Installation Instructions

Visual Studio Code

Visual Studio Code (VS Code) is a popular, free & open source Integrated Development Environment (IDE). It's used by 74% of Stack Overflow users

In this class, you will use it to write, edit, debug, and deploy your Python scripts

RStudio is another example of an IDE -> you may have used it to write in R

These are some features that make VS Code great!

- Git integration for version control (more about this soon!)
- Integrating debugging
- Tons of extensions, e.g., to write in different programming languages, connect to remote servers, and integrate GitHub Copilot (more about this soon!)

VS Code Install Step 1 (Windows)

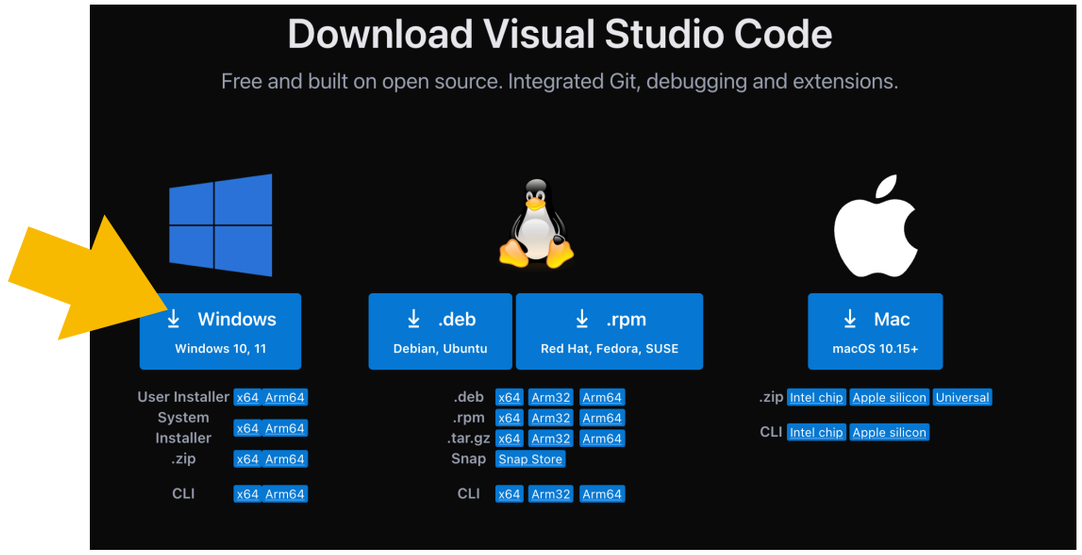
Visual Studio Code

Systems requirements: Windows 10/11 with 64-bit processor

- If you don't know these details about your computer, here's a helpful video: https://www.youtube.com/watch?v=VPhNDZ1OldQ

Go to download page: https://code.visualstudio.com/Download

If you meet the systems requirements, click on the big Windows button



What if you have an older OS or processor? Here's a link that walks you through how to find a compatible archived VS Code version for your machine: https://www.youtube.com/watch?v=tPl8tL3PtcU. Note, that if you have a 64 bit processor but an older version of Windows, you could consider updating Windows instead.

VS Code Install Step 1 (Mac)

