

Boosting your Productivity with VSCode and SSH on remote machines

Python Coffee | IA PUC

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**Exchanging cryptographic keys
with a remote machine**

Configuring your `.ssh/config` file

Generate an SSH Key Pair

On your local machine run

```
ssh-keygen -t rsa
```

This creates two files

- `~/.ssh/id_rsa` (this is a private key, keep it safe)
- `~/.ssh/id_rsa.pub` (this is the public key, the one you share with others)

Configuring your `.ssh/config` file

Copy the Public Key to the Remote Server

We now send the public key to the remote server with

```
ssh-copy-id -i ~/.ssh/id_rsa.pub user@remote_host
```

This appends your public key to `~/.ssh/authorized_keys` on the server.

**Using an alias for the remote
machine**

Using an alias for the remote machine

Configure the ~/.ssh/config File

Now we we open (or create) the file with

```
nano ~/.ssh/config
```

And fill the following information ->

`myserver` is an alias for the server

`remote_host_or_ip` is the direction (e.g. `machinename.astro.puc.cl`)

`ForwardX11` allows streaming graphical interfaces or windows

```
Host myserver
```

```
HostName remote_host_or_ip
```

```
User your_username
```

```
ForwardX11 yes
```

You can add as many hosts as you want appending them to the `.ssh/config` file

Using an alias for the remote machine

Test the Connection

Now you can connect simply by:

```
ssh myserver
```

You can add multiple servers in the same `~/.ssh/config` with different Host aliases.

For example ->

```
Host workserver
```

```
HostName work.example.com
```

```
User workuser
```

```
Host cluster
```

```
HostName cluster.example.edu
```

