**01 – Docker Install & Unix Command Line Basics**

**Activities**

COMP190 – Tools and Techniques for Software Development

Dickinson College

Fall 2022

**Name:**

**Screen Shot Tool:**

Many of the exercises in this course you will ask you to take screenshots and provide them as your answers. This will allow me to see the windows, commands or outputs that you have generated in Linux. If you have a favorite tool for capturing regions of the screen you should feel free to use it. If you do have one you use regularly then I recommend the following:

*For Mac:*

On Mac OS, pressing CTRL + Shift + CMD + 4 will change the mouse pointer to a crosshair (⌖). Whatever you select will then be copied to the clipboard. You can also read about other ways to screenshot on a Mac here if you’d like:

* <https://www.cnet.com/tech/computing/how-to-take-a-screenshot-on-your-mac-4-ways-to-capture-your-screen/>

*For Windows:*

On Windows 10, pressing WIN + Shift + S will open a screenshot tool. You can probably figure out how to use it, but if you’d like you can read more about how to use it here:

* <https://support.microsoft.com/en-us/windows/use-snipping-tool-to-capture-screenshots-00246869-1843-655f-f220-97299b865f6b>

1. Experiment with your screenshot tool to figure out how to capture a selected portion of the screen and how to paste the captured image into a document. Capture a small rectangular portion of the screen. Do not capture the entire screen. It doesn’t matter what you capture, this is just to be sure you can do it. Paste the image that you captured inside the answer box below.

**Linux via Docker:**

As described in class, we will be using *Debian Linux* with the *XFCE4* desktop manager in this course. Also as described, will be running Debian within a *Docker Container* and accessing it in a browser with *NoVNC* or via the *Tiger VNC client*. This will allow you to use and learn about Linux either on one of the lab machines or on your own Mac or Windows machine.

Install…

**Unix Command Line Basics:**

- Basic editor

- GUI file browser

- home directory

- root directory

Command conventions < > [ ]

- terminal

- whoami

- ls (options)

- touch?

- cat

- cd

- ..

- ~ home directory

- / root directory

- . directory entry

**Operating Systems:**

1. There are many different ways to define an operating system. Use the library or your favorite search engine to find another definition of an operating system. Be sure to read a number of them until you find one that you understand.

a. What is the definition you found? Include a URL or a citation to source where you found it.

b. Compare and contrast the definition that you found with the one that I gave in class. What does the definition you found address that mine did not? What did mine address that yours did not?

**Linux and Unix:**

2. Read the article Linux vs. Unix: What’s the Difference? From Opensource.com at:

* <https://opensource.com/article/18/5/differences-between-linux-and-unix>

a. Where was Unix invented?

b. Who were the main developers of Unix?

c. What was the difference between Unix and the operating systems that came before it? Why was that difference important to the success of Unix?

d. According to the Unix philosophy, how are complex tasks accomplished?

e. Is Unix free and open source software (FOSS)?

f. MacOS is a variant of the BSD branch of the Unix family tree. What does BSD stand for?

g. Who were the two primary contributors to the initial creation of Linux and what did each contribute?

3. Linux is free and open source software (FOSS). Using what you know at this point, explain how this has contributed to the success of Linux. No additional research should be used for this question.

**Reflection:**

9. Think back over what you have done in this activity and then explain, in a paragraph of your own words, the relationship between the host OS, guest OS and Virtual box, how they work together and why using VirtualBox might be helpful in this class. Be sure to identify the specific OSs that are your host and guest.

**Optional:** To help us improve and scope these activities for future semesters please consider providing the following feedback.

a. Approximately how much time did you spend on this activity outside of class time?

b. Please comment on any particular challenges you faced in completing this activity.

**Acknowledgements:**

Some materials, questions and resources have been adapted from activities posted on foss2serve.org.

* <http://foss2serve.org/index.php/Installing_a_Virtual_Machine>
* <http://foss2serve.org/index.php/Fedora_22_in_VirtualBox_Set_up>
* <http://foss2serve.org/index.php/Fedora_Install_Activity>