

Install
Software

Anaconda
VSCode

Write Code in
VSCode

Create Workspace
Create File
Write Python Code

Run Code in
VSCode

Install Extensions
Choose Interpreter
Run Python Code

Dis 1: Install Software and Run Code

SI 201: Data-Oriented Programming

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School of Information

University of Michigan

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Download Anaconda Distribution

- ① Open in browser: <https://www.anaconda.com/download/success>
- ② Scroll down and choose your OS: Windows, Mac or Linux

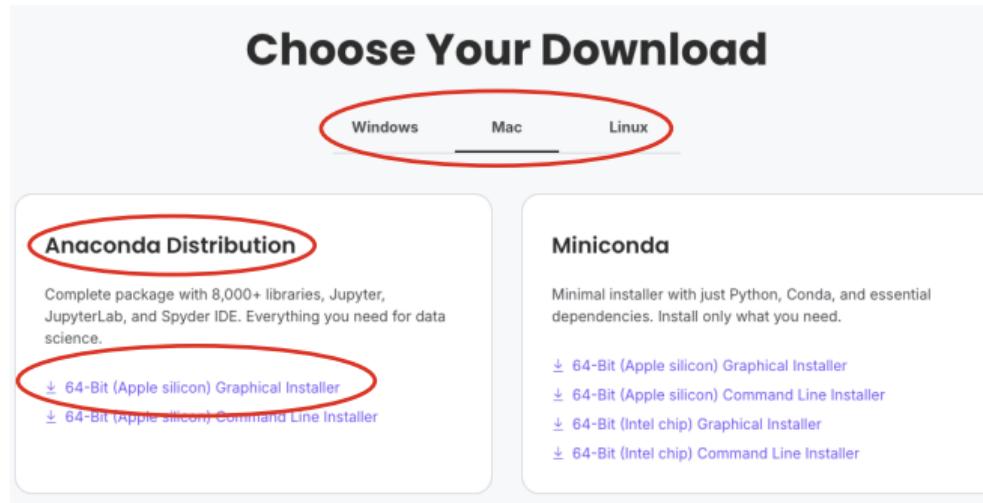


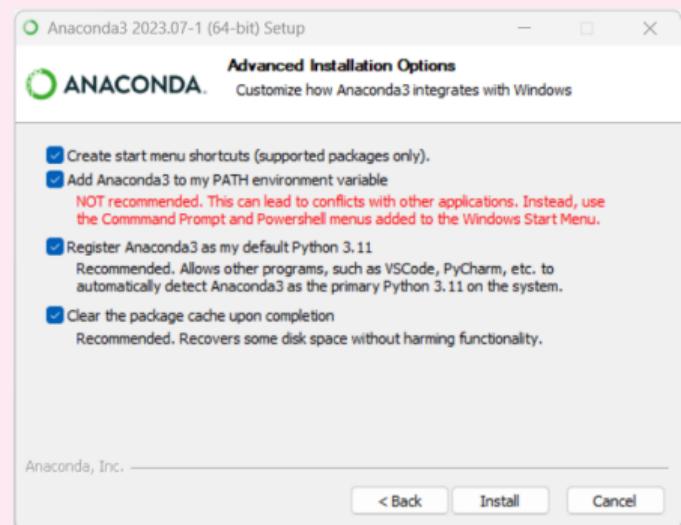
Figure 1: Anaconda installers for different OS

Install Anaconda

- Run the installation package and follow the instructions

If you are using Windows

- Check the box with option:
Add Anaconda3 to my PATH environment variable
- This make sure VSCode knows where to find Anaconda



Open Anaconda

- Once Anaconda is installed, open **Anaconda Navigator** in App launcher
- If you see the following window, it's installed successfully

