

# Python and PyCharm Installation

---

# Announcements

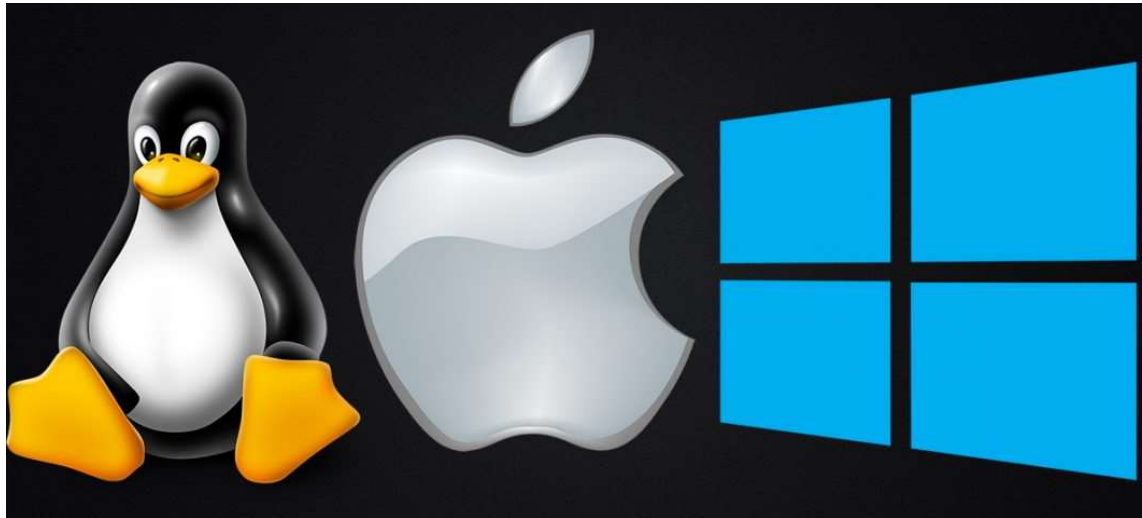
---

This lecture: Python and PyCharm Installation

# What is an Operating System?

---

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



# What is Python?

---

- Python is a computer programming language
  - Relatively simple **syntax** (set of rules programmers must follow when writing programs)
- Python can be used to write simple programs that do basic calculations or very complicated ones
  - Can write basic games!
  - Python is popular with scientists because they can do complex data analysis by writing short programs
- Python can be installed on a wide variety of computer types and operating systems

