**Code01 (replacing Code and Olin)**

**Assistance with installed software?**

### Package help

Most software has a man(ual) page associated with it. Type `man <package name>` at the shell prompt.

### Environment Modules

**Environment Modules** is a software environment management system which allows multiple versions of packages to be available to users.

#### Common commands

- **module avail** - to list available modules. Modules with (default) will be loaded if a version is not specified.
- **module load <module name>** - to load a module.
- **module unload <module name>** - to unload a module.
- **module list** - to list loaded modules.

### Examples - Using Python and Pip with Environment Modules

**Python**

Several versions of Python are available using **Environment Modules**, in addition to the default package versions. You can determine what version is available by appending the --version switch to your python command.

**NOTE:** By default the command "python" runs the Python 2.x interpreter and the command "python3" runs the Python 3.x interpreter.

Python example:

- List current modules.

  ```
  ~ $ module list
  No Modulefiles Currently Loaded.
  ```

- Show current Python and Python3 versions. Since no Python modules are loaded, they are the OS provided versions.

  ```
  ~ $ python --version
  Python 2.7.5
  ~ $
  ~ $ python3 --version
  Python 3.4.5
  ```

- List available Python modules. Default module is indicated with (default).
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```bash
~ $ module avail python
------------------------- /opt/software/modules/ -------------------------
python/2.7.9 python/3.4.2 python/3.5.1(default)
```

- Load default Python module.

  ```bash
  ~ $ module load python
  
  - Show Python and Python3 versions. Since only the Python 3.5.1 module was loaded, it was the only version that changed.

    ```bash
    ~ $ python --version
    Python 2.7.5
    ~ $ python3 --version
    Python 3.5.1
    
    - Unload Python module.
    ```

    ```bash
    ~ $ module unload python
    
    Pip and Virtualenv
    
    Pip can also be used with python to install python packages. Virtualenv is available to isolate your packages.

    As with Python, pip has different commands for different versions:

    - **pip, pip2**, and **pip2.7** - to install OS maintained Python 2.7 pip packages, or a Python 2.7.x module if loaded.
    - **pip3** - to install OS maintained Python 3.4 pip packages.
    - **pip3.4** - to install OS maintained Python 3.4 pip packages, or a Python 3.4 version python module is loaded.
    - **pip3.5** - to install Python 3.5 pip packages, if a Python 3.5.x module has been loaded.

    Pip examples:

    - List current modules.

      ```bash
      ~ $ module list
      No Modulefiles Currently Loaded.
      ```
Display pip3 and pip3.4 versions. With no Python modules loaded, they use the OS provided version.

```bash
~ $ pip3 --version
pip 9.0.1 from /usr/lib/python3.4/site-packages (python 3.4)
~ $
~ $ pip3.4 --version
pip 9.0.1 from /usr/lib/python3.4/site-packages (python 3.4)
```

Load Python 3.4.2 specific module.

```bash
~ $ module load python/3.4.2
```

Display pip3 and pip3.4 versions. Now they show the version from the loaded Python 3.4.2 module.

```bash
~ $ pip3 --version
pip 9.0.1 from /opt/software/python/python-3.4.2/lib/python3.4/site-packages (python 3.4)
~ $
~ $ pip3.4 --version
pip 9.0.1 from /opt/software/python/python-3.4.2/lib/python3.4/site-packages (python 3.4)
```

Display the pip3.5 version. Since a Python 3.5 module is not loaded, the command fails.

```bash
~ $ pip3.5 --version
-bash: pip3.5: command not found
```

Unload Python 3.4.2

```bash
~ $ module unload python/3.4.2
```

Load the default python module, which currently is Python 3.5.1.

```bash
~ $ module load python
```

Display the pip3 and pip3.5 versions. Now they show the version from the loaded 3.5.1 Python module.

```bash
~ $ pip3 --version
```
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ip 9.0.1 from /opt/software/python/python-3.5.1/lib/python3.5/site-packages (python 3.5)

~ $ 
~ $ pip3.5 --version 
  pip 9.0.1 from /opt/software/python/python-3.5.1/lib/python3.5/site-packages (python 3.5)

• Install a pip module into your userspace. Be sure to specify the version of Pip you want to use.

~ $ pip3.5 install --user <pip_module>
  Collecting <pip_module>
    Downloading <pip_module>.whl (43.1MB)
      100% |?????????????????????????????????????????| 43.1MB 12kB/s

For more information, please see the official web page for Environment Modules or Wikipedia article.
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