COMP1021
Introduction to Computer Science

Getting Started with Python

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Outcomes

- After completing this presentation, you are expected to be able to:
  1. Understand some background information about the Python programming language
  2. Install Python and start IDLE
  3. Appreciate that Python code is given to a Python interpreter for execution

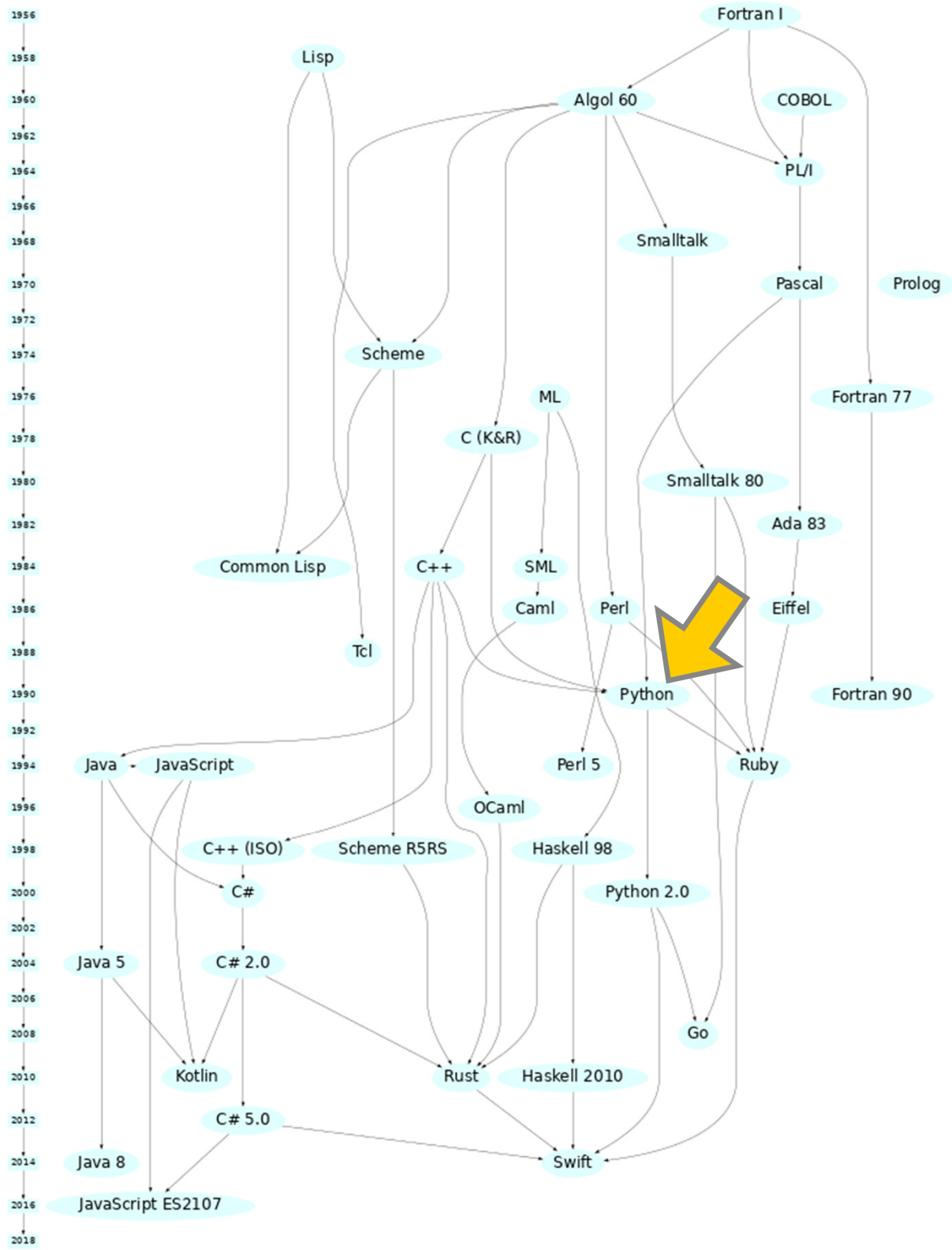
Computer Programming Languages

- Computer programming languages have been developed over the last 50 years
- There are hundreds of them
- For this course we will use a language called *Python*

Evolution of Programming Languages

- Only the main programming languages are shown here
- We can ignore all of them except Python

From http://rigaux.org/language-study/diagram.html



Python

Guido Van Rossum

- Started by a guy who was bored during Christmas 1989
- He made a computer language with these qualities:
  - a language just as powerful as other languages
  - code that is almost as understandable as simple English
  - suitable for everyday tasks, so you can quickly make a useful program
  - open source, so anyone can contribute to its development