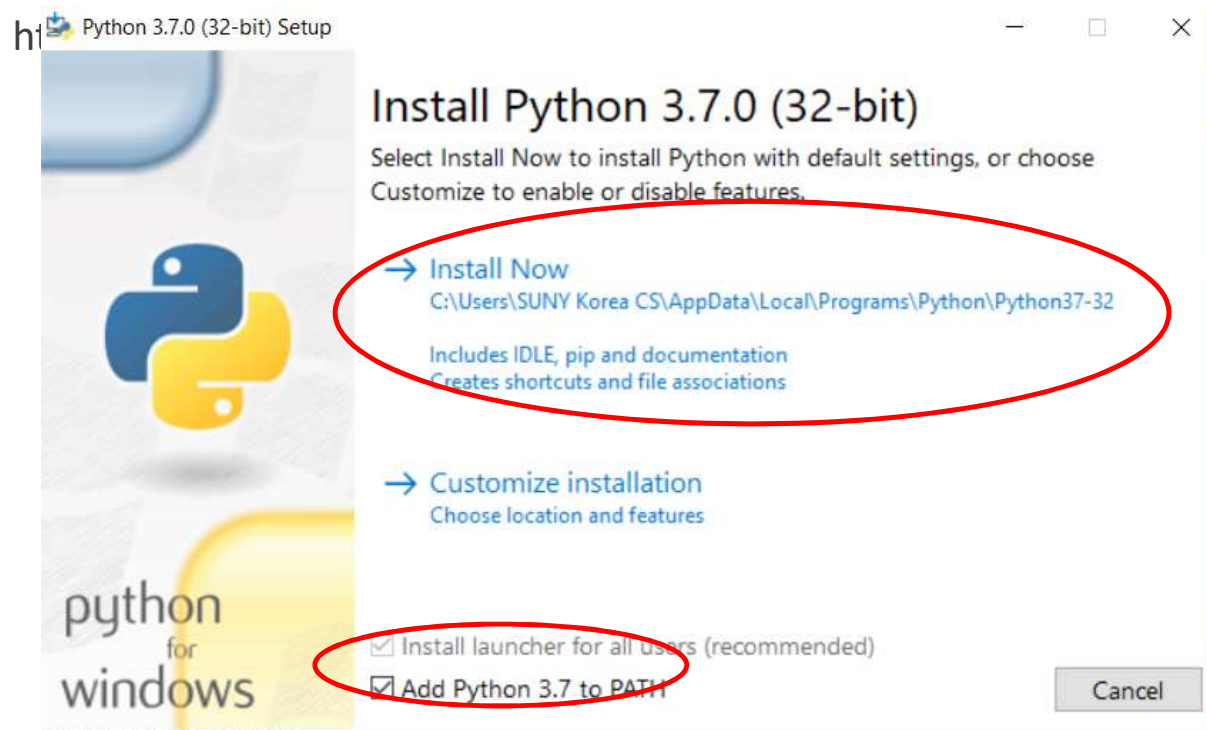
# Python Installation on Windows

---

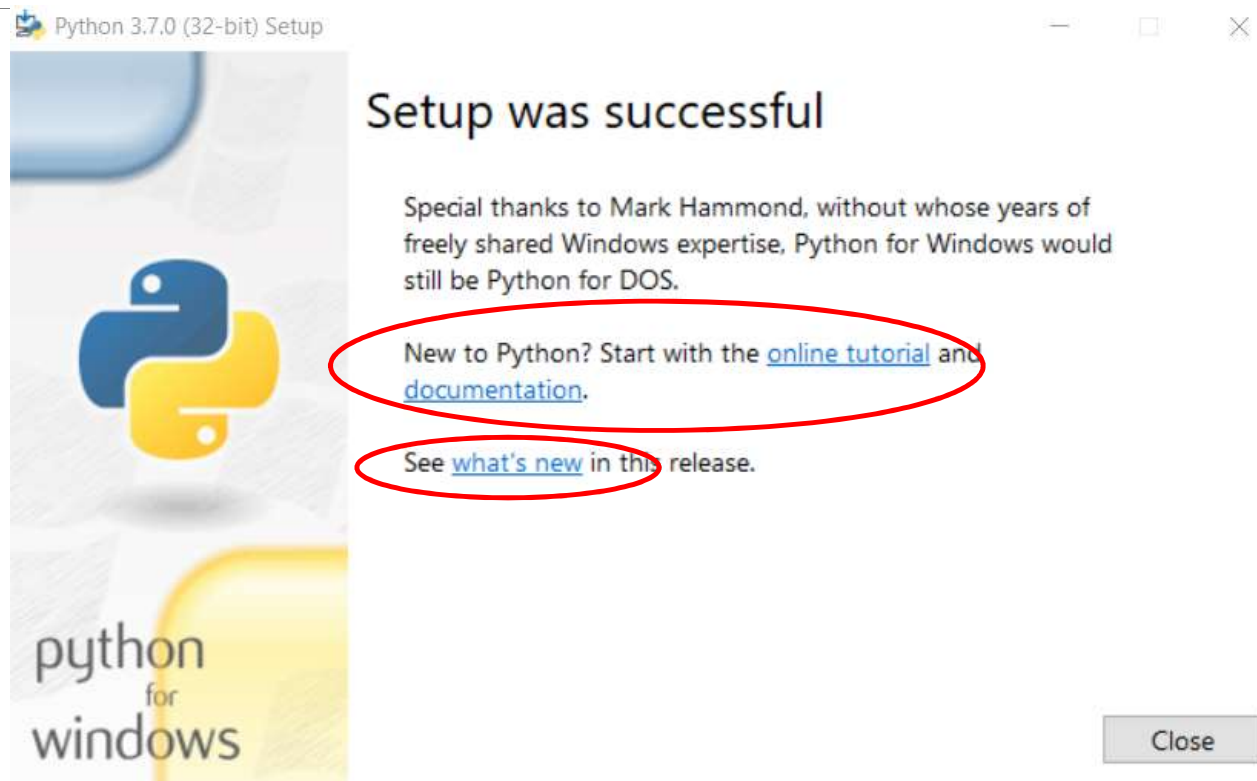
<https://www.python.org/downloads/>



# Python Installation on Windows



# Python Installation on Windows



# Python Installation on MacBook

---

<https://www.youtube.com/watch?v=8BiYGIDCvvA>



# 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 a **shell**, an interactive program that executes the commands
  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 command
- 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 language is used, at some point the source code must be translated into machine code for the computer to execute it

# Opening a Terminal

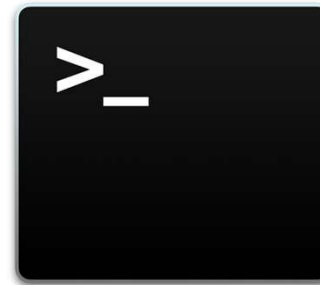
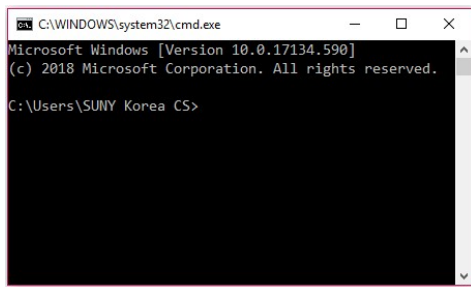
---

