SOFTWARE INSTALLATION

ERIC MARTIN

1. Installing Python if necessary

On personal computers, get the latest version (python3.6) for the appropriate platform from

https://www.python.org

Mac users: drag the IDLE.app icon in /Applications/Python 3.6 to the dock.

The School has python3.6 installed. It is run as `python3`.

2. Installing pip3 if necessary

Windows and Mac users should have pip3 automatically shipped with python, but Ubuntu and Debian Linux users may need to execute

```
sudo apt-get install python3-pip
```

3. Installing extra modules

You cannot install modules on the School machines. On your own computer, you can install thousands.

Mac and Linux users install modules executing `pip3 install` *`module_name`*. To run all sample programs, you need to install the modules `matplotlib`, `numpy`, `beautifulsoup4`, `openpyxl`, `PyPDF2`, `pyobjc-core`, `pyobjc`, `pyautogui`, `pillow`, `pygame`, `pygal`, `pygal_maps_world`.

In order to use Jupyter, you need to install `jupyter`. To have the same functionality as I do, you also need to install `jupyter_contrib_nbextensions`, `jupyter_nbextensions_configurator` and `nbtutor`, and enable them by executing

```
sudo jupyter contrib nbextension install --system
sudo jupyter nbextensions_configurator enable --system
sudo jupyter nbextension install --overwrite --py nbtutor
sudo jupyter nbextension enable --py nbtutor
```

Using the Nbextensions Configurator, I have enabled `Initialization cells`, `Runtools`, and `Scratchpad`.

You can get a listing of the modules you have installed by executing

```
pip3 list
```

To check whether some of the modules you have installed are not up to date, execute

```
pip3 list --outdated
```

If a module some_outdated_module is listed as outdated, you can update it by executing

```
pip3 install -U some_outdated_module
```

Windows users might have to execute

```
python3 -m pip ...
```

instead of

```
pip3 ...
```

Date: Session 1, 2018.

4. Making python and idle the right commands

In the home directory of your CSE account, create or edit (with an editor such as vi or gedit) the file .bashrc and add the lines

```
alias python=python3
alias idle=idle3
```

You need to open another xterm (Terminal) window for this change to take effect and let python and idle launch python3 and idle3 rather than the default python2 and idle2, respectively.

Mac and Linux users who have installed python3.6 may need to add these lines to the .profile or .bash_profile file rather than to the .bashrc file.

5. Permanently adding directories to sys.path

sys.path is the list of directories where Python looks for modules (files). On a School machine, it is

```
['', '/usr/lib/python36.zip', '/usr/lib/python3.6', '/usr/lib/python3.6/lib-dynload',
 '/usr/local/lib/python3.6/dist-packages', '/usr/lib/python3/dist-packages']
```

as can be found out by interpreting at the python prompt

```
from sys import path
path
```

The first directory in this list, '', is the working directory.

To add directories to this list, create a sequence of new directories by executing in an xterm window the command

```
mkdir -p ~/.local/lib/python3.6/site-packages
```

To add the home directory to sys.path,

- run in the home directory the command pwd,
- create in ~/.local/lib/python3.6/site-packages the file my_path.pth, and
- add to this file the output of that command.

If you were me, that would be

```
/import/kamen/1/emartin
```

Other directories can be added, one per line. For instance, if you were me and had created in your home directory the directory COMP9021, then you could also add to my_path.pth the line

```
/import/kamen/1/emartin/COMP9021
```

to make it part of sys.path.

Mac Users: Same procedure but replacing ~/.local/lib/python3.6/site-packages by

~/Library/Python/3.6/lib/python/site-packages