Different Versions of Python

- Python version 1 – this version disappeared a long time ago
- Python version 2 – this version officially died in 2020
- Python version 3 – this version is what we use
- Python 3.11 is the version we will use this semester (3.11.3)
- You can install it in your own computer, see next slide
  - This is probably the way most students use Python
- We asked ITSC to install it in all the computer barns
- We asked ITSC to install it in the Virtual Barn
  – details two slides later

Installing Python on Your Machine

- You need to do this
- Get the installation file from the COMP1021 web site:

Getting Started with Python

[1spp, 4spp, 6spp, 9spp]

Different ways to access Python here

- Here's some ways you can access Python
  1. To do COMP1021 work on **your own computer**, you need to install Python on it
     - You should install one of these files (from here), which are the same versions we use on the course:
       - Python for Windows (64 bits) - python-3.11.3-amd64.exe
       - Python for MacOS X (11 or later) - python-3.11.3-macos11.pkg
  2. We asked ITSC to install Python 3.11.3 in the **Virtual Barn**:
     - Please see here for more information about the Virtual Barn

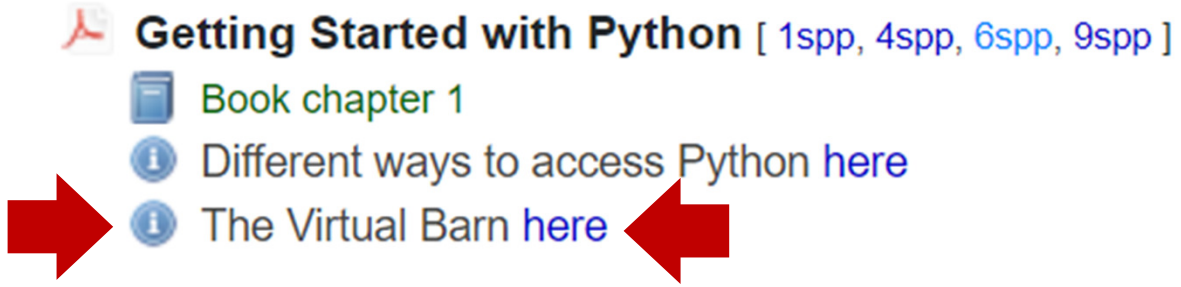
PC users

Mac users

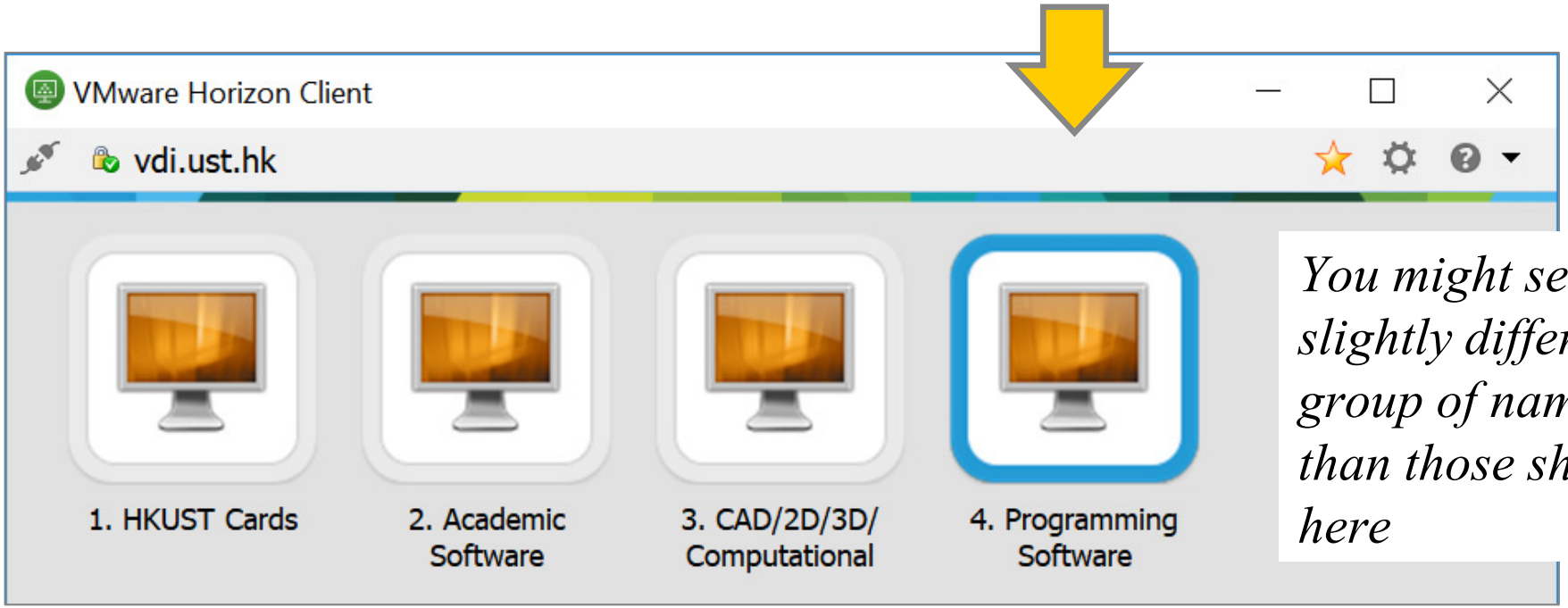
All users, optional but useful

The Virtual Barn

- The Virtual Barn is useful for several reasons e.g. it lets you access Python through the web
- It is optional
- See our guide:

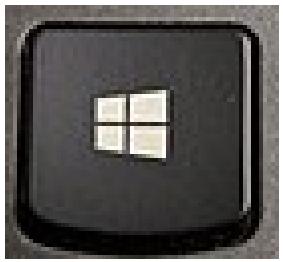


- After you run the software you can find Python here



You might see a slightly different group of names than those shown here

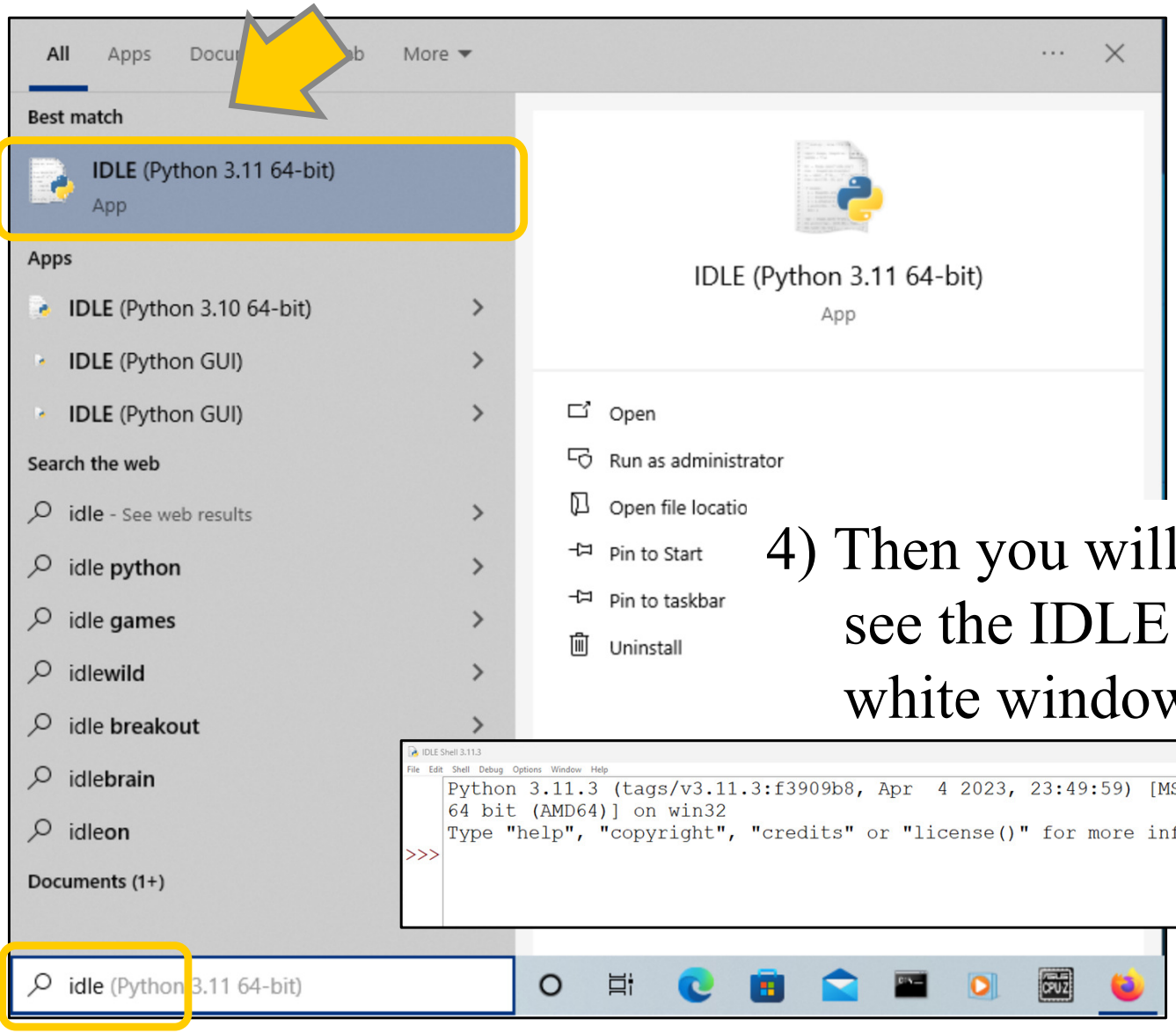
Using Windows 10



1) Press the Windows key

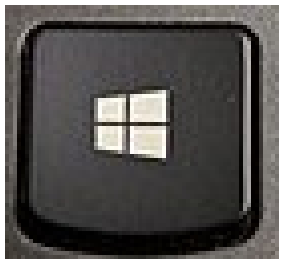
2) Search for ‘idle’

