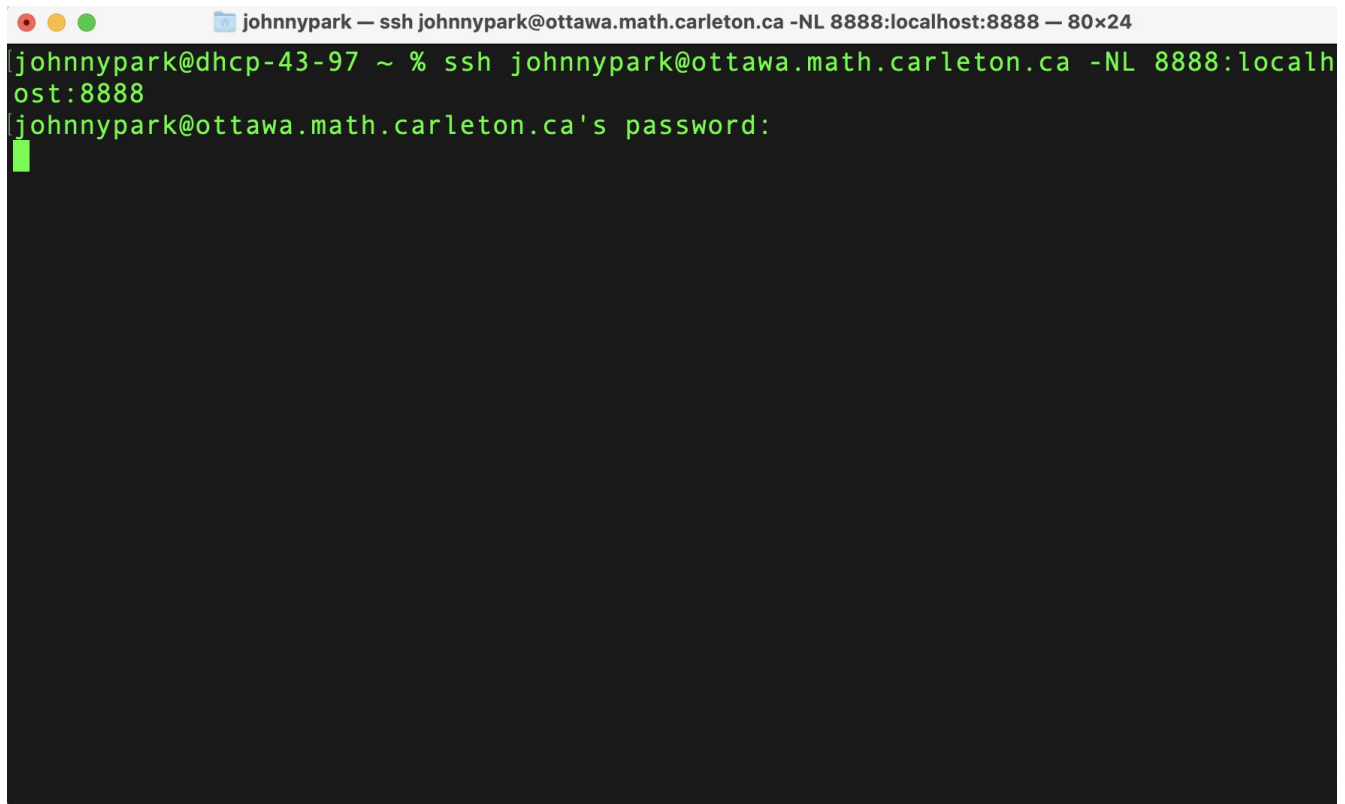


This is tested in Mac OS Big Sur, and Ubuntu 18.04.

Type the following line on the terminal:

```
ssh {username}@ottawa.math.carleton.ca -NL 8888:localhost:8888
```

Put your password. After the password prompt, we notice that the terminal is running, but it doesn't show anything.