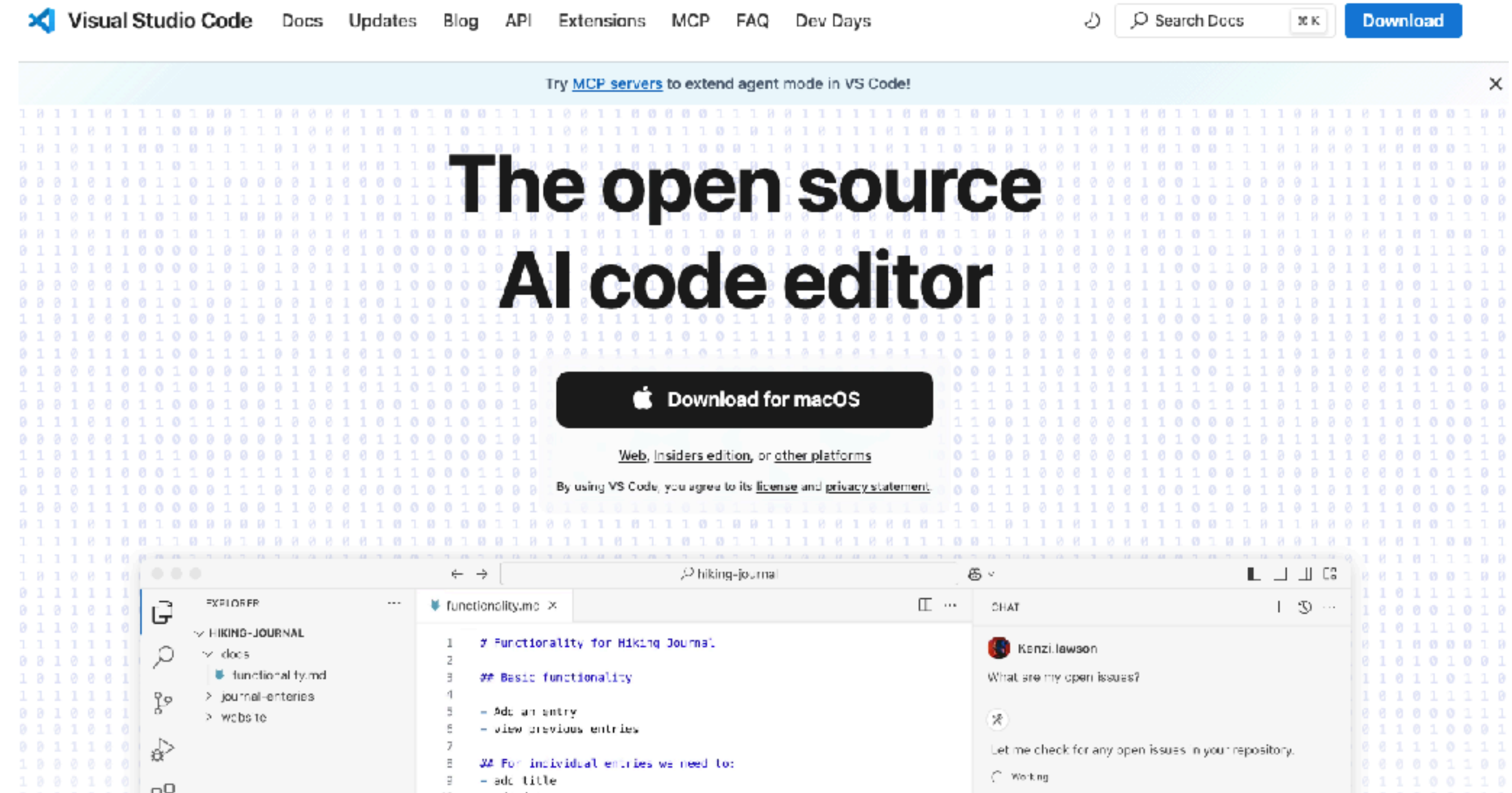
```
User hpcuser
```

Setting up VSCode

Setting up VSCode

Download

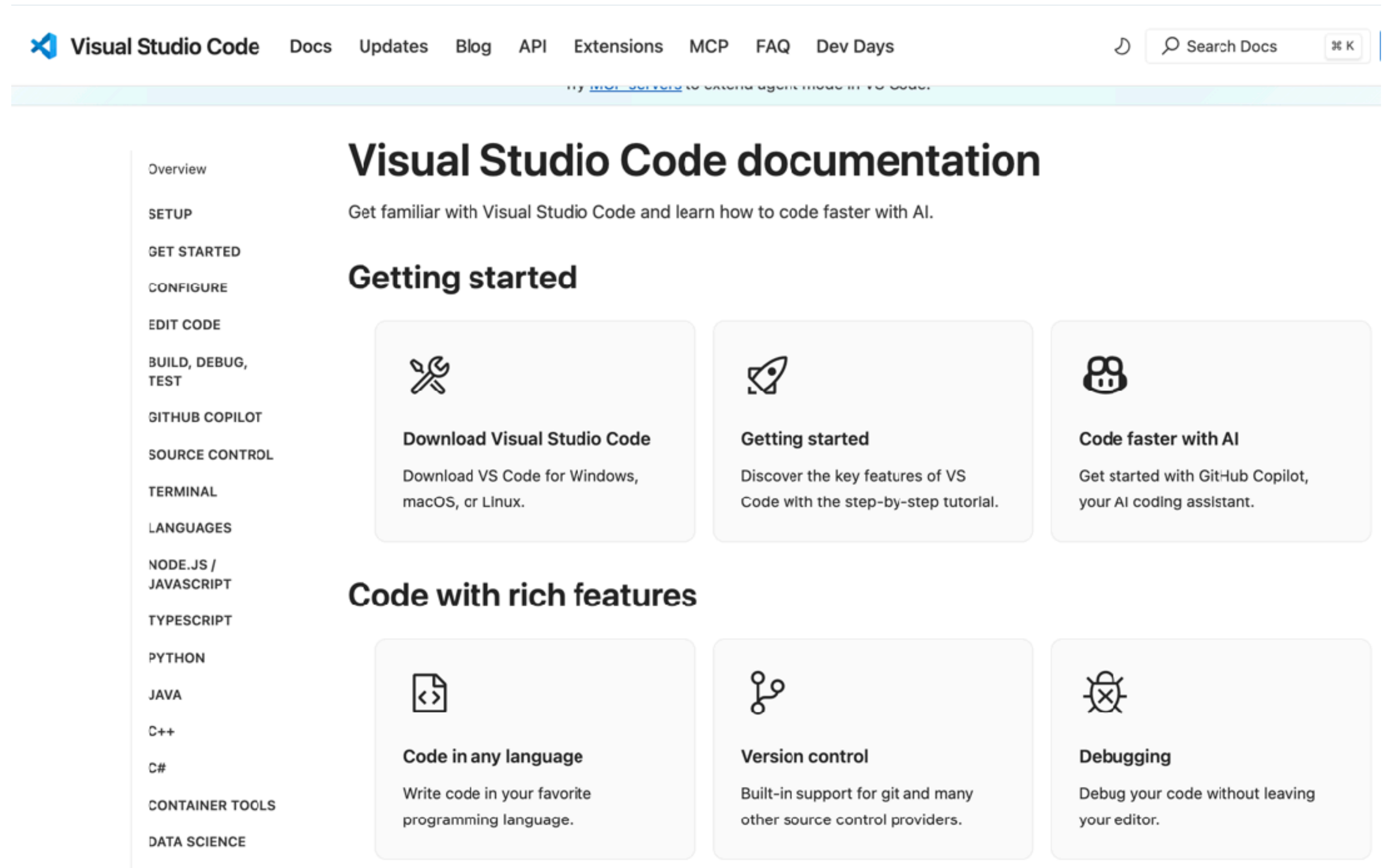
Download VSCode from here
<https://code.visualstudio.com/>
And install it



Setting up VSCode Documentation

<https://code.visualstudio.com/docs>

<https://code.visualstudio.com/docs/introvideos/basics>



The screenshot shows the Visual Studio Code documentation website. At the top, there is a navigation bar with the Visual Studio Code logo and links for Docs, Updates, Blog, API, Extensions, MCP, FAQ, and Dev Days. A search bar is located on the right side of the navigation bar. Below the navigation bar, there is a sidebar on the left with a list of navigation items: Overview, SETUP, GET STARTED, CONFIGURE, EDIT CODE, BUILD, DEBUG, TEST, GITHUB COPILOT, SOURCE CONTROL, TERMINAL, LANGUAGES, NODE.JS / JAVASCRIPT, TYPESCRIPT, PYTHON, JAVA, C++, C#, CONTAINER TOOLS, and DATA SCIENCE. The main content area features a heading "Visual Studio Code documentation" and a sub-heading "Get familiar with Visual Studio Code and learn how to code faster with AI." Below this, there are two main sections: "Getting started" and "Code with rich features". The "Getting started" section contains three cards: "Download Visual Studio Code" (with a wrench icon), "Getting started" (with a rocket icon), and "Code faster with AI" (with a GitHub Copilot icon). The "Code with rich features" section contains three cards: "Code in any language" (with a code icon), "Version control" (with a git icon), and "Debugging" (with a bug icon).