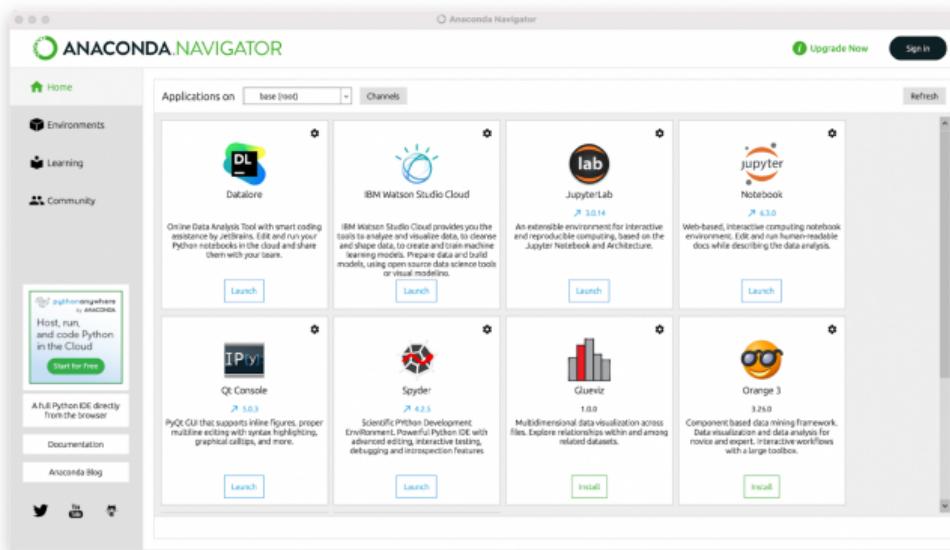


Figure 2: Anaconda navigator window

Download VSCode

- ① Open in browser: <https://code.visualstudio.com/Download>
- ② Choose your OS: Windows, Mac or Linux

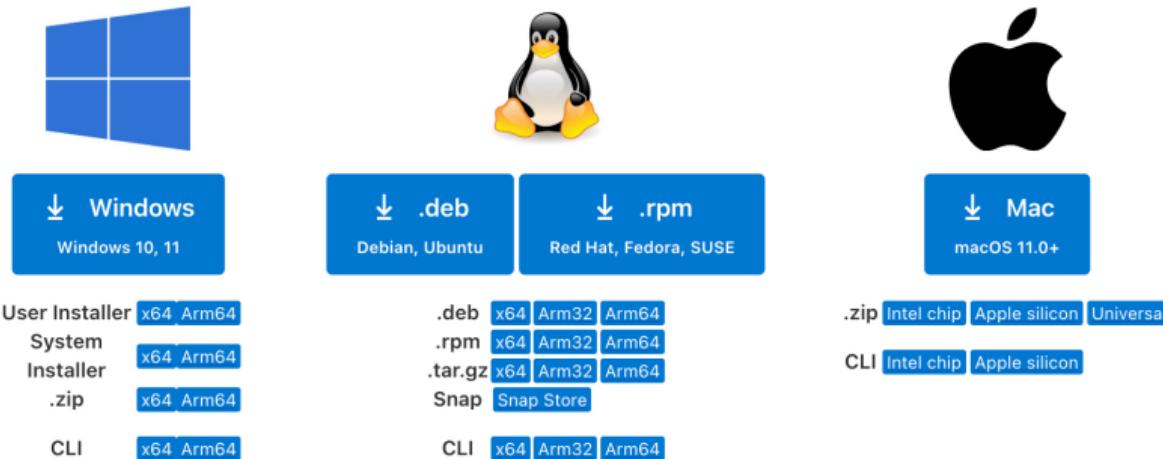
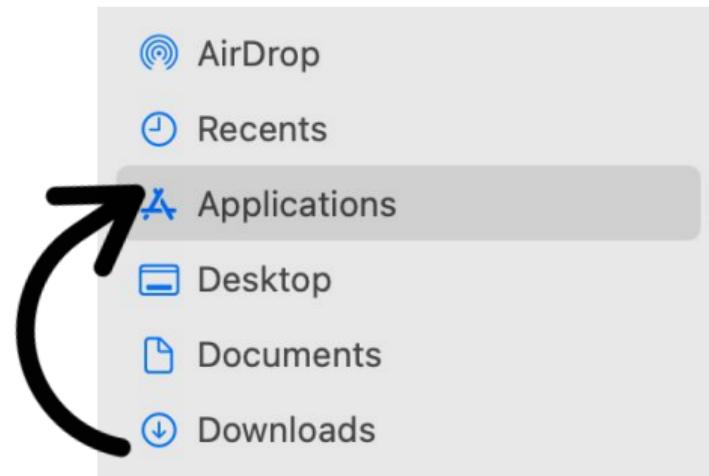