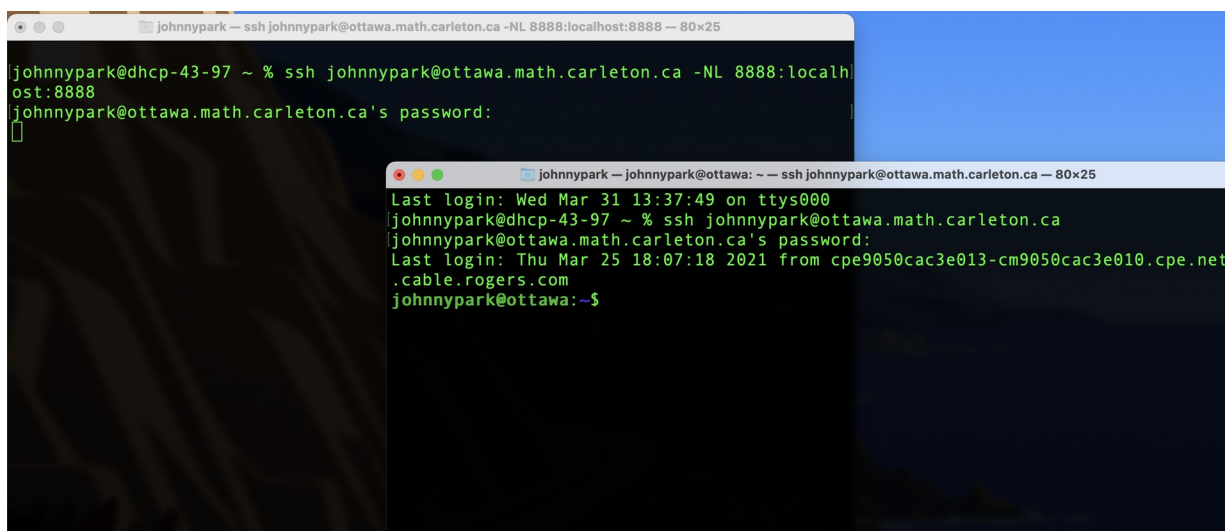
A terminal window titled "johnnypark — ssh johnnypark@ottawa.math.carleton.ca -NL 8888:localhost:8888 — 80x24". The prompt is "johnnypark@dhcp-43-97 ~ %". The user enters the command "ssh johnnypark@ottawa.math.carleton.ca -NL 8888:localhost:8888". The prompt changes to "johnnypark@ottawa.math.carleton.ca's password:". A green cursor is visible on the line following the password prompt.

```
johnnypark@dhcp-43-97 ~ % ssh johnnypark@ottawa.math.carleton.ca -NL 8888:localhost:8888
johnnypark@ottawa.math.carleton.ca's password:
█
```

We open another terminal. Type the following in the terminal and log in to the remote PC:

```
ssh {username}@ottawa.math.carleton.ca
```

We then enter the password again, to access the remote PC.

Two terminal windows are shown. The top window is titled "johnnypark — ssh johnnypark@ottawa.math.carleton.ca -NL 8888:localhost:8888 — 80x25". It shows the same SSH command and password prompt as the first image. The bottom window is titled "johnnypark — johnnypark@ottawa: ~ — ssh johnnypark@ottawa.math.carleton.ca — 80x25". It shows the login process: "Last login: Wed Mar 31 13:37:49 on ttys000", the prompt "johnnypark@ottawa.math.carleton.ca", the password prompt "johnnypark@ottawa.math.carleton.ca's password:", "Last login: Thu Mar 25 18:07:18 2021 from cpe9050cac3e013-cm9050cac3e010.cpe.net .cable.rogers.com", and finally the prompt "johnnypark@ottawa:~\$".

```
johnnypark@dhcp-43-97 ~ % ssh johnnypark@ottawa.math.carleton.ca -NL 8888:localhost:8888
johnnypark@ottawa.math.carleton.ca's password:
█

johnnypark@ottawa:~$ ssh johnnypark@ottawa.math.carleton.ca
Last login: Wed Mar 31 13:37:49 on ttys000
johnnypark@ottawa.math.carleton.ca
johnnypark@ottawa.math.carleton.ca's password:
Last login: Thu Mar 25 18:07:18 2021 from cpe9050cac3e013-cm9050cac3e010.cpe.net .cable.rogers.com
johnnypark@ottawa:~$
```

