

LAB #1 – Introduction/Run Python

(2 pts) Introduction

Field Trip: You will visit the ENGR server room, TA offices/KEC 1174, EECS Front Office KEC 1148, and Instructor office/KEC 2101.

Icebreaker: Believe it or not, we do have to communicate with others being a computer scientist☺ Let's get to know our peers. Get into small groups of 3-4, and answer the following about everyone in the group:

- How did you get interested in computer science?
- Why did you choose to come to OSU?
- What did you like (or dislike) the most about your Summer 2017?
- “BE PROACTIVE” is one of our class mottos this quarter. Being proactive, establish one goal for yourself this Fall quarter.

(4 pts) Getting Set Up

For this lab, the **exercises to be completed individually by each student**. This is to ensure that everyone gets setup properly! You can certainly ask your neighbor or friend questions! ☺

1. **If you do not have an ENGR account**, then you will need to create one by clicking on the link at the bottom of the login page that says: [Create a new account \(Enable your Engineering resources\)](#)

The screenshot shows the T.E.A.C.H. - The Engineering Accounts and Classes Homepage. At the top, there's a navigation bar with links like Calendar, Library, Maps, Online Services, and Make a Gift. Below this is the main header with the OSU logo and the text 'College of Engineering T.E.A.C.H. - The Engineering Accounts and Classes Homepage'. The main content area has a login form with fields for USERNAME (parhammj) and PASSWORD (*****), and a 'Log me in' button. Below the login form is a notice: 'Notice: Engineering now uses your ONID password to login. Learn more [here](#)'. At the bottom of the login form, there is a link: 'Create a new account (Enable your Engineering resources)'. A red arrow points from this link to the text in the instructions above. On the right side, there's a sidebar with links to 'TEACH Home', 'TEACH Documentation', and 'Contact Support'. The footer contains contact information and copyright details.

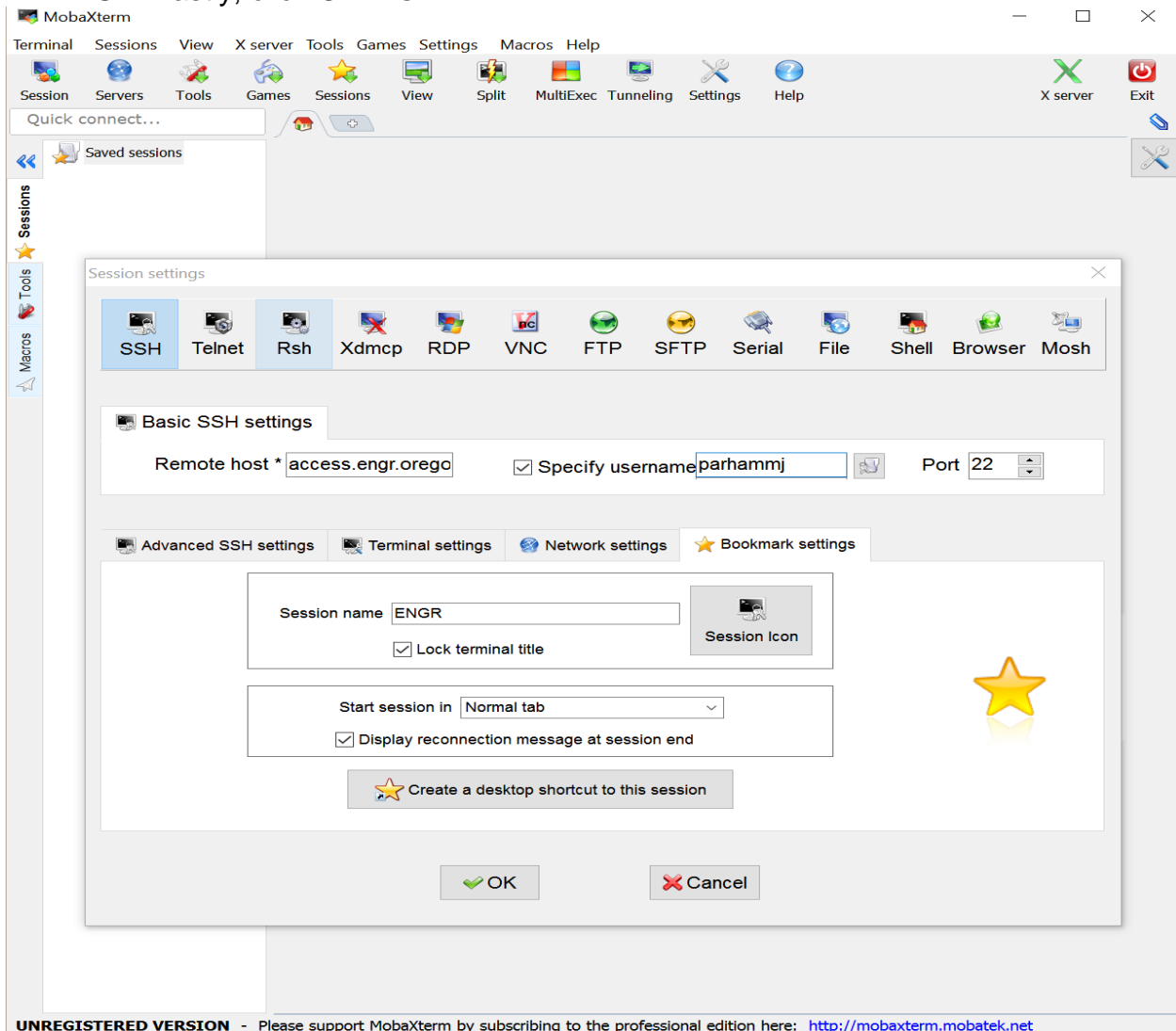
2. **Windows Users:** Download a free Secure Shell (ssh). We will use the MobaXterm this quarter. If you already have Putty installed, this is fine too!!!
MobaXterm: <http://mobaxterm.mobatek.net/download-home-edition.html> (Use Installer Edition, unless you are not using your own computer)

