Activity 3 : Linux

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Part 3 Shell and Shell Scripts

3.1 Linux shell introducing

Shell is a command-line interpreter. You can think of a shell as a way you can communicate with your computer using the command-line interface (CLI).

Shell though comes in many flavors, like **sh**, **bash**, etc. Some of which have common features, some have not, and most of them utilize different scripting languages.

Generally, **bash** has the same syntax as **sh** with some improved features. For the purpose of this activity we will stick with **bash**.

You are now using **bash**.

* ANSWER THIS * Now, name some more shells (3 more):

```
-Tcsh
-Ksh
-Zsh
```

3.2 Basic bash scripting language

* DO THIS * Try:

- x=3
- y=4
- echo $x
- echo $y

- echo xyxy
- echo $(($x+$y))
- iam=$(whoami) or iam=`whoami` (` is a grave accent)
- echo $iam

* ANSWER THIS * What is a bash syntax for …

Assigning value to a variable ?

```
=
```

Use the value of a variable ?

```
$
```

Concatenate strings ?

```
$ or +=
```

Evaluating an Arithmetic expression ?

```
$((arithemtic expression))
```

Capturing texts from the standard output to a variable ?

```
$() or ` `
```

Create a file named “hello.sh” in your home directory with the following content.

```
echo "------------"
echo "Hello World!"
date
echo "------------"
```

Now, run the script using `bash hello.sh`, and see the output for yourself.

3.3 Shebang (#!)

Shebang is a notation “#!” be put at the first line of a file to specify a default command to execute this file.

Let's say we continue from the "hello.sh", and you want to specify a default command to execute this file to be **bash**, you can put the following text at the first line of the file.

```
#! /bin/bash
```

And then, you can execute the file without explicitly specify the command, like `./hello.sh.`

`Note that the bash command is located in the /bin directory. That is why /bin/bash is placed after Shebang in the first line.`

If you have a problem executing the above command please make sure that the file test.sh has "execute" permission with `chmod +x test.sh`.

3.4 Run a python script without an explicit python command and show it to a teaching staff.

Install python in the Linux system using `sudo apt-get install -y python`.

Create a simple python script as test.py with some shebang modification. (A command called **which** could help you with locating the path of the python command you are using.)

* ANSWER THIS * What is the path of python you are using?

```
/usr/bin/python
```

* ANSWER THIS * Capture your screens to show that you can run this script without using an explicit python command