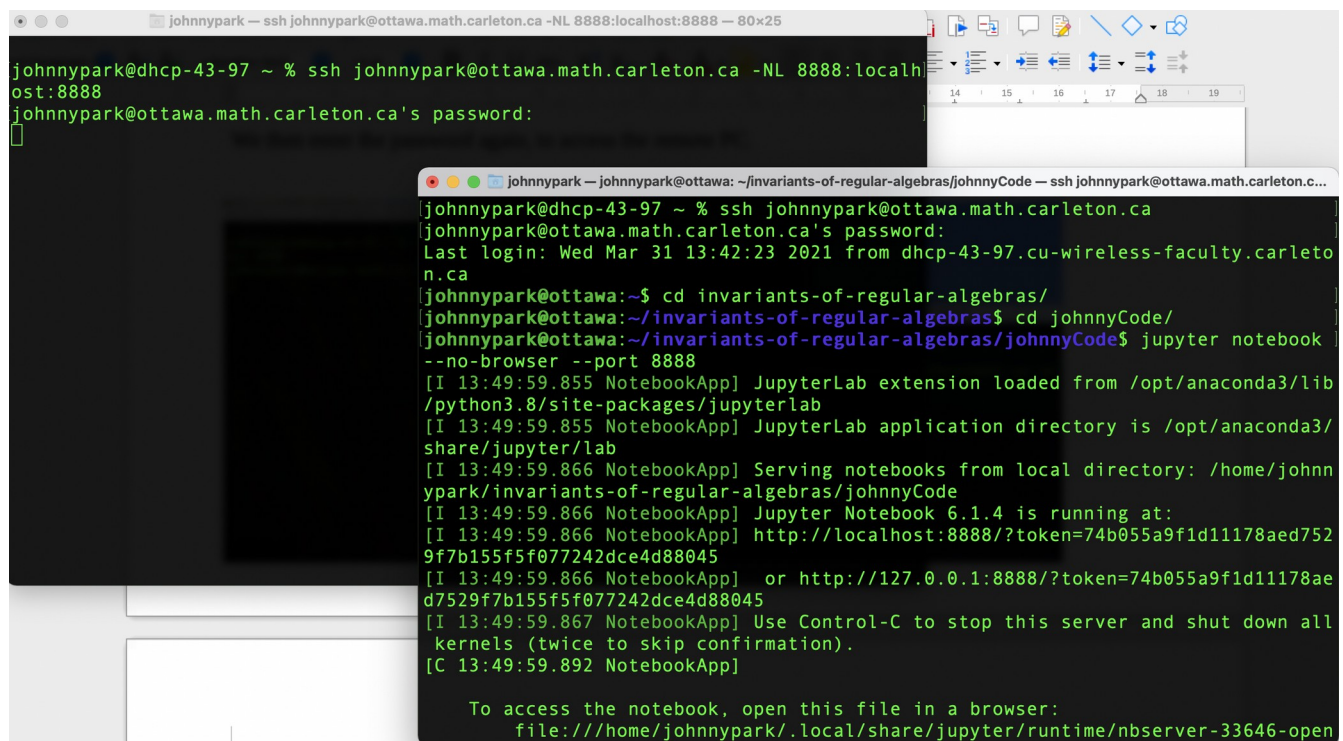
Then we should have jupyter installed in our remote machine. However, we would like to use magma for the notebook, and by default the notebook only supports python kernel. So we would like to separately install the magma kernel in the jupyter notebook.

Run the following command to install:

```
pip3 install git+https://github.com/nbruin/magma_kernel -user  
python3 -m magma_kernel.install
```

After installation, run the following command in the newly logged in terminal:

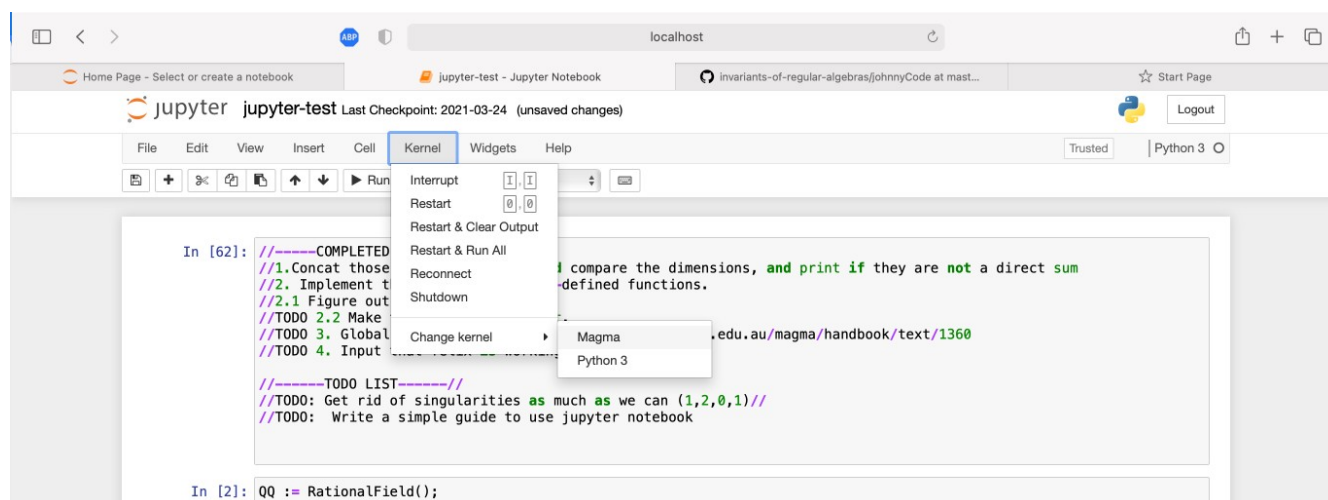
```
jupyter notebook --no-browser --port 8888
```



