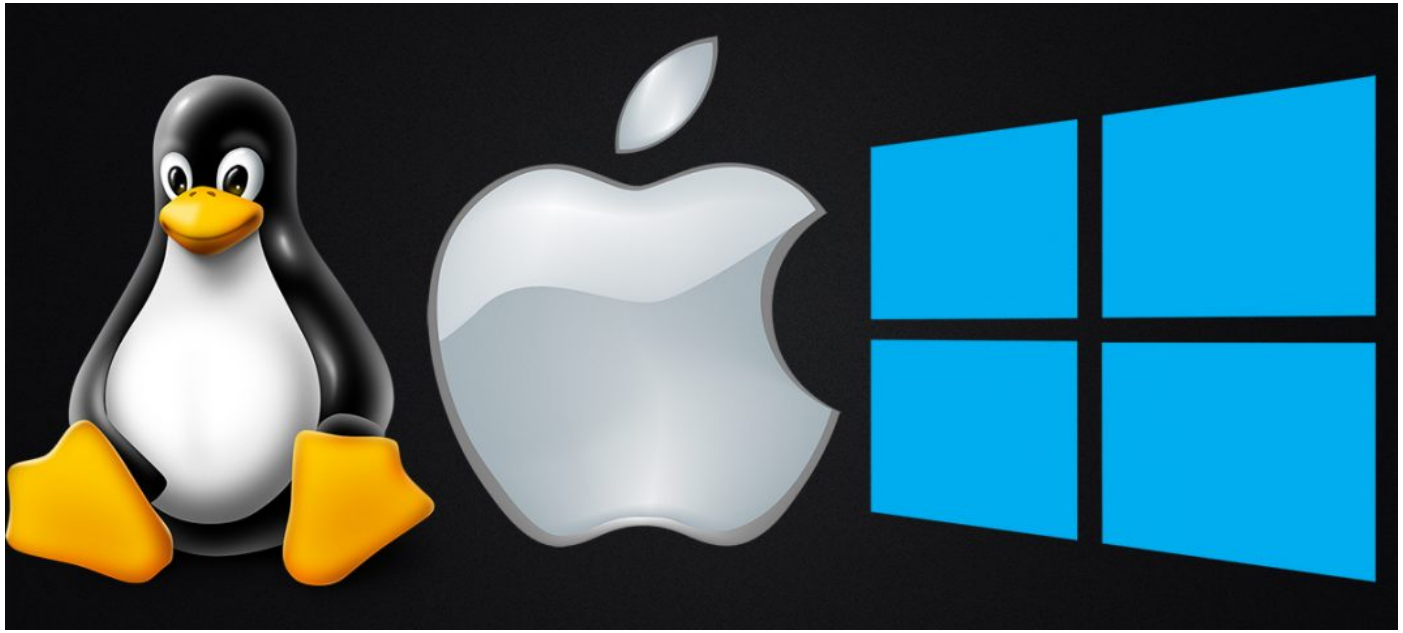
Installing Python + Visual Studio Code

CSE101: COMPUTER SCIENCE PRINCIPLES

What is an Operating System?

Operating System is a program that manages computer hardware and software resources, and provide common services for computer applications.

- For example: Windows, Mac, Linux



What is Python?

Python is a computer programming language

Python can be used to write many types of programs

- Programs to do basic calculations
- Games
- Popular with scientists because they can do complex data analysis by writing short programs