Figure 3: VSCode installers for different OS

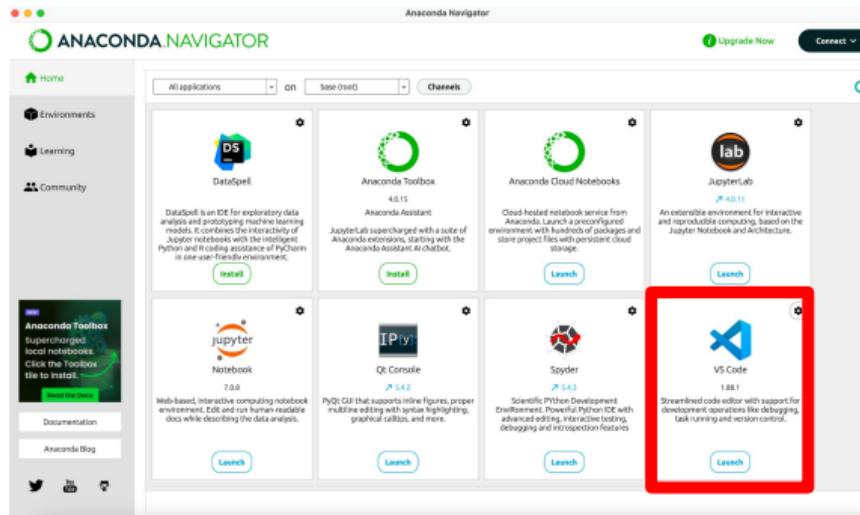
Install VSCode on Mac

- macOS sometimes saves VSCode to the Downloads folder by default
- Open Finder, drag the VSCode application in the Downloads folder to the Applications folder



Open VSCode

- Open Anaconda
- Go to the applications directory and launch VSCode from there
- If you can't find VSCode, restart Anaconda



Open VSCode

- You should see this window if VSCode is installed successfully
- If you don't see it, ask your GSI or IA for assistance

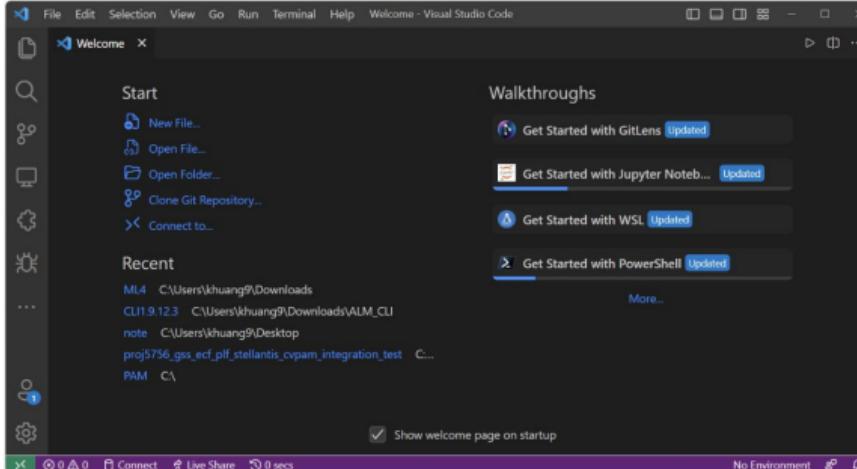


Figure 4: VSCode window

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Create a New Folder and Open in VSCode

- ① Create a new folder named **SI206**, put it anywhere you like (e.g. Desktop)
- ② Click **Open Folder** in VSCode (see figure below)
- ③ A new window will pop up, this is your workspace