Visual Studio Code Docs Updates Blog API Extensions MCP FAQ Dev Days

Search Docs

Visual Studio Code documentation

Get familiar with Visual Studio Code and learn how to code faster with AI.

Getting started

- Download Visual Studio Code**
Download VS Code for Windows, macOS, or Linux.
- Getting started**
Discover the key features of VS Code with the step-by-step tutorial.
- Code faster with AI**
Get started with GitHub Copilot, your AI coding assistant.

Code with rich features

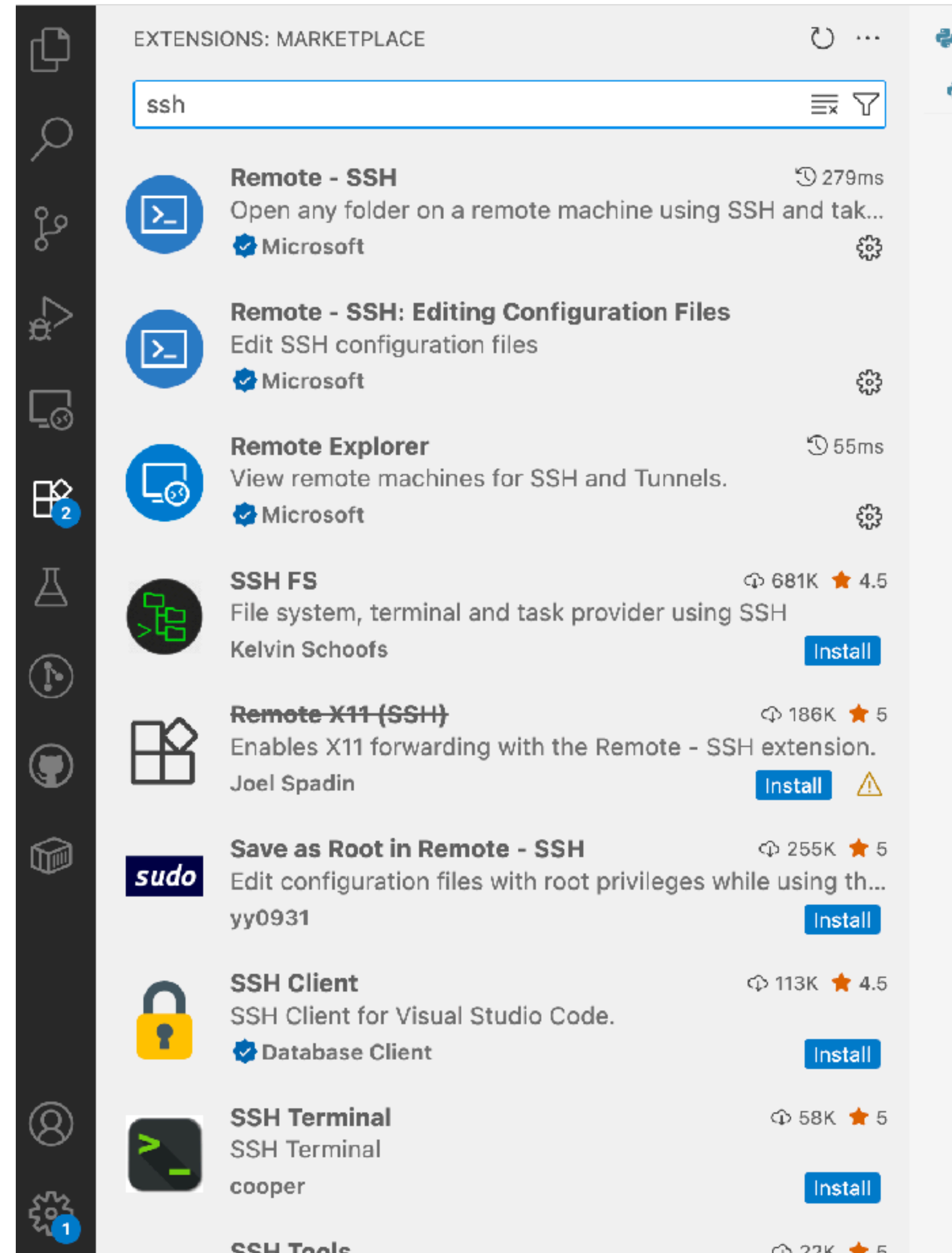
- Code in any language**
Write code in your favorite programming language.
- Version control**
Built-in support for git and many other source control providers.
- Debugging**
Debug your code without leaving your editor.