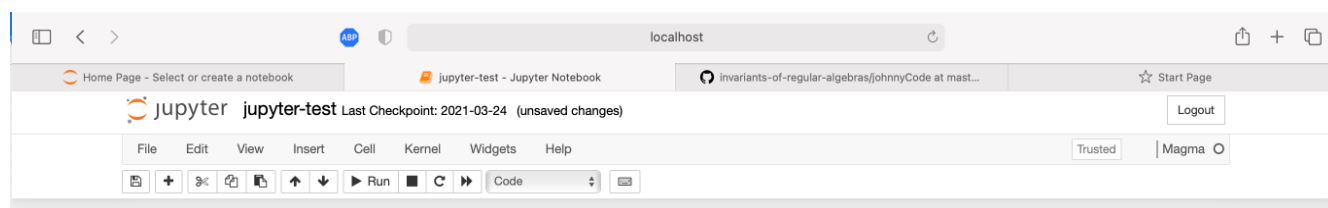
The screenshot shows a terminal window with the following content:

```
johnnypark — ssh johnnypark@ottawa.math.carleton.ca -NL 8888:localhost:8888 — 80x25  
johnnypark@dhcp-43-97 ~ % ssh johnnypark@ottawa.math.carleton.ca -NL 8888:localhost:8888  
johnnypark@ottawa.math.carleton.ca's password:  
[ ]  
johnnypark — johnnypark@ottawa: ~/invariants-of-regular-algebras/johnnyCode — ssh johnnypark@ottawa.math.carleton.c...  
johnnypark@dhcp-43-97 ~ % ssh johnnypark@ottawa.math.carleton.ca  
johnnypark@ottawa.math.carleton.ca's password:  
Last login: Wed Mar 31 13:42:23 2021 from dhcp-43-97.cu-wireless-faculty.carleton.ca  
johnnypark@ottawa:~$ cd invariants-of-regular-algebras/  
johnnypark@ottawa:~/invariants-of-regular-algebras$ cd johnnyCode/  
johnnypark@ottawa:~/invariants-of-regular-algebras/johnnyCode$ jupyter notebook --no-browser --port 8888  
[I 13:49:59.855 NotebookApp] JupyterLab extension loaded from /opt/anaconda3/lib/python3.8/site-packages/jupyterlab  
[I 13:49:59.855 NotebookApp] JupyterLab application directory is /opt/anaconda3/share/jupyter/lab  
[I 13:49:59.866 NotebookApp] Serving notebooks from local directory: /home/johnnypark/invariants-of-regular-algebras/johnnyCode  
[I 13:49:59.866 NotebookApp] Jupyter Notebook 6.1.4 is running at:  
[I 13:49:59.866 NotebookApp] http://localhost:8888/?token=74b055a9f1d11178aed7529f7b155f5f077242dce4d88045  
[I 13:49:59.866 NotebookApp] or http://127.0.0.1:8888/?token=74b055a9f1d11178aed7529f7b155f5f077242dce4d88045  
[I 13:49:59.867 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).  
[C 13:49:59.892 NotebookApp]  
  
To access the notebook, open this file in a browser:  
file:///home/johnnypark/.local/share/jupyter/runtime/nbserver-33646-open
```

We can then open our browser, and copy the address that the jupyter gives, in my case it is <http://localhost:8888/?token=74b055a9f1d11178aed7529f7b155f5f077242dce4d88045>



The default kernel is Python 3, so go to Kernel -> Change Kernel -> Magma



We now have Magma running our local machine in Jupyter notebook.