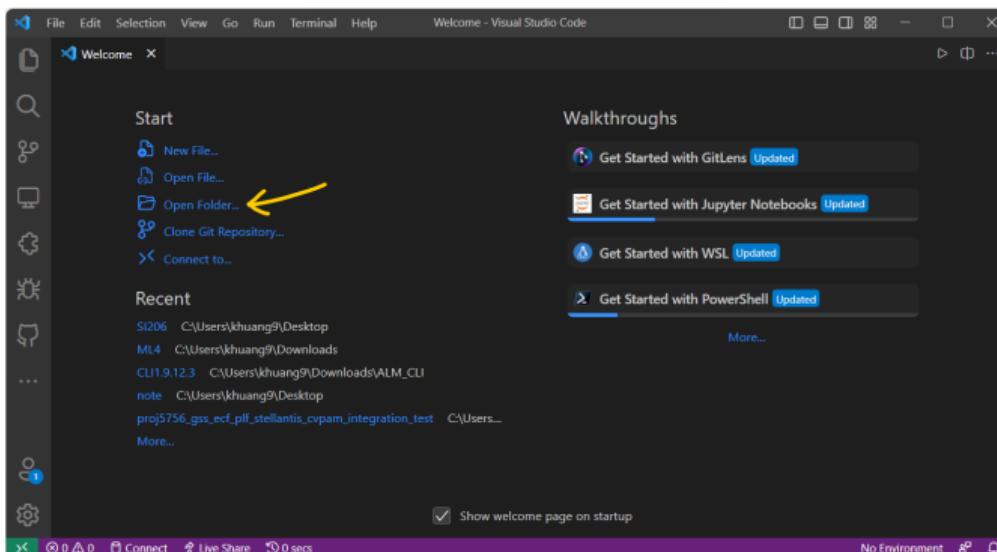


Figure 5: Open folder as workspace in VSCode

Create a New File in Workspace

- ① Click on the **Add File** icon, input `hello_world.py`, press Enter
- ② Now a new Python file is created in your workspace

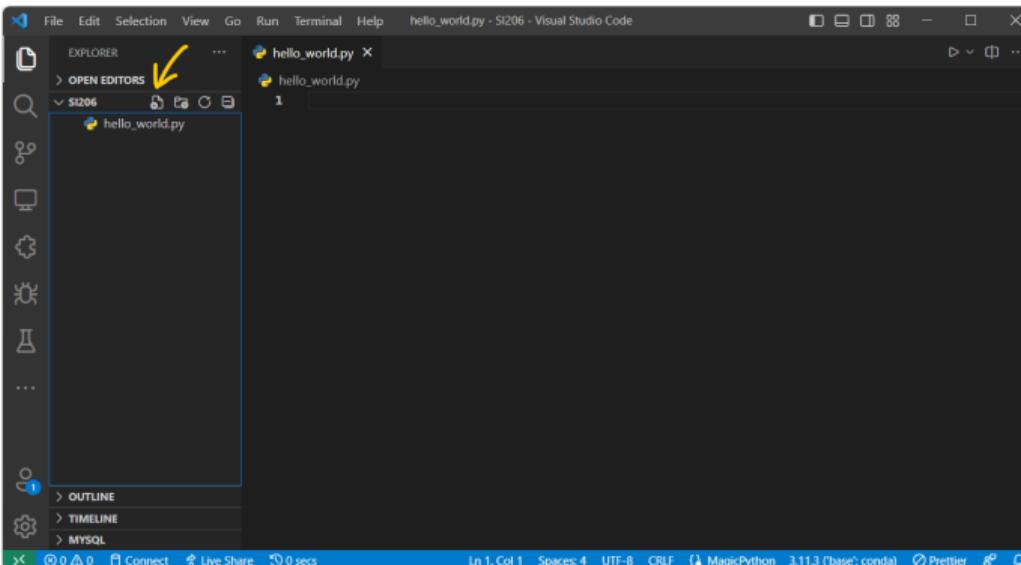


Figure 6: Create file in VSCode



Write a Simple Python Program

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Type in the Python code below, which prints out 'Hello, world!':

```
1 # Author: [your_name]  
2 # Date: [date]  
3 # Class: SI206 Discussion 1  
4 # Usage: print hello world  
5  
6 print('Hello, world!')
```

Coding Tips

A good **file header comment** enables other people to easily understand the general purpose of this file, helping save time reading code in future.