Setting up VSCode

Installing the ssh extension

Go to the left tab -> Extensions

Search for the Remote-SSH and Remote Explorer and install them



Setting up VSCode

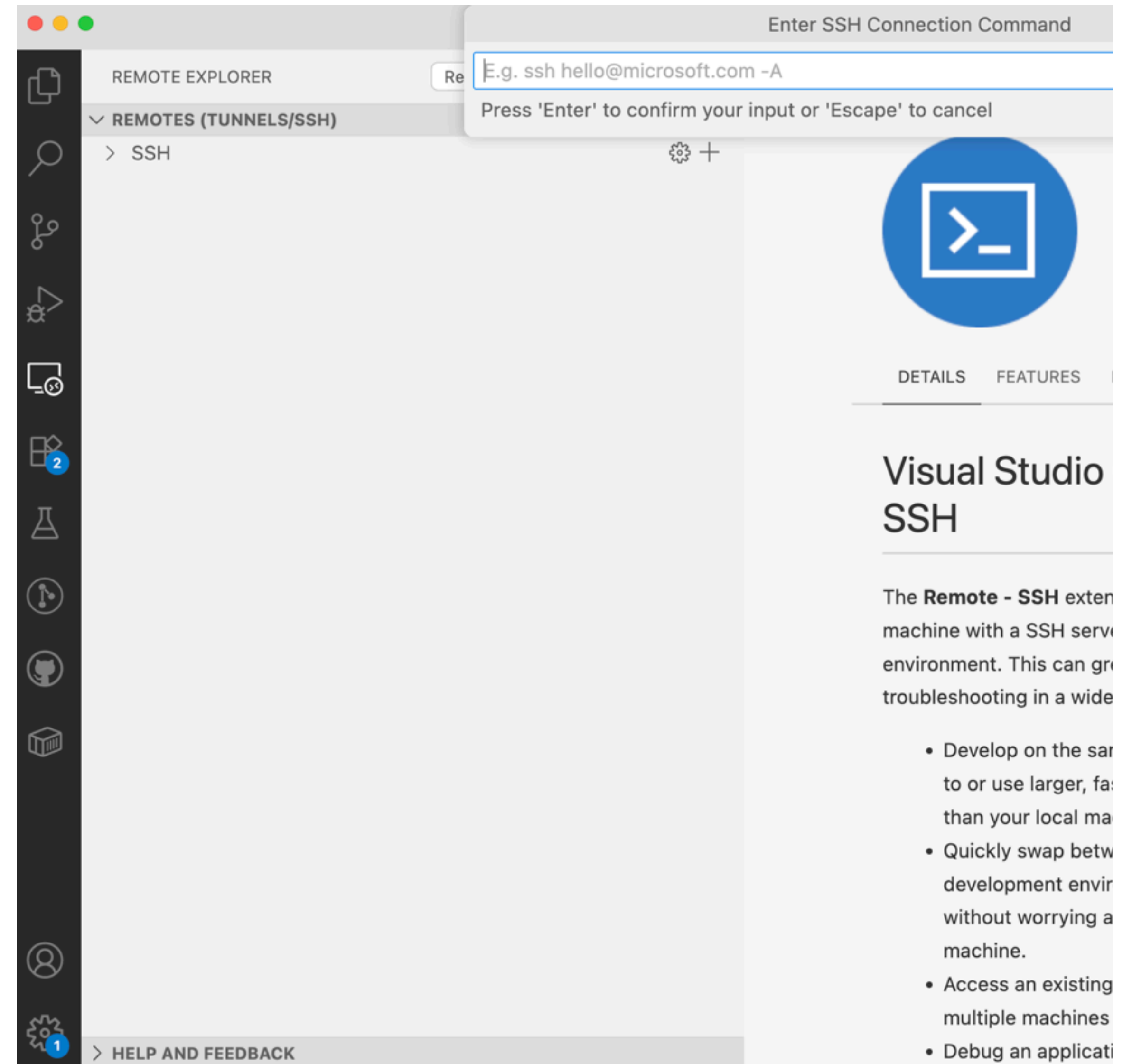
Setting up an ssh connection

Go to the Remote Explorer tab in the left tab (computer icon)