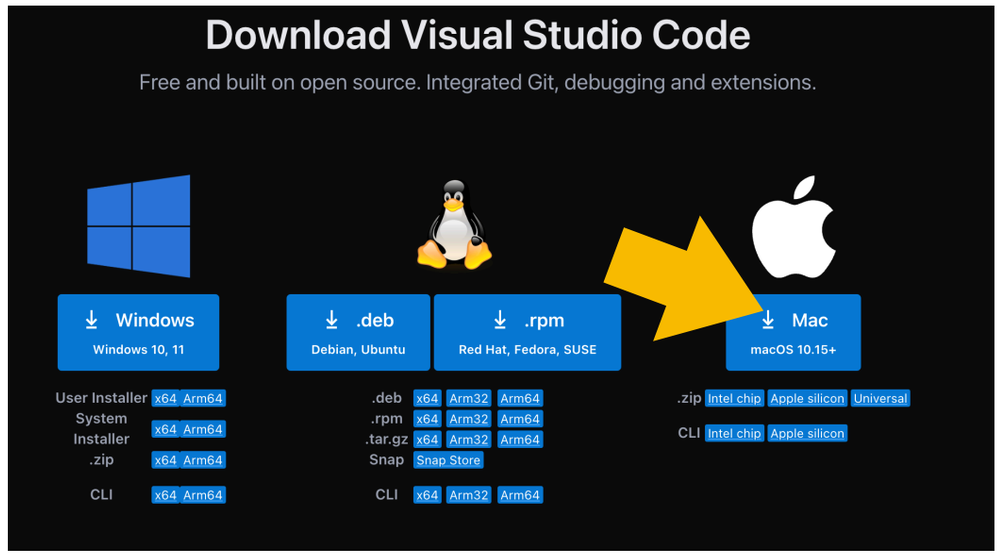
Visual Studio Code

Systems requirements: macOS 10 or greater

- If you don't know how to check your OS version, here's a helpful video:https://www.youtube.com/watch?v=r6tGMY96Orc

Go to download page: https://code.visualstudio.com/Download

If you meet the systems requirements, click on the big Mac button



What if you have an older OS? Here's a link that walks you through how to find a compatible archived VS Code version for your machine: https://www.youtube.com/watch?v=tPl8tL3PtcU. Note, current VS Code is compatible with pretty old versions of Mac OS, so a better option could be updating your computer

VS Code Install Step 2 (everyone)

Double click on the downloaded file (.exe or .zip)

- Windows: This will open an installer. Follow the steps in this video: https://www.youtube.com/watch?v=cu_ykIfBprI&t=305s
- Mac: This will unzip the app in your downloads. I recommend moving the app to your applications folder (and adding it to your doc)

Import a Profile (combination of extensions and settings):

- Open VS Code
- Download profile file from Quercus
- Click on the gear icon on bottom right; select Profile -> import profile
- Click "Select File" from top menu; select the downloaded template
- Make sure all setting and extensions have check marks beside them, then click "Create Profile"
- You can keep the default name "GradProg2024" or type in your own; click create

*** you may need to click on the extensions icon  on the left menu press update/restart buttons for newly installed extensions before you can use them.

GitHub Copilot

git is a popular free & open source distributed version control system

is small & fast & has a flexible branching model for development — lets you try out an ideas but toss them if they don't pan out

github is a web-based hosting service for git

has lots of tools and graphical interfaces to help you manage git repositories (web interface and desktop app)

be sure to sign up for the free student developer pack (https://education.github.com/discount_requests/application?type=student) to get extra storage and free access to github copilot

***all assignments will be distributed through github classroom and submitted through github**

GitHub & Git installation

(1) if you don't already have one, sign up for a github account at https://github.com/join?

(2) download github desktop at https://desktop.github.com/. *be sure to sign in with you account

(3) Sign up for the student developer pack. It can take up to a week to be approved so it's important to do this right away! Once you're approved you can add github copilot to VS code for free.

(4) advanced option install git command line tools from git-scm.com/downloads: click on your OS and follow instructions

- mac users: use through your terminal application
- windows users: use through command prompt (11,10,8) or powershell; alternatively you could download gitforwindows.org
- type: `git --version` in your command line to make sure installation worked

** note that you don't need to use command line tools for the course, but they are handy

GitHub two factor authentication note

you may want to set up 2 factor authentication on your GitHub account

this is straightforward for graphical interfaces

it's trickier for command line tools (optional for course):

- instead of entering your password after a push/pull, you need to enter a personal access token the first time you use the command

- see https://medium.com/@ginnyfahs/github-error-authentication-failed-from-command-line-3a545bfd0ca8 for more details

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has lots of tools and graphical interfaces to help you manage git repositories (web interface and desktop app)

students get free accounts and (sort of) unlimited storage

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mini conda & python

conda is an open source package & environment manager that really simplifies installing python packages and dependencies

it lets you create multiple independent environments — e.g., a python 2.5 environment for and older project and a python 3.11 environment for your new experiment