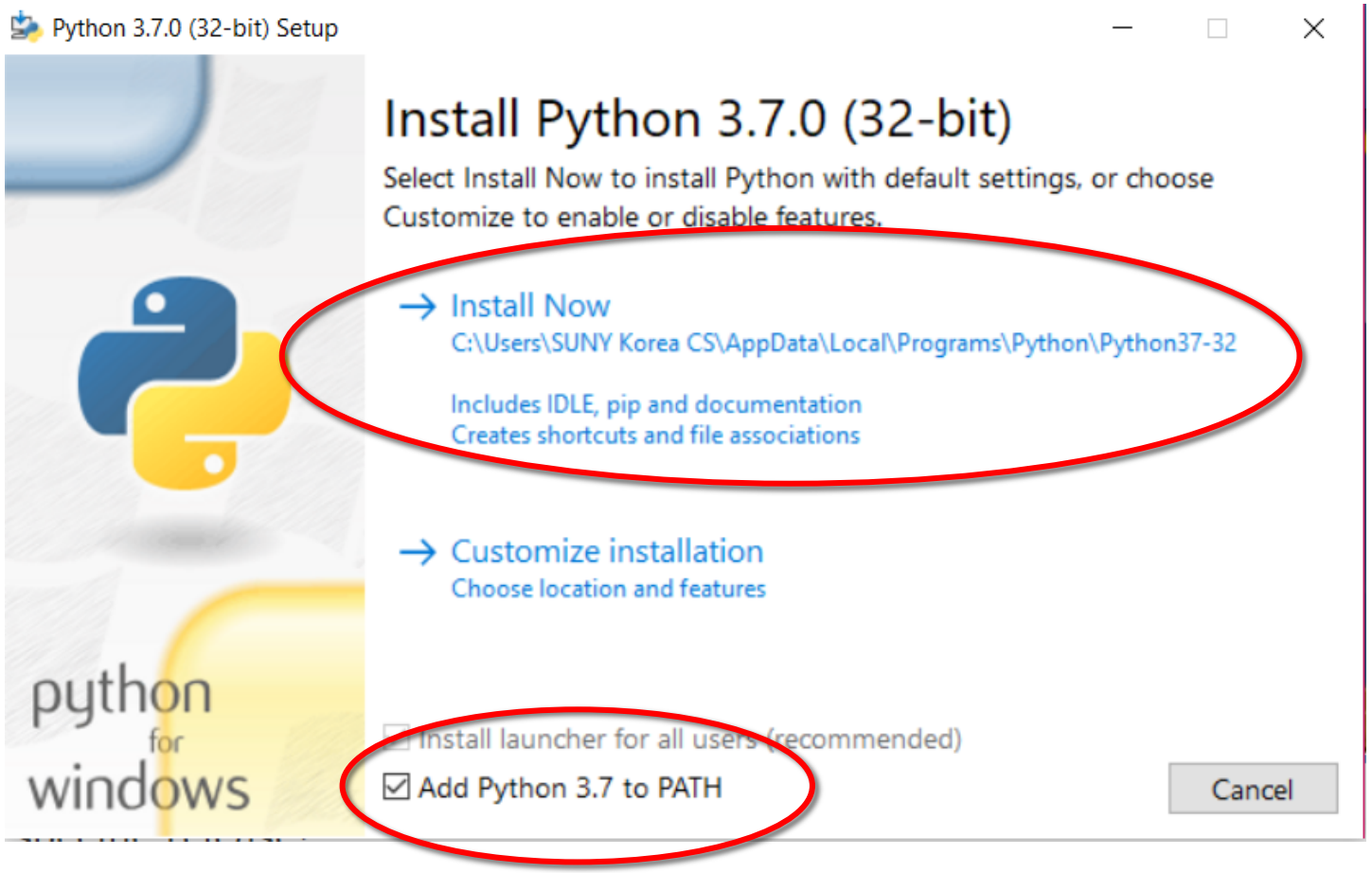
Python can be installed on computers with different operating systems

Installing Python

Python Installation on Windows

https://www.python.org/downloads/ – Note Python version is now 3.9.1

Python Installation on Windows



Python Installation on Mac

1. Go to https://www.python.org/downloads/
2. Download Python 3.9.1. It should save a file named "python-3.9.1-macosx10.9.pkg" to your computer.
3. Double click on the file and run the install with default options and agree with the license. You'll need to type in your password to install it.

Video tutorial at: https://www.youtube.com/watch?v=8BiYGIDCvvA

Trying Out Python

What is a computer program?