Click the + sign in the SSH dropdown menu

Write ssh “your remote machine” to add a new host

Given that you already shared passwords, it shouldn't ask for a password again



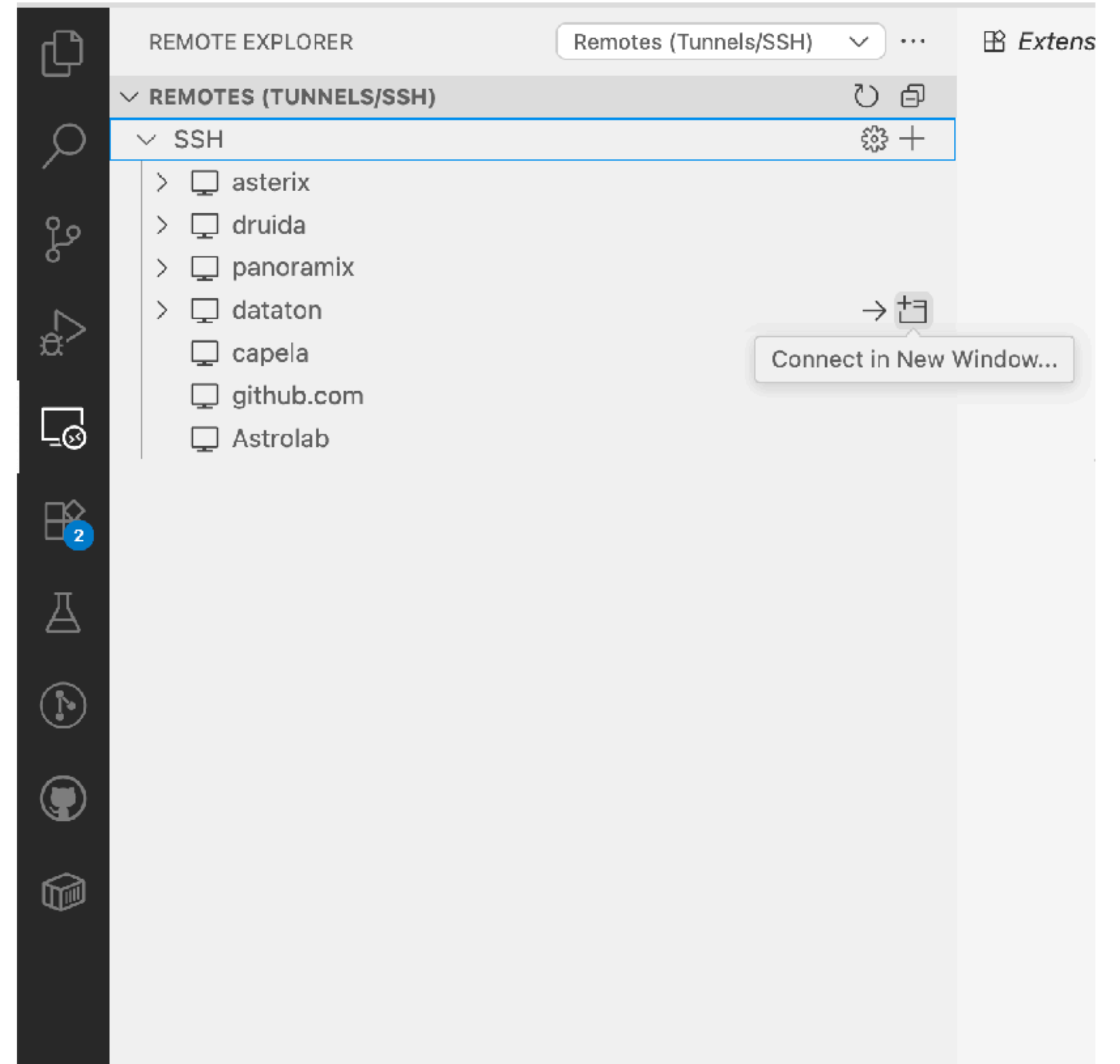
Setting up VSCode

First connection

Click myserver → Connect to Host in Current Window

VS Code auto-installs server bits under `~/.vscode-server/`

When prompted: accept host key (one time)



