1. RPi4 Boards can be accessed through SSH with the following instructions:
        VPN into the university if not on-campus.
        ssh pi@ece-rpi4-xx.usask.ca
        password: raspberry
        (use numbers like, 01, 12, etc. in place of xx)

2. The Pi modules can be accessed from any computer via ssh and files can be copied through scp.
        scp source destination
        for example,
        scp ~/test.txt pi@ece-rpi4-xx.usask.ca:~/Documents/

3. To use some packages, you'll need to switch to the sandbox so the correct version of python is used. Here is the command (from terminal) that you need to run:
        source /opt/CME466/bin/activate

    You can then launch Jupyter Notebook in the virtualenv (/opt/CME466) from the terminal using the commands:
        jupyter notebook

    Here are some outputs to show that you've correctly switched to the sandbox:

    [chandler@chandler-vm6 opt]$ which python3
    /usr/bin/python3
    [chandler@chandler-vm6 opt]$ source /opt/CME466/bin/activate
    (CME466) [chandler@chandler-vm6 opt]$ which python3
    /opt/CME466/bin/python3

    Once you have the sandbox loaded, you should have the required packages installed.

4. Message from Chandler:
        I'm going to list some of your options for working with python on the lab machines for moving forward:

        Option 1: Work out of a virtual environment.
        I've created one that I manage in the location /opt/CME466. You can launch Jupyter Notebook from within there, and it will reference the correct python version and packages from within the virtual environment.
        Advantages: The work environment is the same for everyone. This means that student solutions will not have any missing packages or different versions when you go to mark an assignment.
        Disadvantages: Only I can install the packages in the venv. All new packages will need to be requested to be installed/updated.

        Option 2: You allow students to install packages on their NFS.
        I've opened the permissions on pip to allow local user installations. For example, students can now run:
        pip3 install pyx --user
        This will install a package on their NFS profiles directly.
        Advantages: any student can install any package through pip. You no longer need to ask to get something installed.
        Disadvantages: In good practice, the students should create a virtual environment on their profiles to work out of. Either way they do it, you will have no consistency when marking. Packages that students have installed may not be present on the marker's computer and versions may differ (it

might be difficult to replicate the environment that the scripts were developed in). You will suffer from the classic 'but it worked on my computer' problem. Also, you need to make sure students only add paths to the environment variables at the END of PATH, otherwise the packages installed on their profiles will be loaded before the system ones, and software launched from the terminal will have problems.

Let me know if you have any questions on this. I suspect we will have some more growing pains with all of this new content yet.

5.   More to come….