## 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



# Some Python Statements

---

- `print ("helloworld")`
- `1 + 1`
- `a = 1;`
- `b = 2;`
- `a + b`
- `name = "SUNY"`
- `country = "Korea"`
- `print (name + country)`
- `Pi = 22/7`
- `print (type(name))`
- `print (type(Pi))`

# The PyCharm IDE

---

- In this course, an **integrated development environment** (IDE) called PyCharm will be used
- PyCharm is industry-grade software used by professional software developers
  - still easy enough for novice programmers to use
  - First download and install Python from [www.python.org](http://www.python.org)
  - Go to [www.jetbrains.com/pycharm](http://www.jetbrains.com/pycharm) to download and install the free **Community Edition** of PyCharm

# PyCharm Installation

<https://www.jetbrains.com/pycharm/download/#section=windows>

## Download PyCharm

Windows

macOS

Linux

### Professional

Full-featured IDE  
for Python & Web  
development

DOWNLOAD

Free trial

### Community

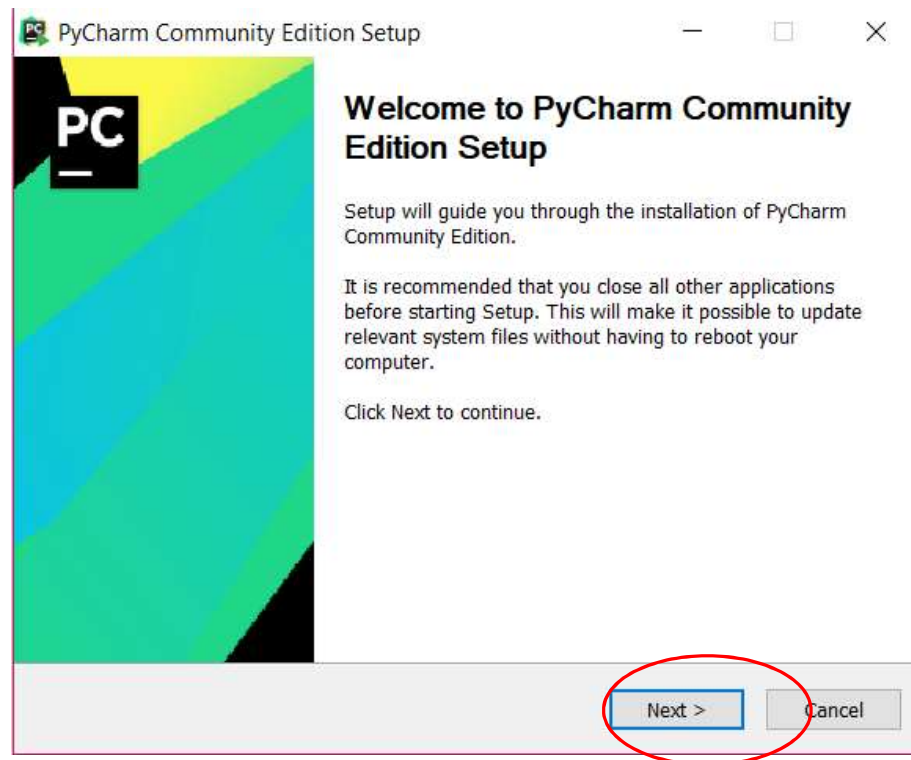
Lightweight IDE  
for Python & Scientific  
development