A computer program is a sequence of instructions the computer executes to solve a well-defined problem

The instructions or steps the programmer writes constitute the source code of the program

In Python, many of these instructions look like regular, everyday English with some extra punctuation thrown in

There are two basic ways to give commands written in Python to the computer:

1. Type individual instructions via an interactive shell, a program that executes the commands immediately
2. Write a complete, stand-alone application that we can run over and over

Python console / interactive shell

The **console** (or interactive shell) is

- A window where a single command or short set of commands can be typed to the computer
- The computer tries to execute those commands

Python **interpreter**

- Reads Python instructions typed into the console by the user
- The interpreter converts them into a form the computer's hardware understands
- The language that the hardware understands is called **machine language**

No matter what programming language is used, at some point the source code must be translated into machine language for the computer to execute it

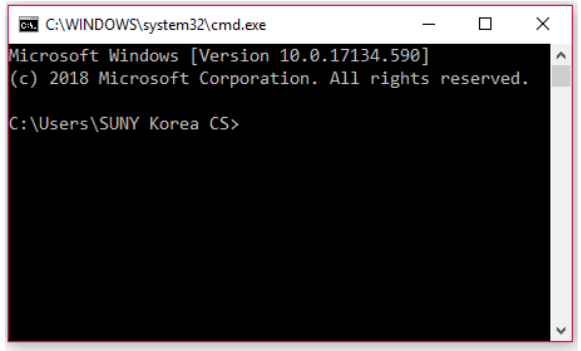
Opening a Terminal (Command Prompt)

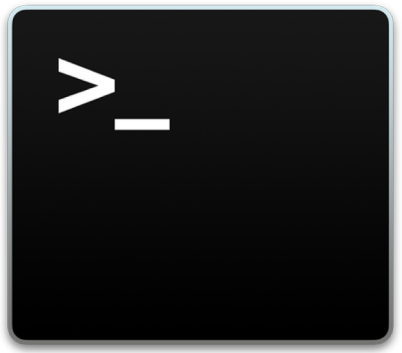
Windows

- Press "Win-R," type "cmd" and press "Enter" to open a Command Prompt session using just your keyboard.

Mac OS

- Finder -> Applications -> Utilities -> Terminal





Start the Python Interpreter

In your Terminal:

On Windows:

Type "python" and press "Enter"

On Mac:

Type "python3" and press "Enter"

Some Python Statements

- **print("hello world")**
- **1 + 5**
- **a = 1**
- **b = 2**
- **a + b**
- **name = "SUNY"**
- **country = "Korea"**
- **print(name + country)**
- **Pi = 22/7**
- **print(type(name))**
- **print(type(Pi))**

Installing Visual Studio Code (VS Code)

