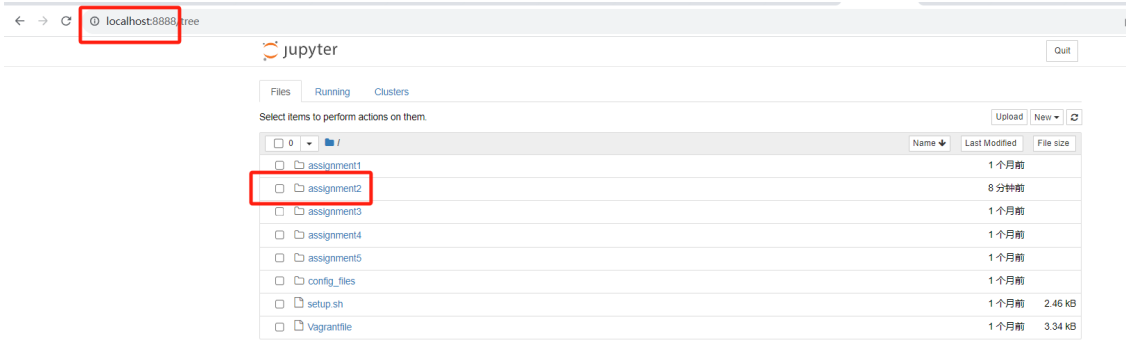
实验2 jupyter环境使用

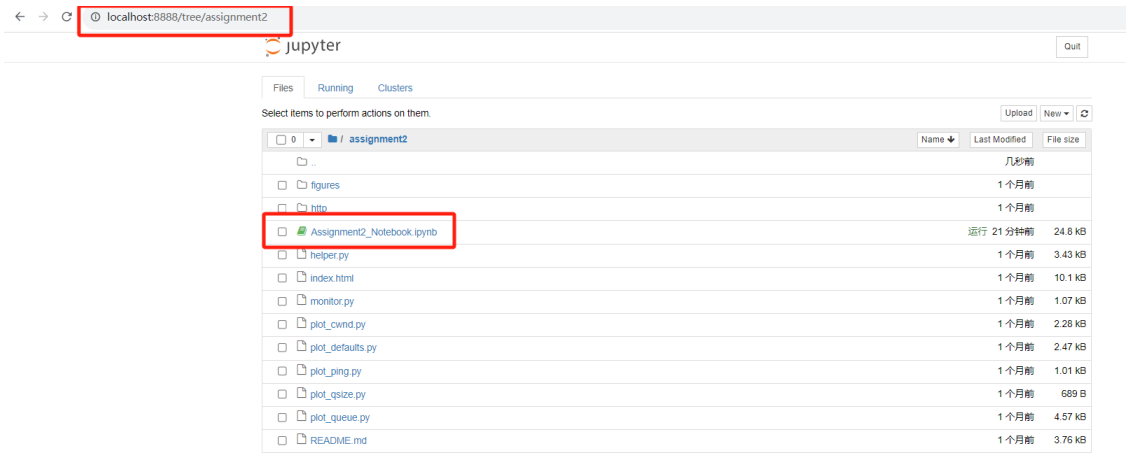
1.启动 Jupyter Notebook 服务器

在虚拟机中，运行命令`sudo jupyter notebook &`。 这会在后台启动一个新的 Jupyter notebook服务器。 它虽然是在后台运行，但有时会打印消息到终端。 每次收到消息时都可以按 Enter 来获取 shell提示返回。 要关闭notebook，请运行`fg`，然后按 Control-C 两次（一次获取确认消息，另一次跳过确认）。

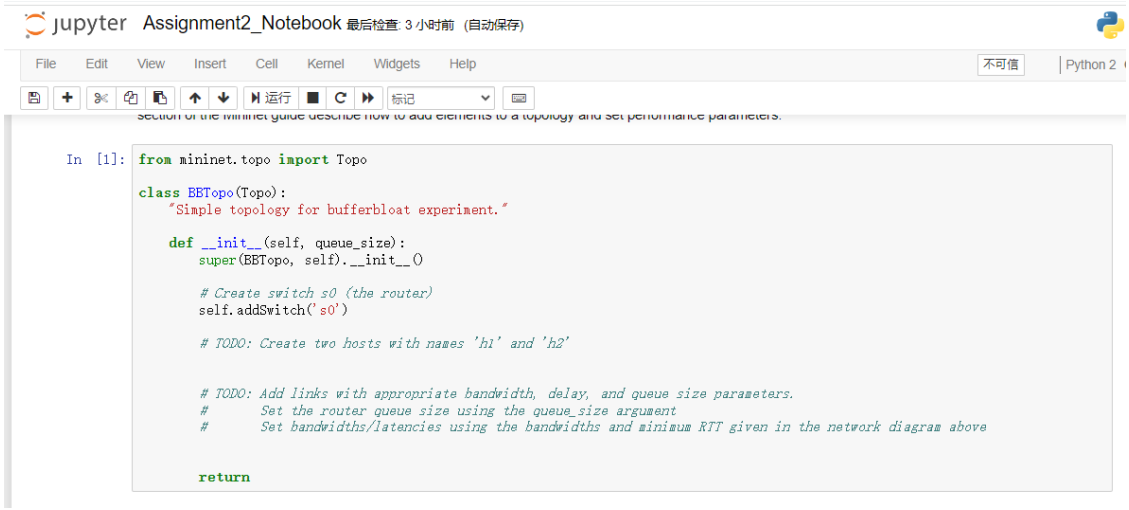
当笔记本电脑运行时，在主机上打开浏览器并在地址栏中输入`localhost:8888`。 这应该会带你到 Jupyter notebook文件选择窗口。 Juypter notebook实际上在vagrant VM的8888端口上运行，但你可以通过你的主机访问它浏览器，因为端口正在虚拟机和主机之间转发。