DOWNLOAD

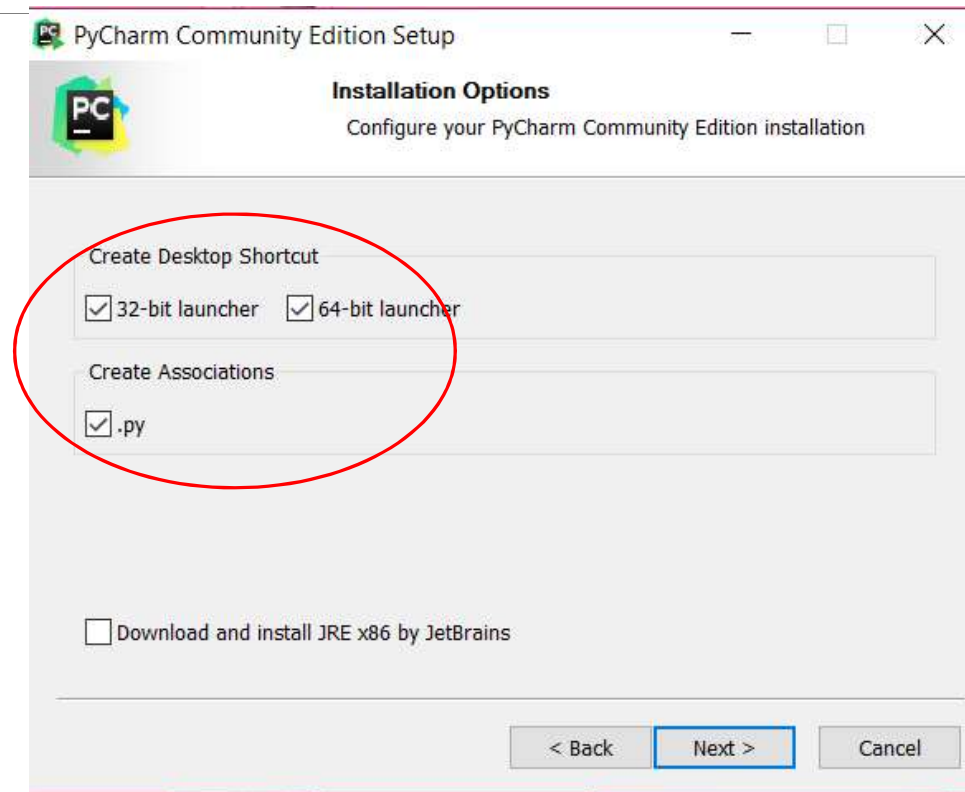
Free, open-source

# PyCharm Installation

---

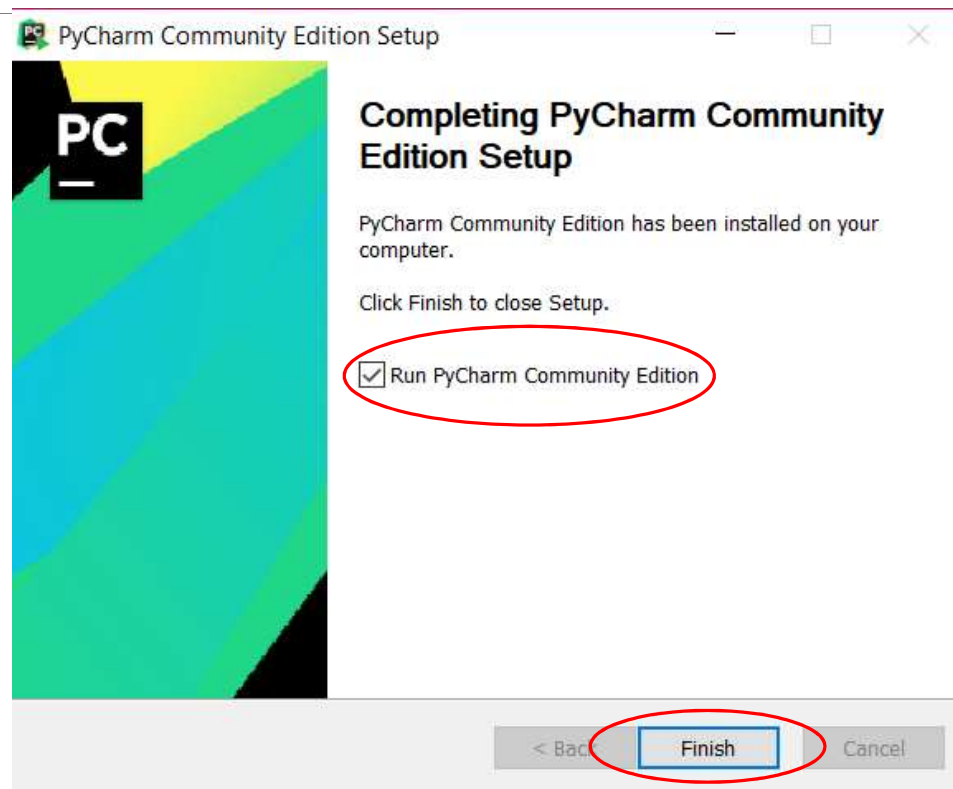


# PyCharm Installation

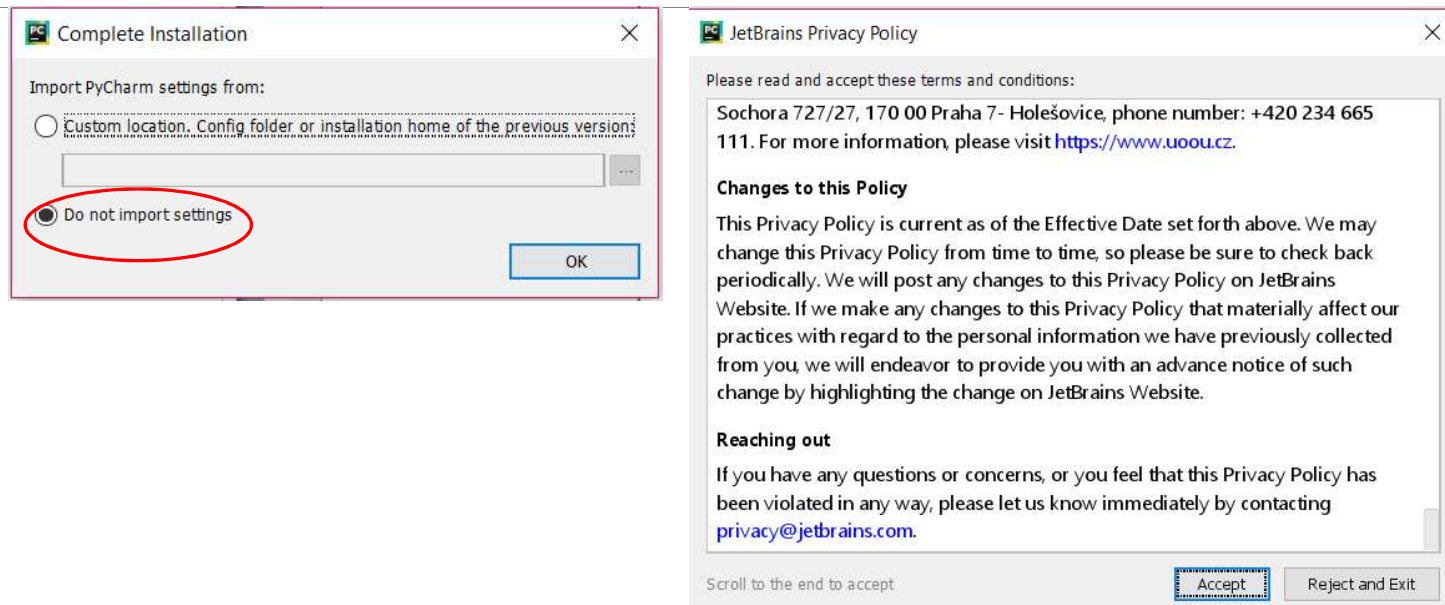




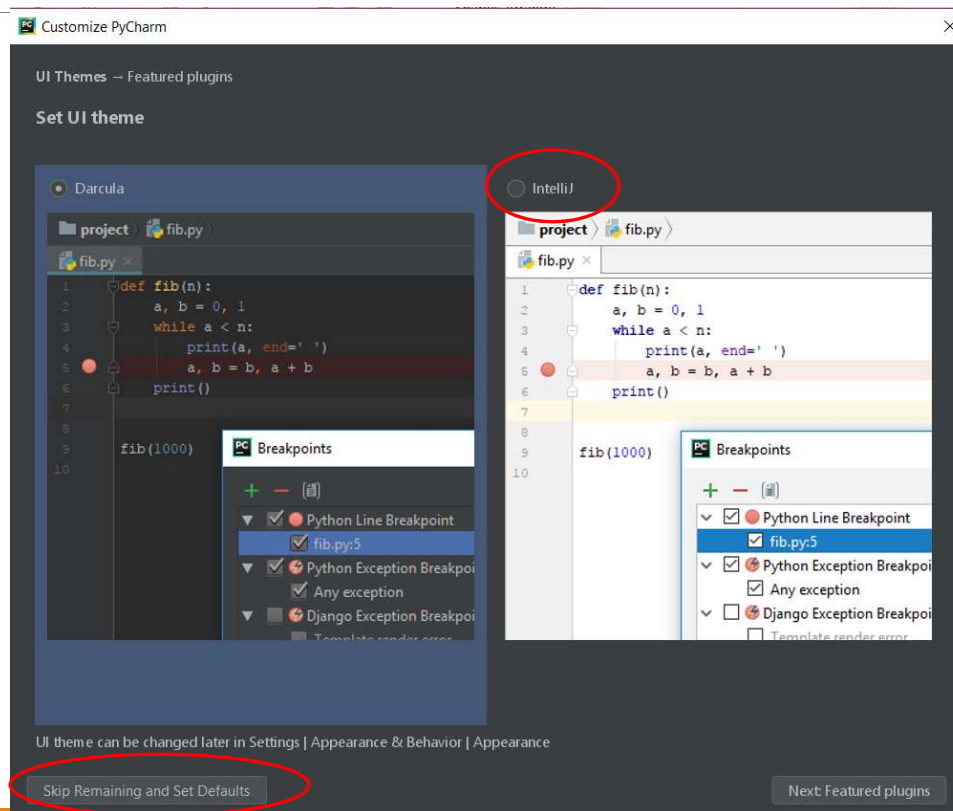
# PyCharm Installation



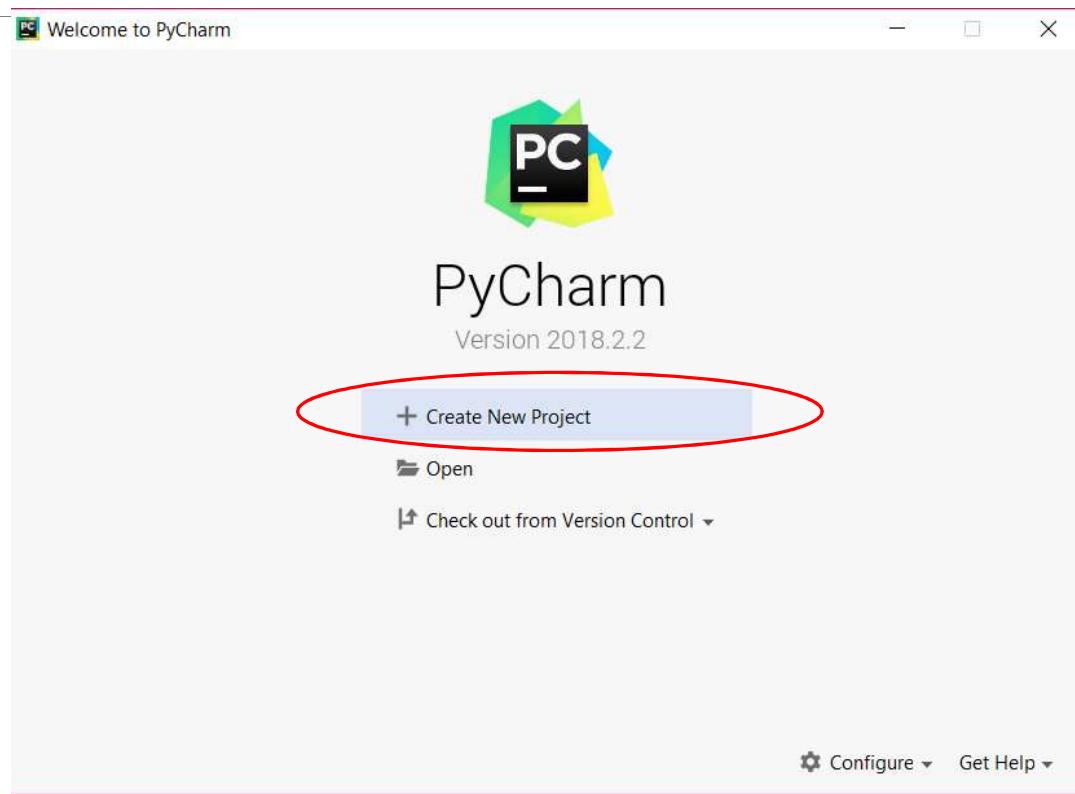