Mac or Linux Users: You have a terminal w/ ssh built into the OS. Open the terminal, and at the prompt, type
ssh username@access.engr.oregonstate.edu

3. **Windows Users:** Once you have an engineering account and installed MobaXterm, open MobaXterm. Go to **Sessions -> New Session**, and click on the **SSH icon**.

Enter **access.engr.oregonstate.edu** as the remote host, and click on the **Specify Username** checkbox to enter your username in the appropriate field.

Click on the **Bookmark settings** tab to save your session with a specific name, e.g. ENGR. Lastly, click OK!!! 😊



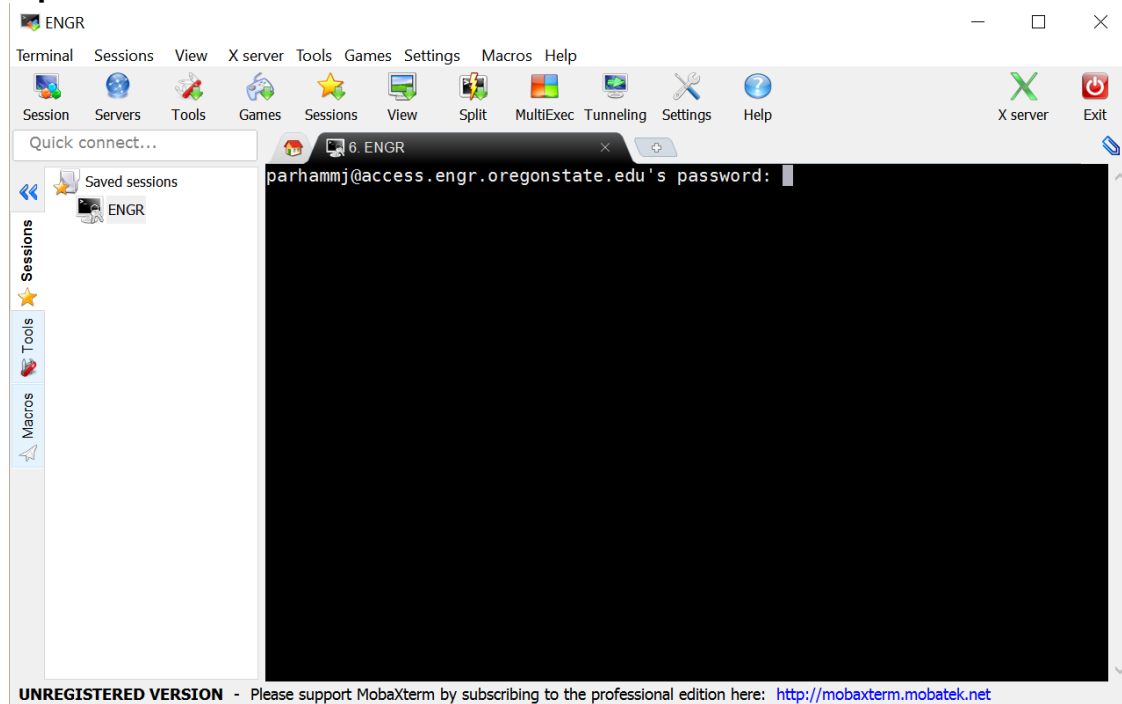
4. The ENGR session you just created will connect, and you will be asked to enter your password at the prompt. ****Note:** You will not see anything as you type your password. This is a security feature in Linux!!!