The VS Code IDE

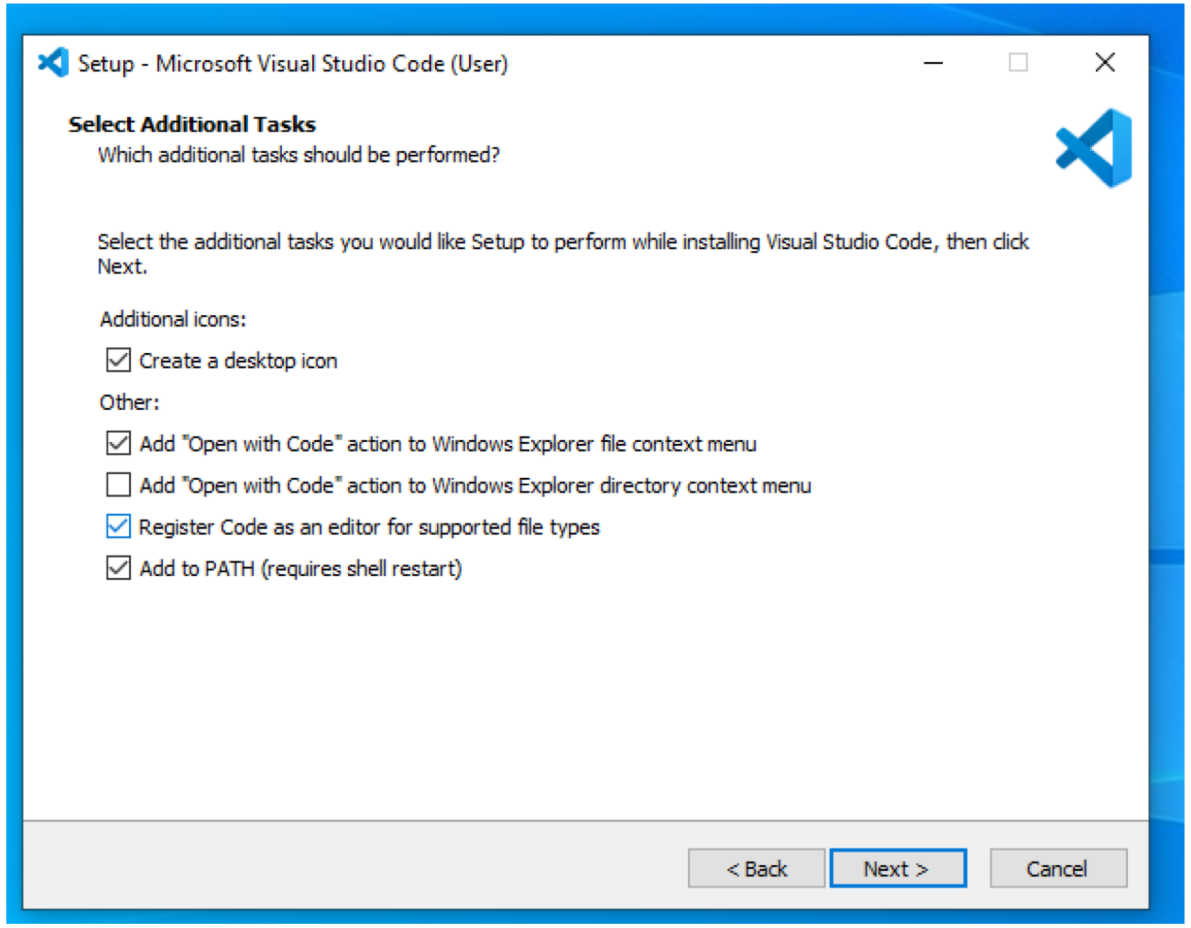
In this course, we will use an integrated development environment (IDE) called Visual Studio Code (VS Code)