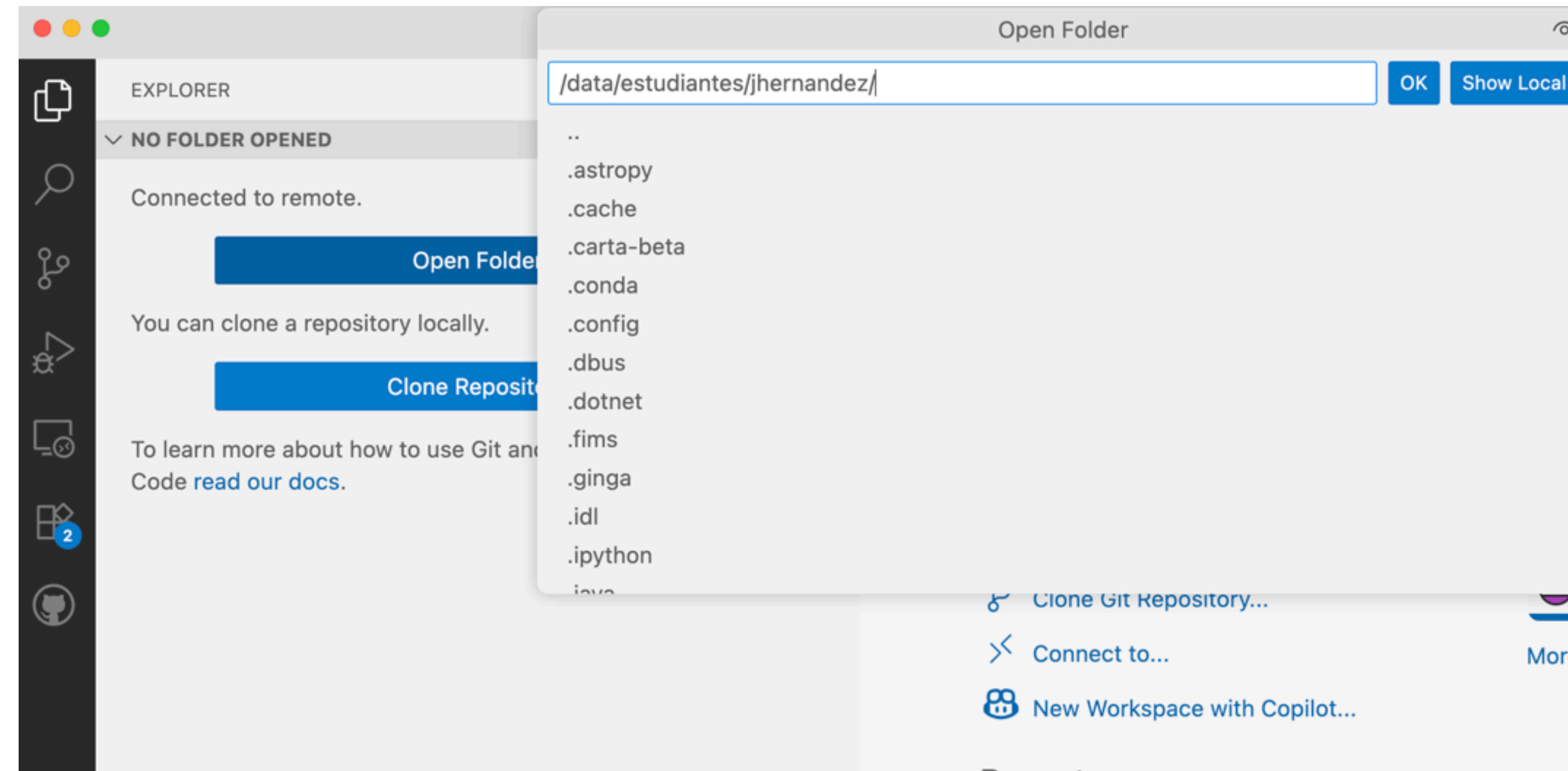
Setting up VSCode

Open Folder & Trust

File → Open Folder... (remote path, e.g. /home/username)

Click Trust for that workspace

You now have: remote Explorer, Terminal, Git, Python envs



SDSSJ2222+2745 [SSH: panoramix]

EXPLORER

- SDSSJ2222+2745 [SSH: PANORAMIX]
 - MUSE
 - white.fits
 - Notebooks
 - __pycache__
 - ARCTOMOGRAPHY_EWs
 - data
 - delensing
 - EW_plots
 - galfit
 - KCWI_spectral_resolution
 - plots
 - SDSSJ2222_RGB_HST_contours.pdf
 - SDSSJ2222_RGB_HST_contours.png
 - QSO_SPECTRA
 - VoigFit
 - voronoi_bin
 - align_data_wcs.ipynb
 - align_data_wcs.py
 - arc_spectrum.fits
 - check_wave_alignement.ipynb
 - cutout_cubes_for_delensing.ipynb
 - extract_spectra.ipynb
 - fit_mgii.ipynb
 - ifuanal.py
 - ImagingPlots.ipynb