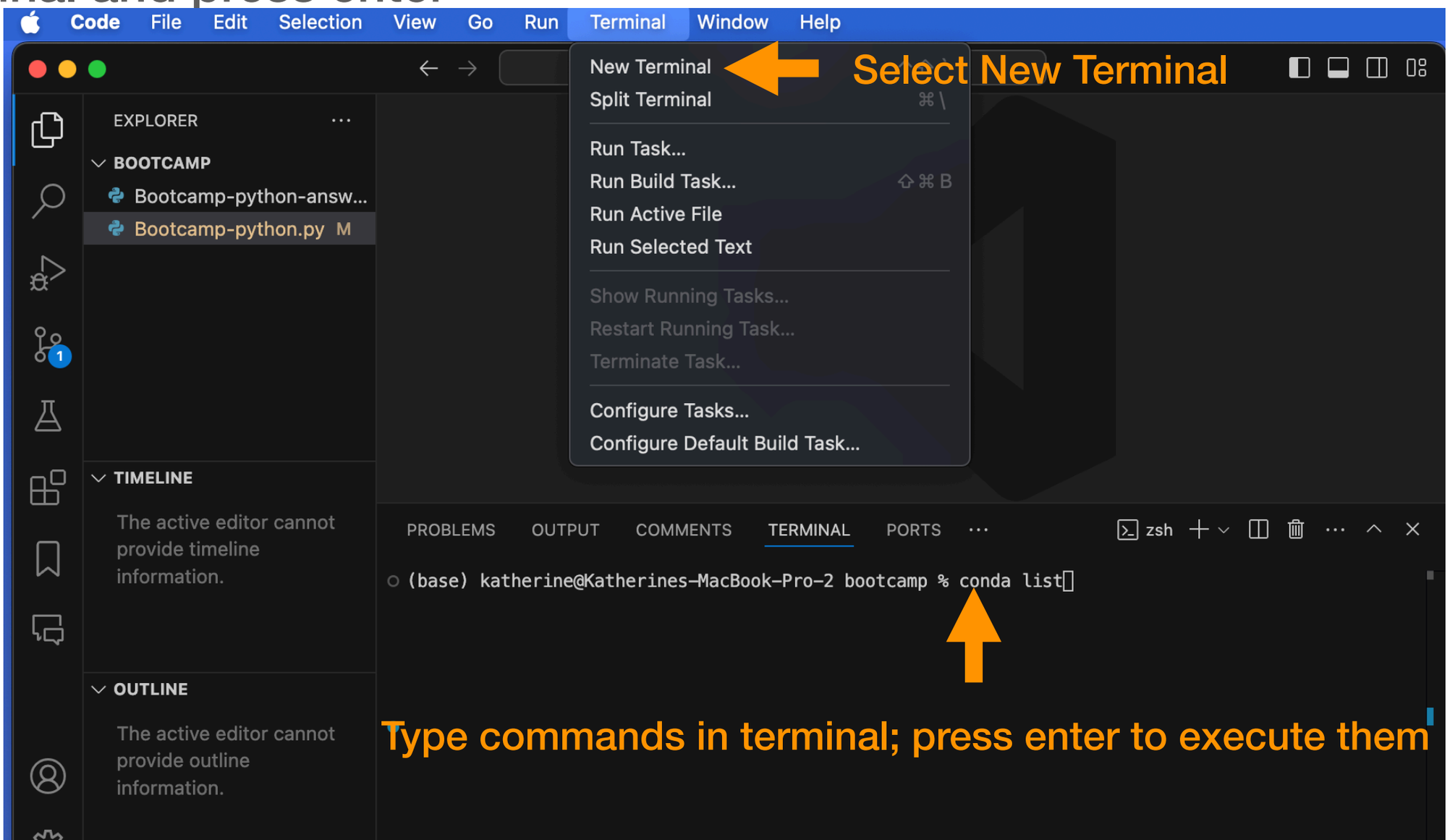
it makes it really easy to install packages that you want to use in particular environments

you can use conda through anaconda or miniconda — we recommend and will use minconda because it's smaller and has everything we need

mini conda & python installation

install miniconda (https://docs.anaconda.com/miniconda/) using the regular installation instructions for your OS

- agree to appending path
- test installation by opening VS code typing `conda list` this in the terminal and press enter



mini conda & python installation

Now, you can make your first conda environment by typing the following in your VS code terminal

1) **create an environment for the class (you don't have to call it gradprog if you're creative)**

```
$  conda create --name gradprog python=3.11
```

** type "y" and press enter when prompted to accept

(2) **activate the environment**

mac/linux

```
$  conda activate gradprog
```

windows

```
$  activate gradprog
```

(3) **install handy python packages**

```
$  conda install pandas scipy numpy
```

** You can find additional documentation here: https://docs.conda.io/projects/conda/en/latest/user-guide/getting-started.html