# PyCharm Installation



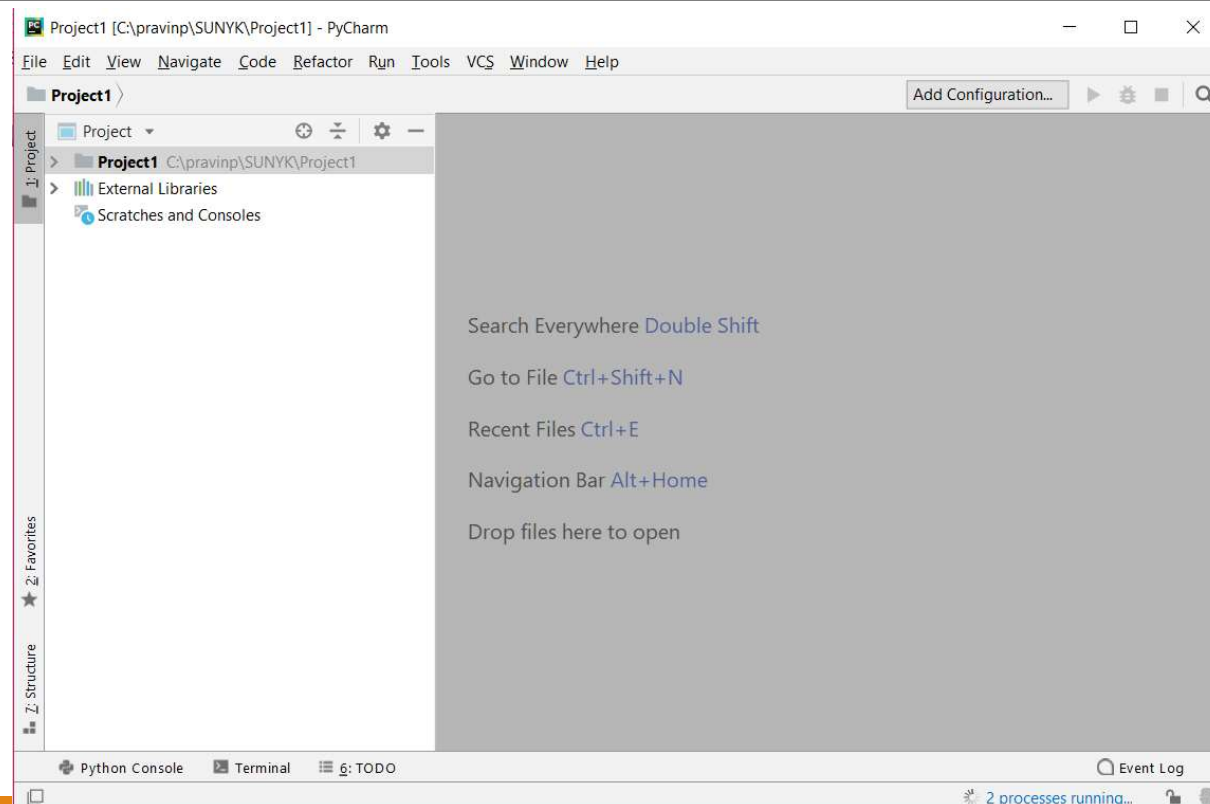
# PyCharm Installation



# PyCharm Project



# PyCharm IDE

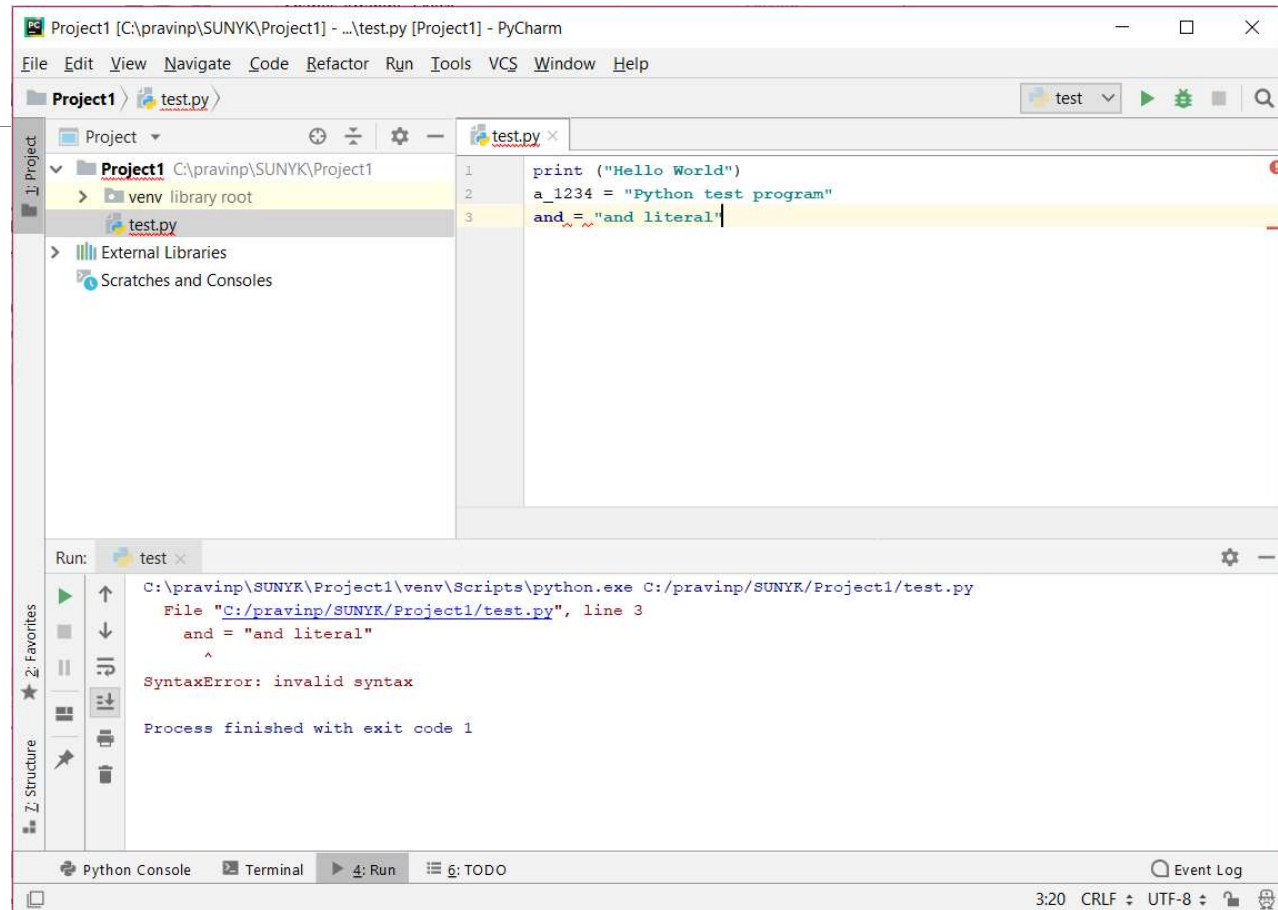


# PyCharm Installation on Mac

---

<https://www.youtube.com/watch?v=wb4HNqQtIII>

# PyCharm IDE



# Setting Default Python Interpreter in PyCharm

---