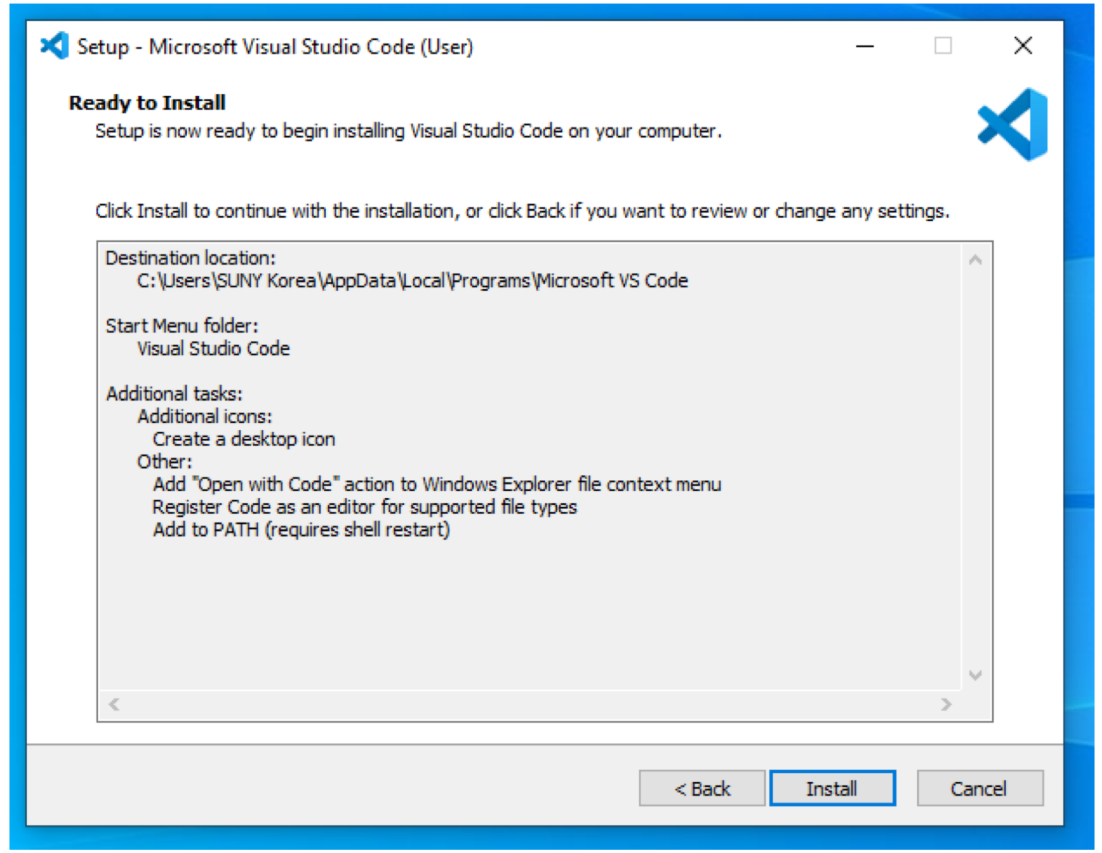
VS Code is a tool used by professional software developers

- Good tool for beginning programmers to use
- Go to https://code.visualstudio.com/ to download and install

The next slides have a walkthrough of important steps of the process, though the screens may look a little different on your computer. The screenshots are taken on a Windows machine, though it will be similar on the Mac. There is a summary and video walkthrough for the Mac at the end.

VS Code Install (Windows)



