we echo the variable c, we see the answer -4.

```
a=3
b=7
c=a-b

echo $c
-4
```

Multiplying in a Shell Script

We continue with multiplying in a Shell Script. We set the variable to a letter or name and then we use the asterisk (*) to multiply one or more variables. We can also multiply regular numbers in the equations.

In our example shown, the variable a is multiplied by the variable b and set to the variable c with the equal sign. When we echo the variable c, we see the answer 21.

```
a=3
b=7
c=a*b

echo $c
21
```

Dividing in a Shell Script

We carry on with dividing in a Shell Script. We set the variable to a letter or name and then we use the forward slash (/) to divide one or more variables. We can also divide regular numbers in the equations.

In our example shown, the variable a is divided by the variable b and set to the variable c with the equal sign. When we echo the variable c, we see the answer 0.42857142.

```
a=3
b=7
c=a/b

echo $c
0.42857142
```

Order of Operations in Shell Script

The mathematical Order of Operations is followed in Shell Scripting. Parentheses are calculated first, then exponents, then multiplication and division from left to right and finally adding and subtracting form left to right.

In our example shown, the variable b is multiplied by the variable a which equals 112. Then the variable a is added to total 115. When we echo the variable d, we see the answer 115.

```
a=3
b=7
c=16
d=a+b*c

echo $d
115
```

Making a File in the VI Editor

Enter the VI Editor saving the file as **calc**

Write the following program:

let a=3
let b=7
let c=16
let d=a+b*c
echo $d

Save the program and make it executable by typing **chmod ugo+x calc**. Now run the program.

The answer is 115.

Write four programs. One that adds numbers, one that subtracts, one that multiplies and one that divides. Then write a fifth program that performs an actual calculation to a usable formula like converting from Fahrenheit to Celsius .