在文件选择窗口中，进入`assignment2`目录，然后打开`Assignment2_Notebook.ipynb`。这将打开一个带有说明的笔记本完成剩余的作业。 从上到下浏览本笔记本并完成标记为“TODO”的部分。



在代码框中输入`shift+enter`即可运行代码：



请记住在关闭**notebook**或者网页之前**“Save and Checkpoint”**（从**“File”**菜单）

2.报错解决

pip报错：`sudo: pip: command not found`

```
# get pip
curl -O "https://bootstrap.pypa.io/pip/2.7/get-pip.py" | tac | tac
| grep -qs foo
sudo python get-pip.py
rm -f get-pip.py
# Install old version of tornado before installing jupyter
sudo pip install tornado==4.5.3
sudo pip install jupyter
sudo pip install tzupdate==1.5.0
sudo apt-get install -y gccgo-go
# Set correct permissions for bash scripts
find /vagrant -name "*.sh" | xargs chmod -v 744# If the repository
was pulled from Windows, convert line breaks to Unix-style
sudo apt-get install -y dos2unix
printf "Using dos2unix to convert files to Unix format if
necessary..."
find /vagrant -name "*" -type f | xargs dos2unix -q

# Assignment 2
sudo pip install mininet
sudo pip install nbconvert
sudo pip install numpy
sudo pip install matplotlib
sudo apt-get install -y mininet
sudo apt-get install -y python-numpy
sudo apt-get install -y python-matplotlib
```

如果还有其他环境的报错，参考`COS461-Public\assignments\Vagrantfile`文件进行相应的配置(在初始化虚拟机时没有成功配置好相应的模块，在本次实验中就需要手动配置)

jupyter报错： `jupyter command 'jupyter-notebook' not found`

```
sudo pip install --upgrade pip

sudo pip install ipywidgets

sudo apt-get install nodejs-legacy npm
sudo pip install widgetsnbextension
sudo jupyter nbextension enable --py widgetsnbextension

sudo pip install jupyter

jupyter notebook
```

tips：由于实验2的代码基于python2，如果选择使用本地的anaconda运行，就需要在本地中配置python2和mininet的环境。

3. 若遇到 comm 的版本问题，请用 sudo pip install ipywidgets==7.5.1 命令

```
vagrant@cos461:/vagrant$ sudo pip install jupyter==1.0.0
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please upgrade your P
ython as Python 2.7 is no longer maintained. pip 21.0 will drop support for Python 2.7 in Janua
ry 2021. More details about Python 2 support in pip can be found at https://pip.pypa.io/en/late
st/development/release-process/#python-2-support pip 21.0 will remove support for this function
ality.
WARNING: The directory '/home/vagrant/.cache/pip' or its parent directory is not owned or is no
t writable by the current user. The cache has been disabled. Check the permissions and owner of
 that directory. If executing pip with sudo, you may want sudo's -H flag.
Collecting jupyter==1.0.0
  Downloading jupyter-1.0.0-py2.py3-none-any.whl (2.7 kB)
Collecting ipywidgets
  Downloading ipywidgets-7.8.4-py2.py3-none-any.whl (124 kB)
     |████████████████████████████████| 124 kB 261 kB/s
Collecting jupyter-console
  Downloading jupyter_console-5.2.0-py2.py3-none-any.whl (20 kB)
Collecting notebook
  Downloading notebook-5.7.16-py2.py3-none-any.whl (9.6 MB)
     |████████████████████████████████| 9.6 MB 33.9 MB/s
Requirement already satisfied: nbconvert in /usr/local/lib/python2.7/site-packages (from jupyte
r==1.0.0) (5.6.1)
Collecting qtconsole
  Downloading qtconsole-4.7.7-py2.py3-none-any.whl (118 kB)
     |████████████████████████████████| 118 kB 6.4 MB/s
Collecting ipykernel
  Downloading ipykernel-4.10.1-py2-none-any.whl (109 kB)
     |████████████████████████████████| 109 kB 10.0 MB/s
ERROR: Could not find a version that satisfies the requirement comm>=0.1.3 (from ipywidgets->ju
pyter==1.0.0) (from versions: 0.0.1)
ERROR: No matching distribution found for comm>=0.1.3 (from ipywidgets->jupyter==1.0.0)
vagrant@cos461:/vagrant$ comm --version
comm (GNU coreutils) 8.21
Copyright (C) 2013 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Richard M. Stallman and David MacKenzie.
vagrant@cos461:/vagrant$ sudo pip install ipywidgets==7.5.1
```

4.若在执行sudo jupyter notebook &时

报错 Jupyter command `jupyter-notebook` not found.

请用 sudo pip install "notebook<6.0" "ipykernel<6.0" 指令

重装 jupyter

请把assignment2放到此位置，本次实验需要用到实验一中所创立的虚拟机。