After a successful logon, press enter at the prompt below:

Terminal type? [xterm]

Then you get a prompt that looks something like this:

flip1 ~ 1%



5. At the prompt, type the following commands to look at your files and directories in your home directory. Note the differences to your lab instructor.

ls

ls -a

ls -l

ls -al

****Note:** You should notice a `.` and `..` directory listed. The `.` directory refers to your current directory, and the `..` directory refers to one directory above your current directory. The `~` refers to your home directory.

6. After you and your partner finish looking at your home directory, make a directory in your home directory named labs, and change into the labs directory.

mkdir labs

cd labs

7. Make a note of your present working directory.

pwd

8. You can go back/up a directory by using two periods/dots together, and you can go back to your home directory by using the tilde, ~. Use the pwd to confirm you are back in your home directory.

cd ..

cd ~

pwd

9. Now, change into the labs directory by using your **up arrow key** to take you through the history of commands you've used in the past. You should see the **cd labs** command you typed earlier.

10. A good rule of thumb is to use **pwd** at any time to determine where you are, in case you forget☺ Also, don't be scared to use **ls** as often as you need to see a listing of your current directory!

11. Now, let's copy a python file into your labs directory from the cs160 directory.

cp is the command for copying, and you can copy from a place to a place.

cp /nfs/farm/classes/eecs/fall2017/cs160h-001/public_html/labs/hello.py .

This says to copy the hello.py file from the class directory to your current directory (denoted by .).

12. You can view the contents of the file by using the command **more, less, or cat**.

more hello.py

13. Now, run the python program using the **python3** interpreter.

python3 hello.py

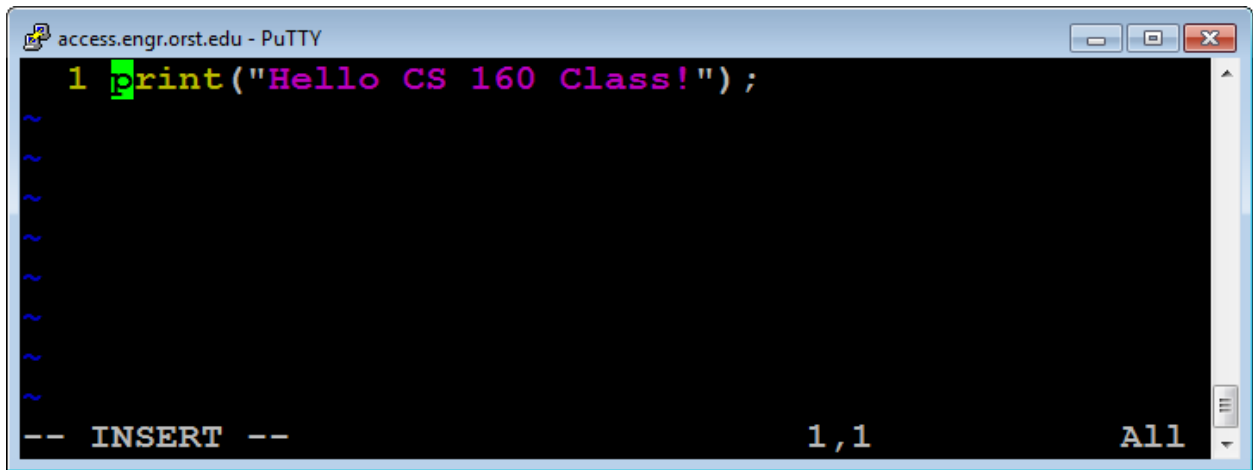
What do you notice? What was printed to the screen?

(2 pts) Edit "hello world" program using vim

1. Unix and Linux systems always have two editors, vi and emacs. In our class, we are going to use vim (vi improved) to write and modify our programs. Each of you should modify your hello.py file to print a message to your partner, instead of to the CS 160 class. In order to do this, we need to use the vim command to edit the file.