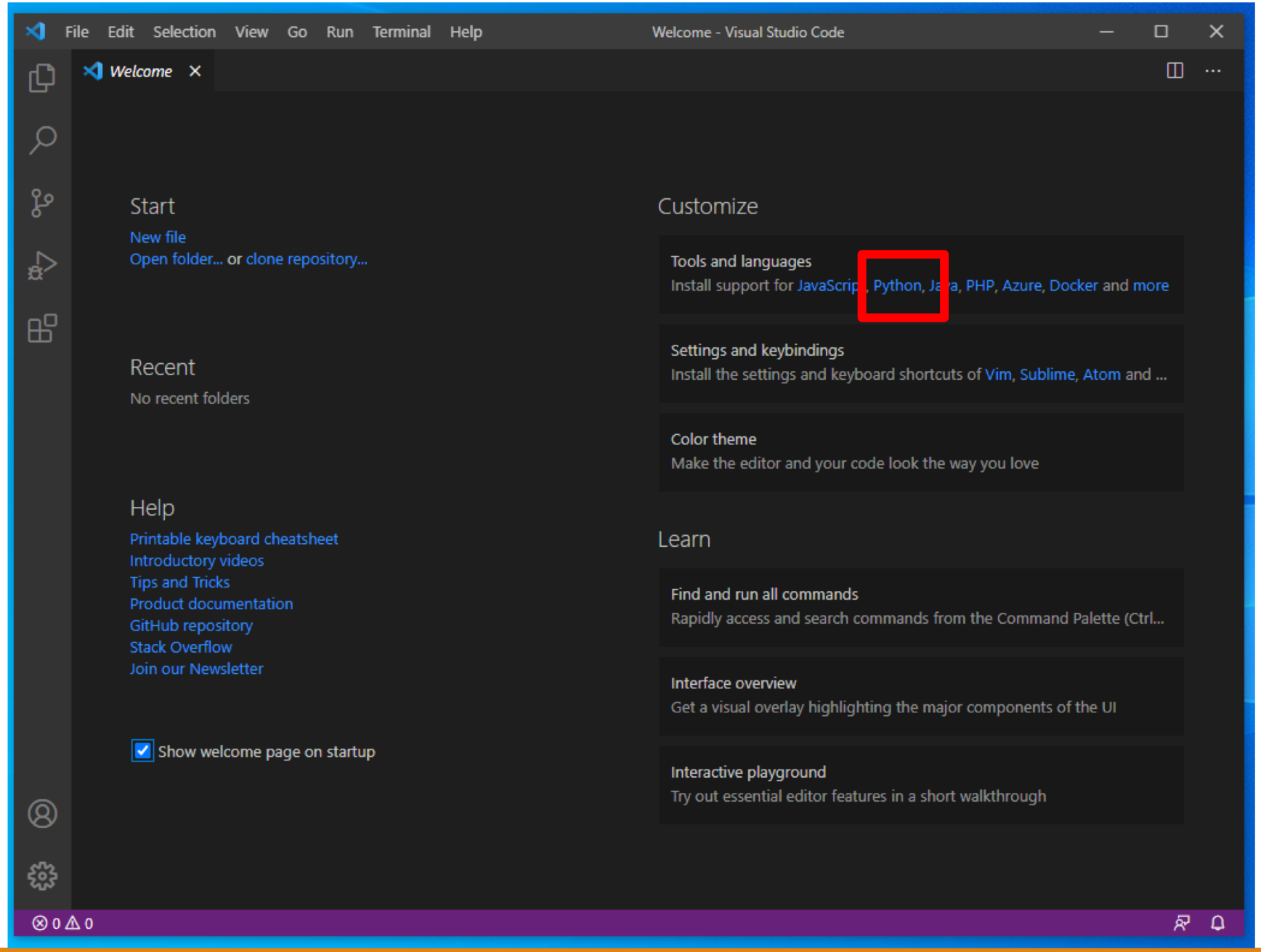


VS Code Installation on Mac

1. Go to https://code.visualstudio.com/ to download and install the free **Visual Studio Code** app
2. Now, go to the Applications folder and start **Visual Studio Code.app**. You might want to put it on the dock.

Video tutorial at: https://www.youtube.com/watch?v=bJaBHGKHv9A&t=54s
(start watching around ~0:54 seconds until -> 1:45)