 - line_fitter.py
 - SDSSJ2222+2745.code-workspace
 - spatial_maps.ipynb
 - subtract_star.ipynb
 - voronoi_binning_for_Lya.ipynb
 - Photometry
 - SExtractor
- OUTLINE
- TIMELINE

ImagingPlots.ipynb

Notebooks > ImagingPlots.ipynb > M Photometry > empty cell

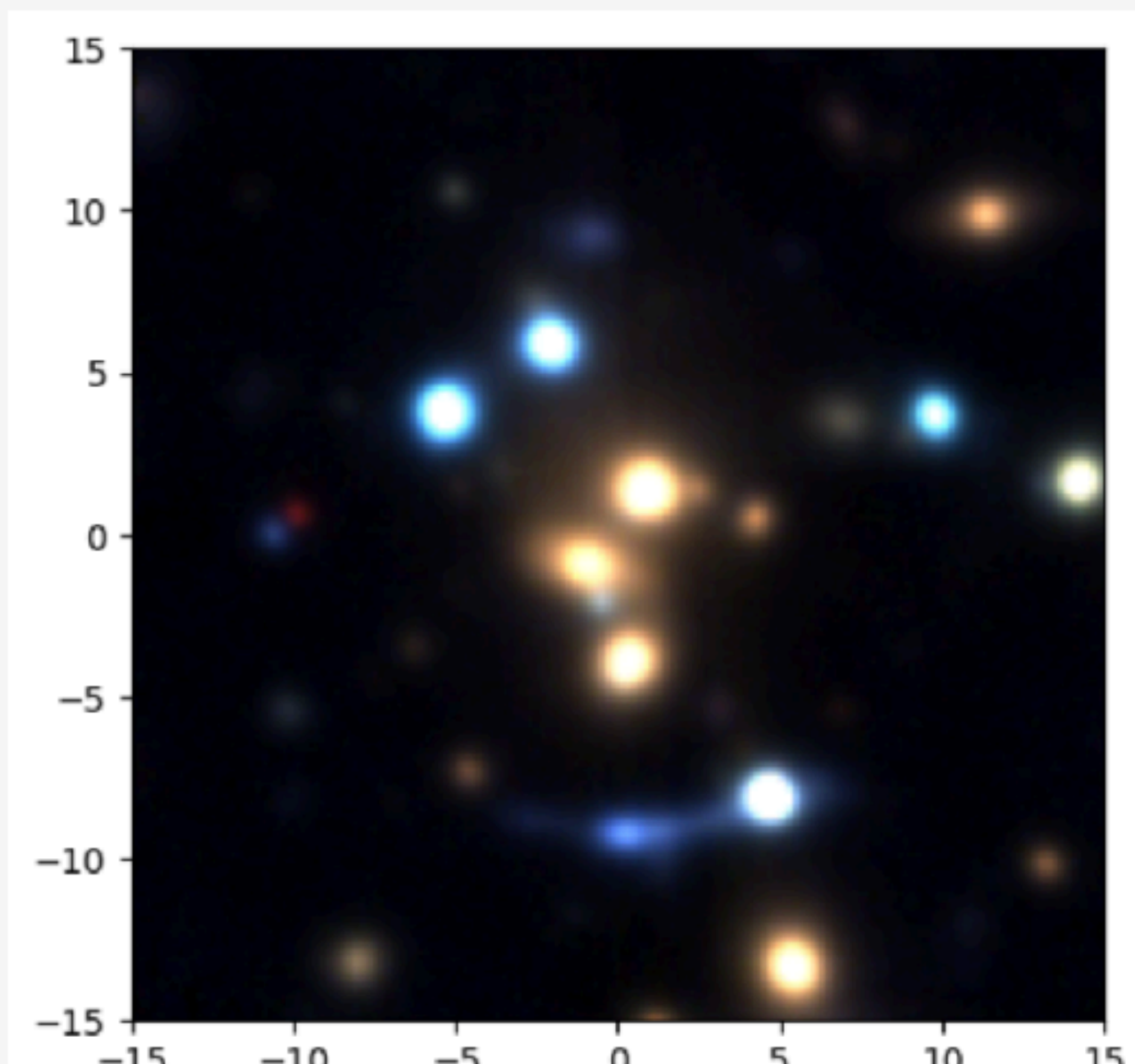
Generate + Code + Markdown | Run All Restart Clear All Outputs | Jupyter Variables Outline ... stenv (Python 3.9.16)

```
12 rgb_image_muse = rgb_image
13 fig, ax = plt.subplots(figsize=(5, 5))
14 ax.imshow(rgb_image_muse, origin='lower',
15           extent=[-r.shape[1]*0.2/2, r.shape[1]*0.2/2,
16                 -r.shape[0]*0.2/2, r.shape[0]*0.2/2])
17 ax.set_xlim([-width_cutout_arcsec/2, width_cutout_arcsec/2])
18 ax.set_ylim([-width_cutout_arcsec/2, width_cutout_arcsec/2])
```