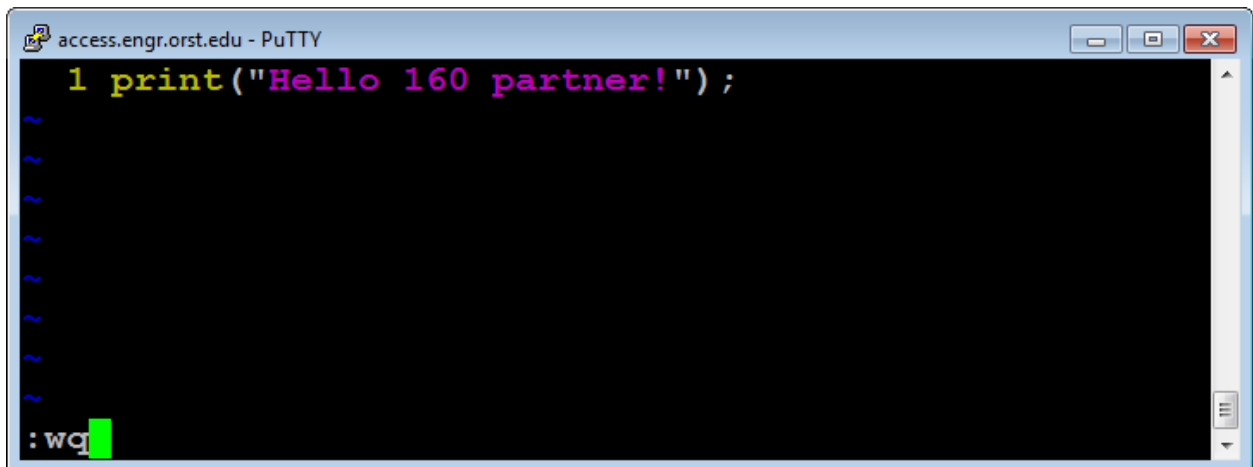
vim hello.py

2. The vim editor only has two modes, **insert and escape**. You can type when you are in the insert mode, and you can save and exit in the escape mode. When you first enter vim, you are in the escape mode. You can get into insert mode by typing i.

A screenshot of a PuTTY terminal window titled "access.engr.orst.edu - PuTTY". The terminal has a black background with green text. The first line shows a Python print statement: `1 print("Hello CS 160 Class!");`. Below this, there are several lines of tilde (~) characters. At the bottom left, it says "-- INSERT --". At the bottom right, it shows the cursor position "1,1" and the word "All".

```
access.engr.orst.edu - PuTTY
1 print("Hello CS 160 Class!");
~
~
~
~
~
~
-- INSERT --                      1,1      All
```

3. After you edit your message, then go back into escape mode by pressing the escape key. Now, you can save and exit the file by typing **:wq**

A screenshot of a PuTTY terminal window titled "access.engr.orst.edu - PuTTY". The terminal has a black background with green text. The first line shows a Python print statement: `1 print("Hello 160 partner!");`. Below this, there are several lines of tilde (~) characters. At the bottom left, the text `:wq` is visible with a green cursor at the end of the line.

```
access.engr.orst.edu - PuTTY
1 print("Hello 160 partner!");
~
~
~
~
~
~
:wq
```

4. Lastly, run the modified hello.py python program using the **python3** interpreter.
python3 hello.py

You can begin view the Python 3 documentation to get a better idea of how to use these commands: <https://docs.python.org/3.4/>

Go to the Built-in Functions and look at the print function. What do you think this would do? **print("Hello Everyone!", end="");**

(2 pts) Upload Program (.py) to [TEACH](#)

Since you have to upload your assignments from your local computer or the engr server to the [TEACH](#) website, then we should practice now☺ It is easy to upload files from your local computer to TEACH, as long as you remember where you save it!!! ☺ However, it is not as easy for you to upload files from the ENGR server to TEACH.

Transfer Files

You can transfer the file to your own computer, then upload it on TEACH:

Windows Users: MobaXterm already has a sftp client installed. Notice the window pane on the left with folders and files. You can drag and drop a file to your local desktop to select on TEACH.

Mac OS Users: Download Cyberduck from <http://oregonstate.edu/helpdocs/osu-applications/offered-apps/ftp>

OR

Map Network Drive

2). You can map a network drive, and choose the file from the mapped network drive. Here is some software to help you with this.

Lastly, you want to map a network drive to the ENGR server. This allows you to directly work off the server as if it were a disk drive on your computer. You can follow these instructions to map a network drive for Windows or MacOS.

Windows:

<http://it.engineering.oregonstate.edu/accessing-engineering-file-space-using-windows-file-sharing>

MacOS:

<http://it.engineering.oregonstate.edu/accessing-engineering-file-space-using-os-x-smb-command>

If you want to use the drive off campus, then you must download the **Cisco VPN Client** from OSU: <http://oregonstate.edu/helpdocs/osu-applications/offered-apps/virtual-private-network-vpn>

****NOTE:** You may want to put these programs on a flash drive to carry with you in your backpack. This will help you get around from any computer without needing your laptop all the time.