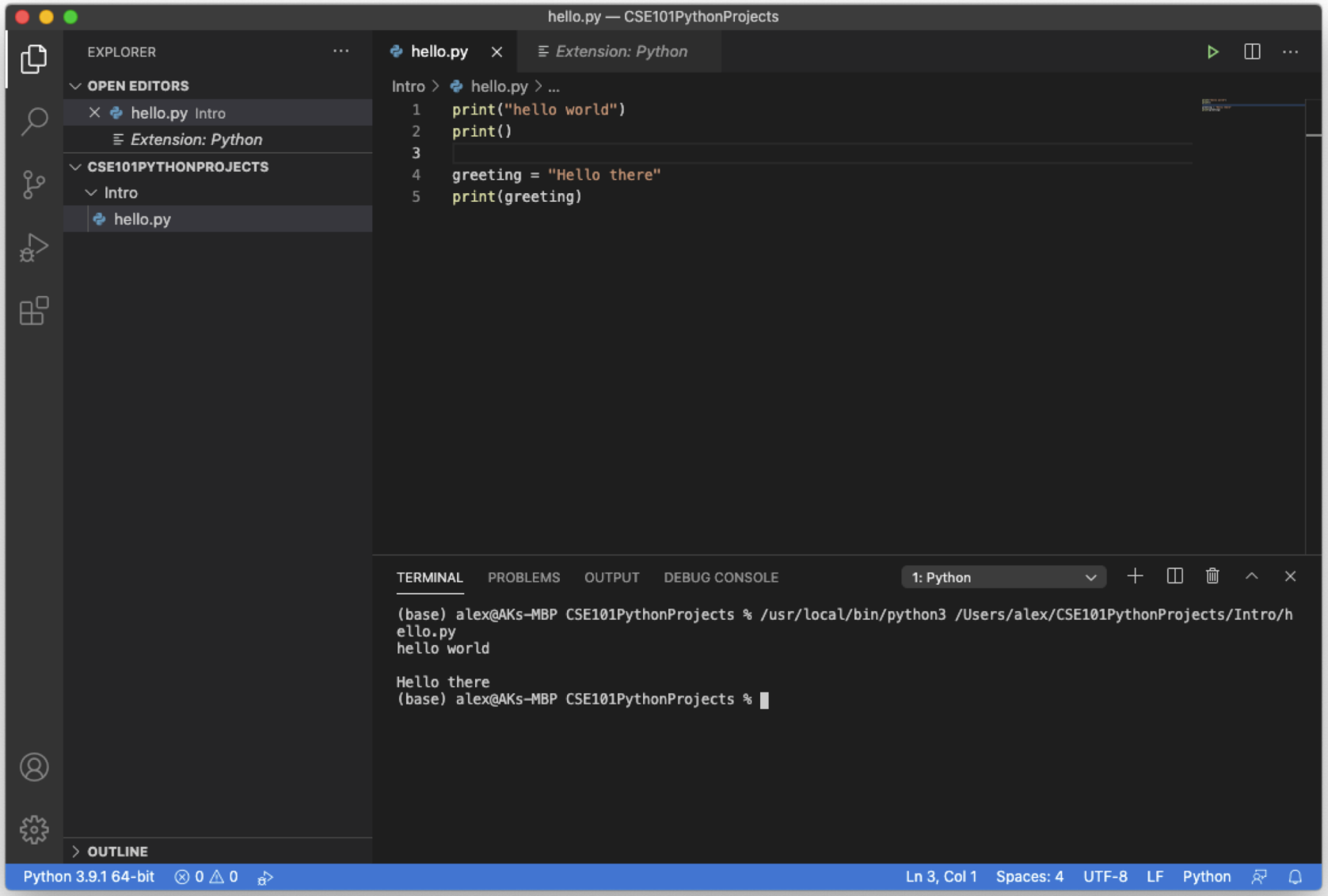
Running and initial VS Code configuration



- Click on "Python" and wait a minute for VS Code to install Python support

VS Code Basics

VS Code IDE


hello.py — CSE101PythonProjects
EXPLORER
OPEN EDITORS
hello.py Intro
Extension: Python
CSE101PYTHONPROJECTS
Intro
hello.py
OUTLINE
hello.py
Extension: Python
Intro > hello.py > ...
1 print("hello world")
2 print()
3
4 greeting = "Hello there"
5 print(greeting)
TERMINAL
PROBLEMS
OUTPUT
DEBUG CONSOLE
1: Python
(base) alex@AKs-MBP CSE101PythonProjects % /usr/local/bin/python3 /Users/alex/CSE101PythonProjects/Intro/hello.py
hello world
Hello there
(base) alex@AKs-MBP CSE101PythonProjects %
Python 3.9.1 64-bit
0 0
Ln 3, Col 1
Spaces: 4
UTF-8
LF
Python

VS Code basics

To create and run a stand-alone Python program:

1. Start VS Code and press the “Open Folder” link.
2. Pick a folder that you will use for CSE 101 projects (or create a new folder for this)
3. Select File Menu > New File and enter the name of the file for the source code (e.g., “test.py” – the file needs to end with a ".py" for Python)
4. Write your program
5. When you are ready to run, go to Run Menu > Run (may say "Run without debugging")

You can also click the green triangle on the top-right corner of the screen to run your program.