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Why install extensions in VSCode?

- VSCode is only a **text editor**, but not an IDE (Integrated Development Environment), so it doesn't come with **Python interpreter**
- We have installed Anaconda, which comes with Python interpreter and a collection of useful development **packages**
- Extensions can help you do all tedious jobs (e.g. auto completion, format code, find Python interpreter path, generate command to run code)

Install Code Runner (VSCode Extension)

- Go to **Extensions** on the left sidebar, search for **Code Runner**, click **Install**

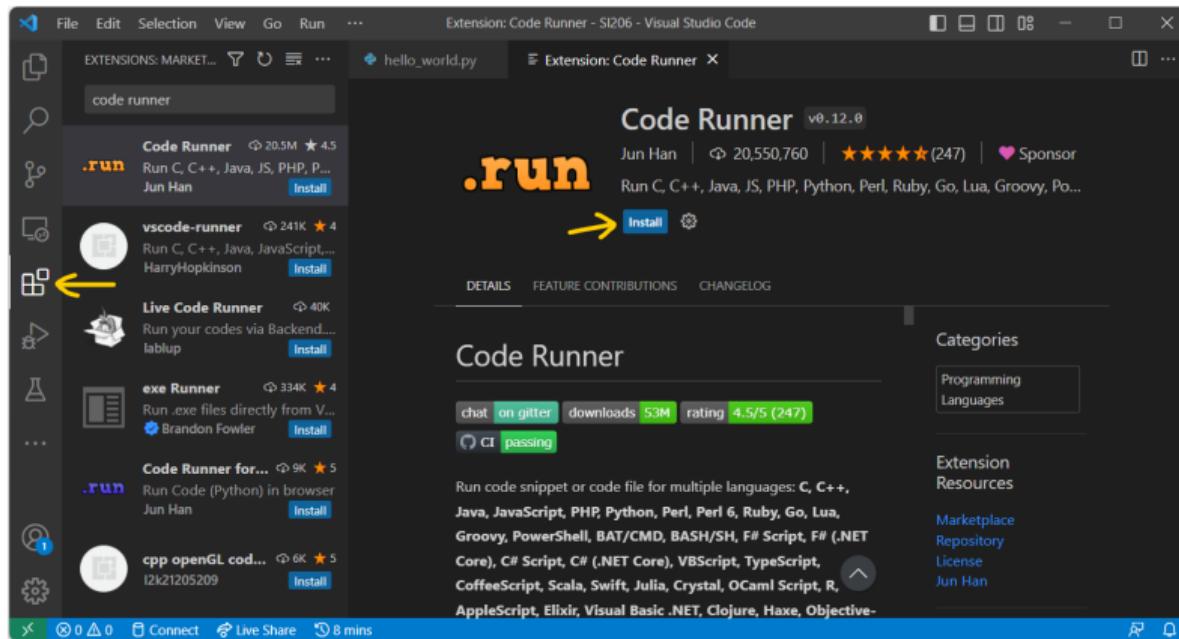


Figure 7: Install Code Runner VSCode extension

Install Python (VSCode Extension)

- Similarly, search for **Python**, click **Install**



Figure 8: Install Python VSCode extension

Choose Anaconda Python Interpreter

- ① When `.py` file is open, click on bottom right to select Python interpreter
- ② Choose the option with '`base`' in the drop down menu
- ③ You could see something like `3.11.3 ('base':conda)`

