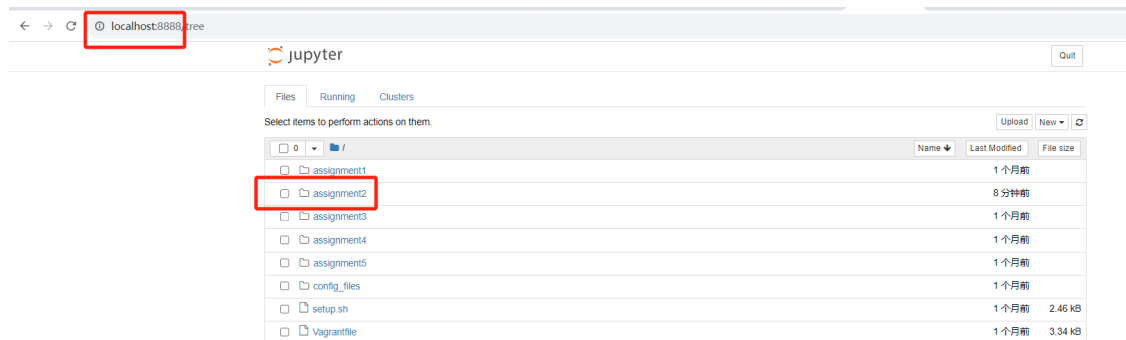


实验2 jupyter环境使用

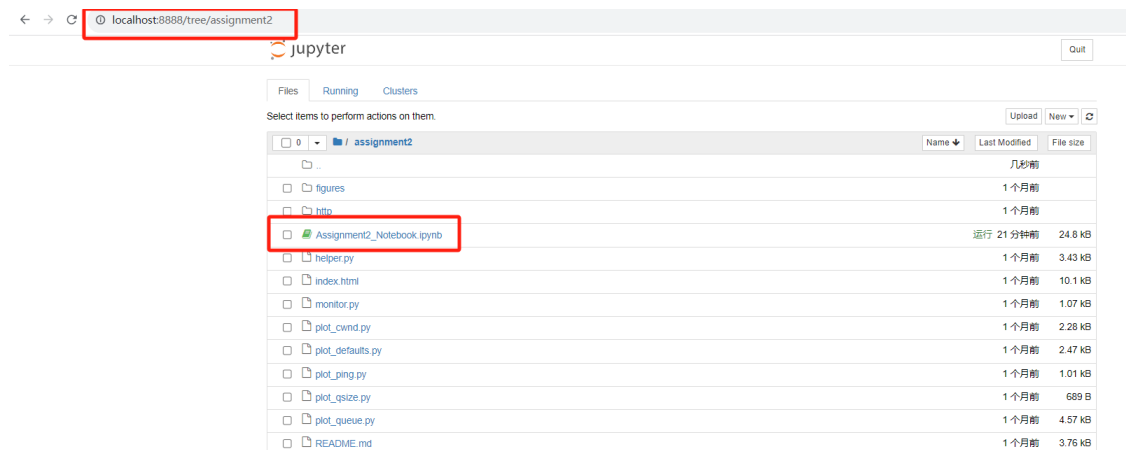
1.启动 Jupyter Notebook 服务器

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）。

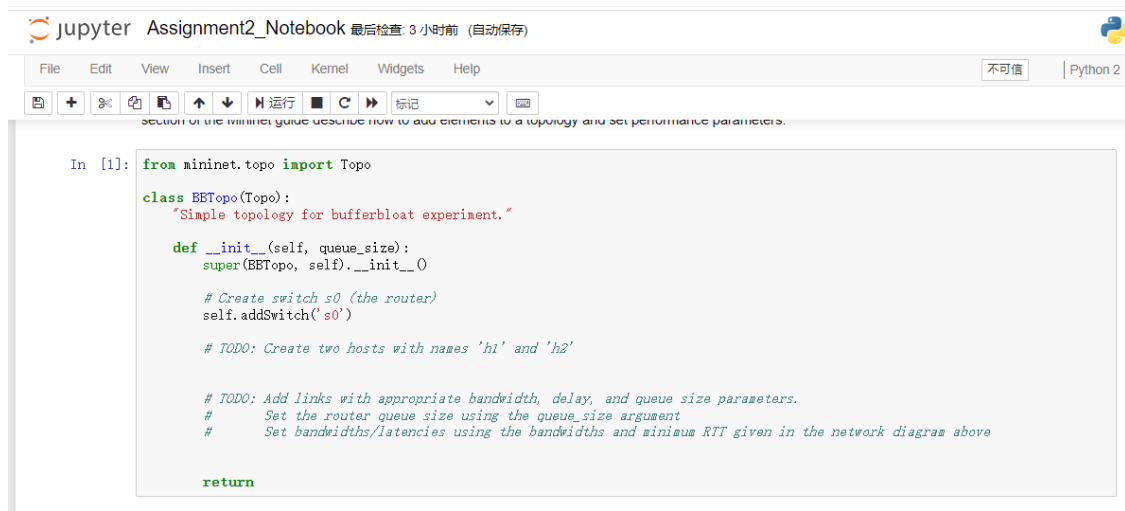
当笔记本电脑运行时，在主机上打开浏览器并在地址栏中输入 `localhost:8888`。这应该会带你到 Jupyter notebook文件选择窗口。Jupyter notebook实际上在vagrant VM的8888端口上运行，但你可以通过你的主机访问它浏览器，因为端口正在虚拟机和主机之间转发。



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：



The screenshot shows a Jupyter Notebook window titled "Assignment2_Notebook 最后检查 3 小时前 (自动保存)". The interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for saving, undo, redo, and running code. The main area displays a code cell with the following Python code:

```
In [1]: from mininet.topo import Topo

class BBTopo(Topo):
    "Simple topology for bufferbloat experiment."

    def __init__(self, queue_size):
        super(BBTopo, self).__init__()

        # Create switch s0 (the router)
        self.addSwitch('s0')

        # TODO: Create two hosts with names 'h1' and 'h2'

        # TODO: Add links with appropriate bandwidth, delay, and queue size parameters.
        # Set the router queue size using the queue_size argument
        # Set bandwidths/latencies using the bandwidths and minium RTT given in the network diagram above

    return
```

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。