[35] Python

... Clipping input data to the valid range for imshow with RGB data ([0..1] for floats

... (-15.0, 15.0)



PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS JUPYTER

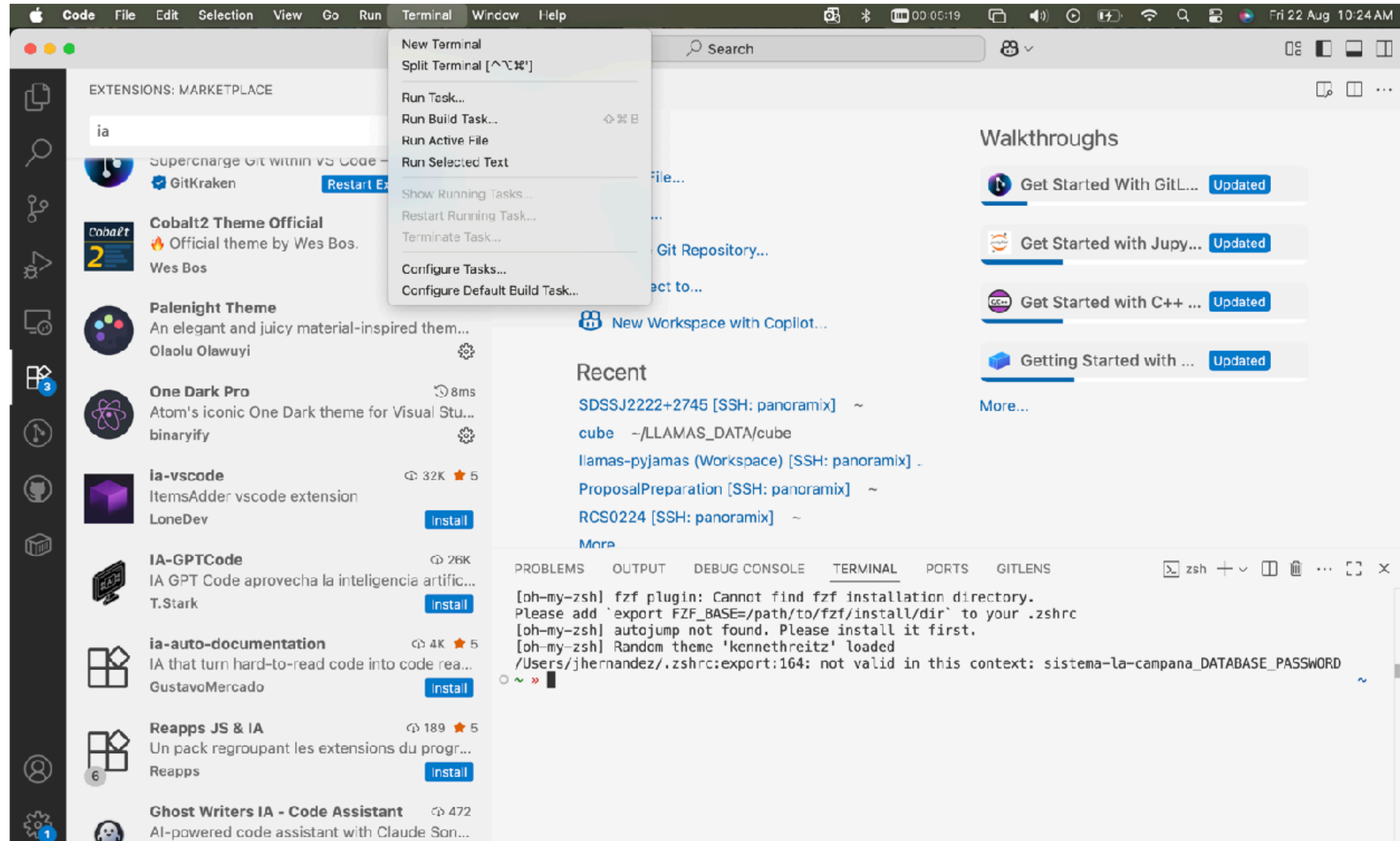
JUPYTER: JUPYTER VARIABLES

Name	Type
	\$

Hide Panel (⌘J)

Setting up VSCode

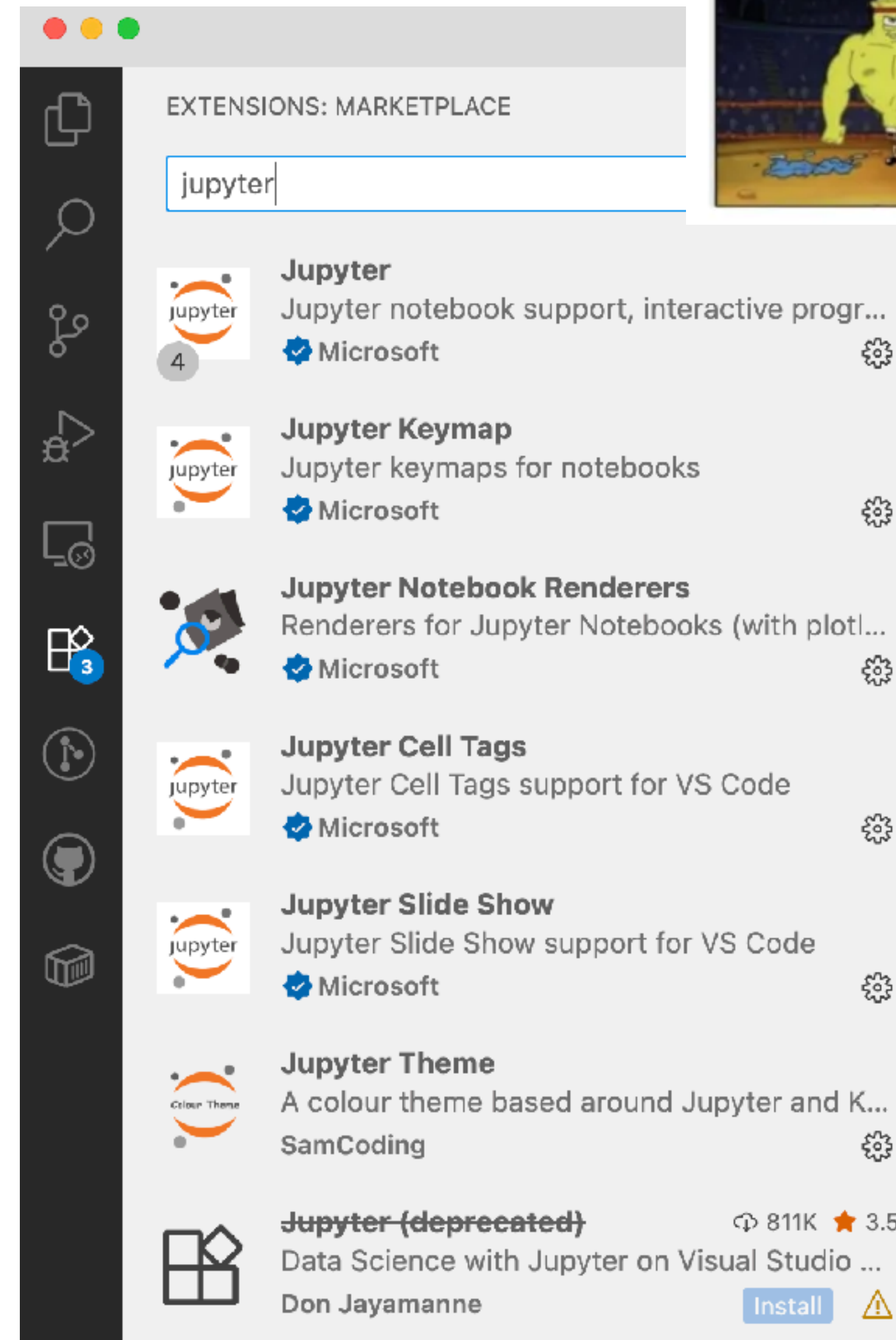
Opening a terminal



Setting up VSCode Extensions

VSCode has a market for many useful things:

- Jupyter notebooks
- Python tools
- Visualizing pdfs, csv's, and other files
- Nice color themes
- IA autocompleting tools
- And much more



Plain VSCode 

VSCode with extensions