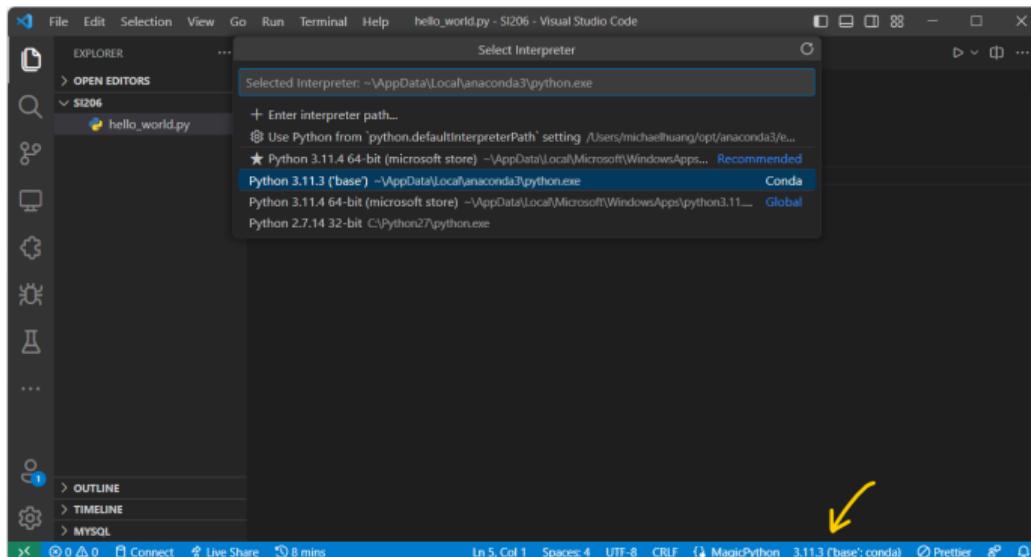
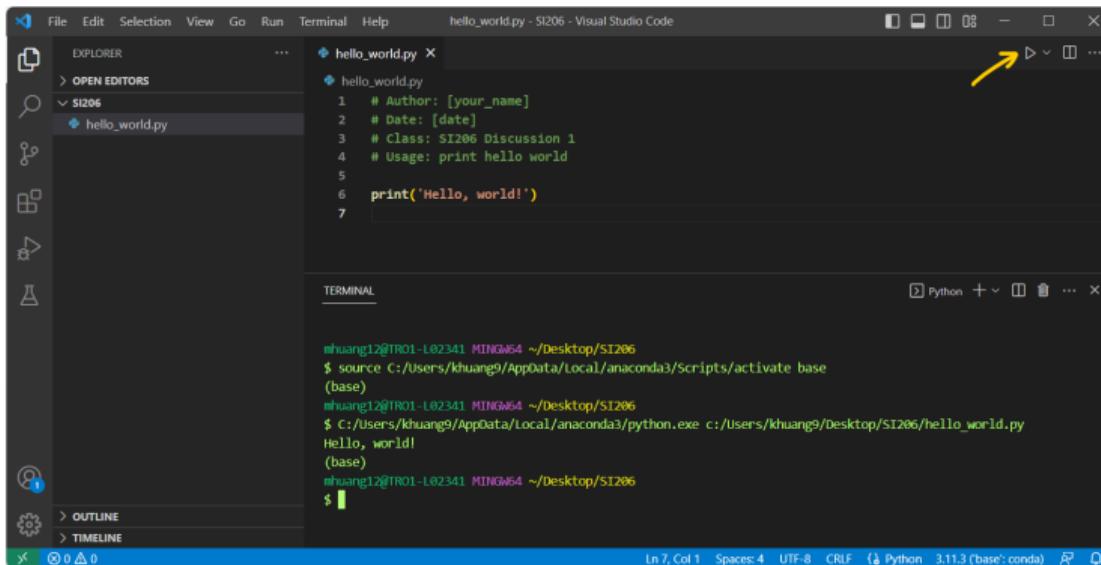


Figure 9: Choose Anaconda Python interpreter

Run Code with Code Runner

- ① Click the triangle run button ► at the upper right corner
- ② The code would run and output in the VSCode integrated terminal