**Step 1:** Find out installation location of Python program:

Windows terminal command

- where python

Mac terminal command

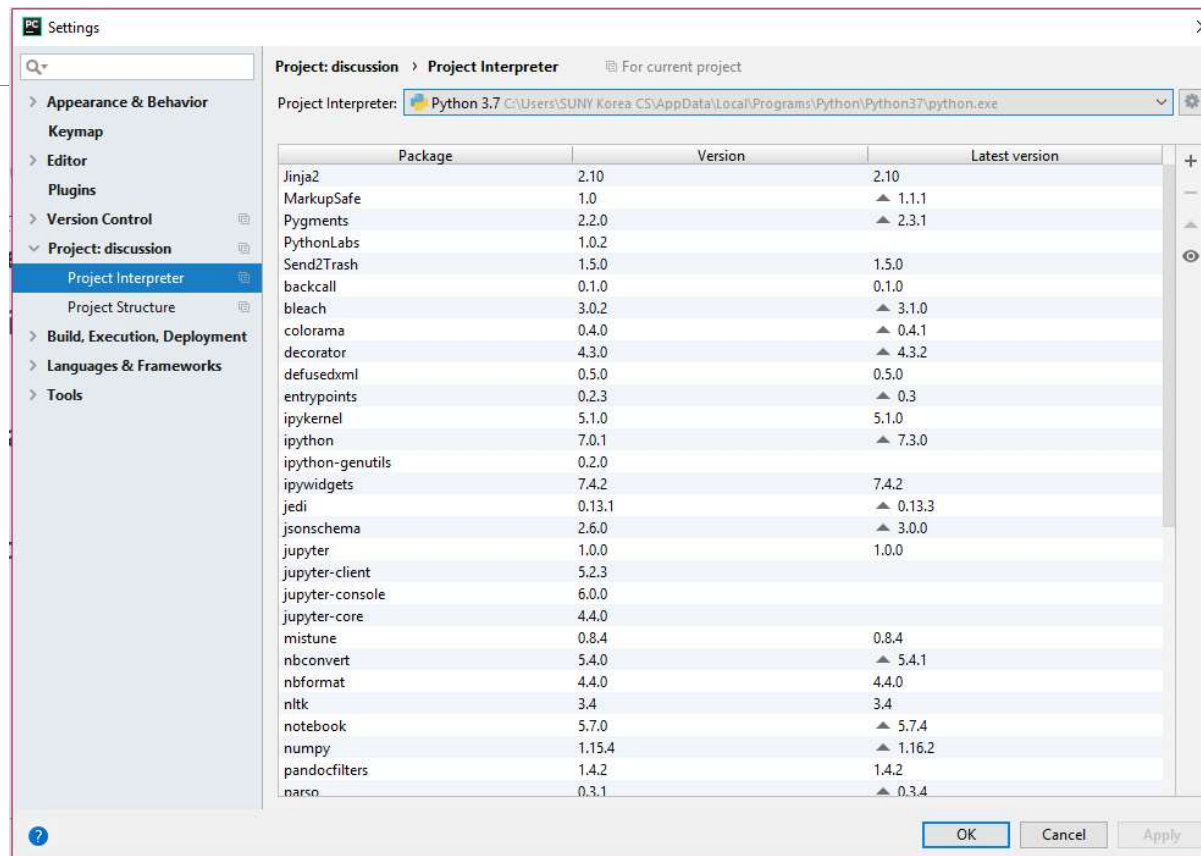
- which python3

Note down the paths of python installation.



# Setting Default Python Interpreter in PyCharm

**Step 2:** Change project settings (and New Project Settings) in PyCharm:



# PyCharm basics

---

- To create and run a stand-alone Python program:
  1. Start PyCharm and press the “Create New Project” button.
  2. Pick a “Location” and name for the Project (e.g., “CSE 101”).
  3. Select File Menu > New > Python File and enter the name of the file for the source code.
  4. Write the program and save the file.
  5. After saving, go to Run Menu > Run.
  6. Select the name of the program file to run it.
- The next time the program is to be run:
  - Hit the green triangle in the lower-left corner of the screen.
  - Or, right-click the name of the file and choose Run.

# Questions?

---