The screenshot shows the Visual Studio Code interface. In the Explorer sidebar, there is a file named "hello_world.py" under the "SI206" folder. The code content is:

```
1 # Author: [your_name]
2 # Date: [date]
3 # Class: SI206 Discussion 1
4 # Usage: print hello world
5
6 print('Hello, world!')
```

A yellow arrow points to the "Run" button (a triangle icon) in the top right corner of the editor area. Below the editor is the "TERMINAL" tab, which displays the command-line session:

```
nhuang12@TR01-L02341 MINGW64 ~/Desktop/SI206
$ source c:/users/khuang9/appdata/local/anaconda3/scripts/activate base
(base)
nhuang12@TR01-L02341 MINGW64 ~/Desktop/SI206
$ c:/users/khuang9/appdata/local/anaconda3/python.exe c:/users/khuang9/Desktop/SI206/hello_world.py
Hello, world!
(base)
nhuang12@TR01-L02341 MINGW64 ~/Desktop/SI206
$
```

The status bar at the bottom shows "Ln 7, Col 1" and "Python 3.11.3 (base: conda)".

Figure 10: Run Python code

Troubleshooting Code Runner

If "python: command not found", click downward arrow to the right of the play button and click "Run Python file" each time you run your code

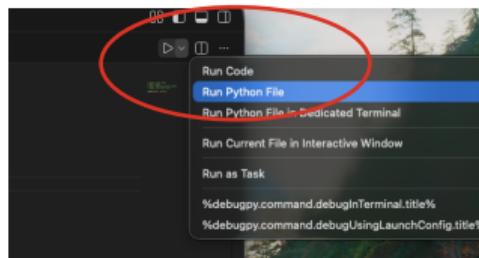


Figure 11: Run code using "Run Python File"

[Optional] As an alternative, add Code Runner's python path in .vscode/settings.json to let Code Runner's play button work as expected:

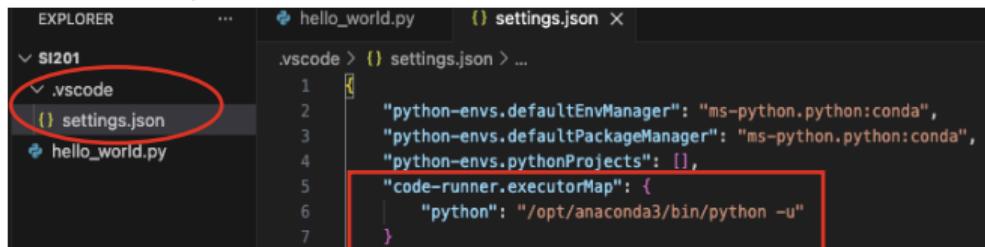


Figure 12: Update Code Runner Python path

Expectations for Using Generative AI

While we do not prohibit the use of generative AI, you are responsible for the correctness of the submitted code. Please be aware that overuse of these tools may impair code quality and cause many issues:

- Introducing unnecessary complexity to the code, making it harder to understand, maintain and debug
- Disrupting overall problem understanding with frequent interruptions to the thought process and inconsistent code suggestions
- Generating context-inappropriate code due to AI's lack of holistic problem understanding
- Lacking validity, such as overlooking edge cases

Requirements for Using Generative AI

- You can use generative AI in homework assignment, like ChatGPT, but must list that as a thing you worked with and describe what it helped you with at the top of your code.

```
# Your name:  
# Your student id:  
# Your email:  
# Who or what you worked with on this homework (including generative AI like ChatGPT):  
# If you worked with generative AI also add a statement for how you used it.  
# e.g.:  
# Asked Chatgpt hints for debugging and suggesting the general structure of the code
```

Requirements for Using Generative AI

- You must understand the code that you submit. You will not get credit for code that includes things we have not covered in the course when you use generative AI.
- If you do not say that you worked with generative AI, but the code appears to be from generative AI, you will be asked to explain your code. If you can not explain it, you will get a 0 on it.



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Question Time!