3) Choose IDLE Python 3.11 - click to start



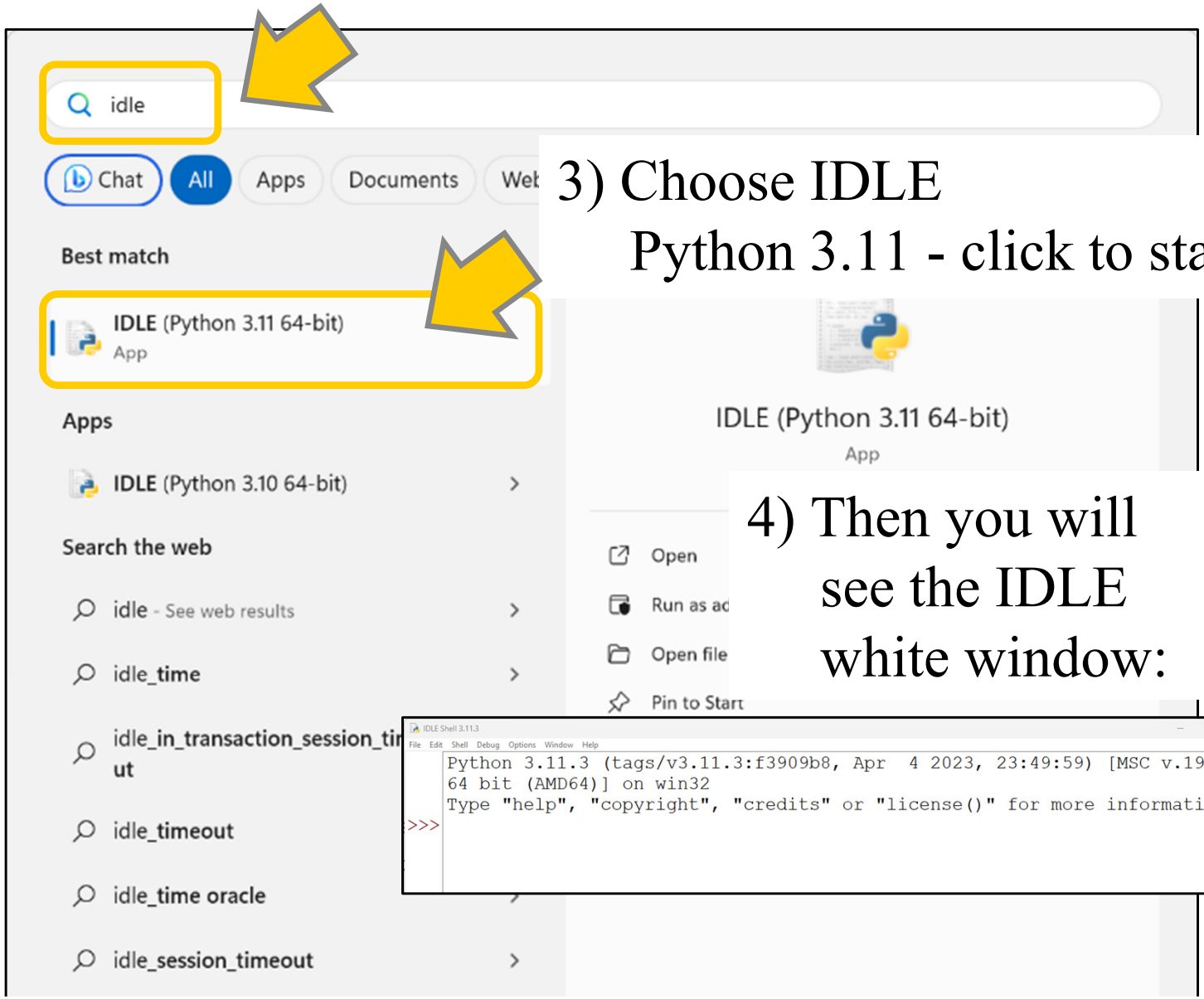
4) Then you will see the IDLE white window:

Using Windows 11



1) Press the Windows key

2) Search for ‘idle’



3) Choose IDLE Python 3.11 - click to start

4) Then you will see the IDLE white window:

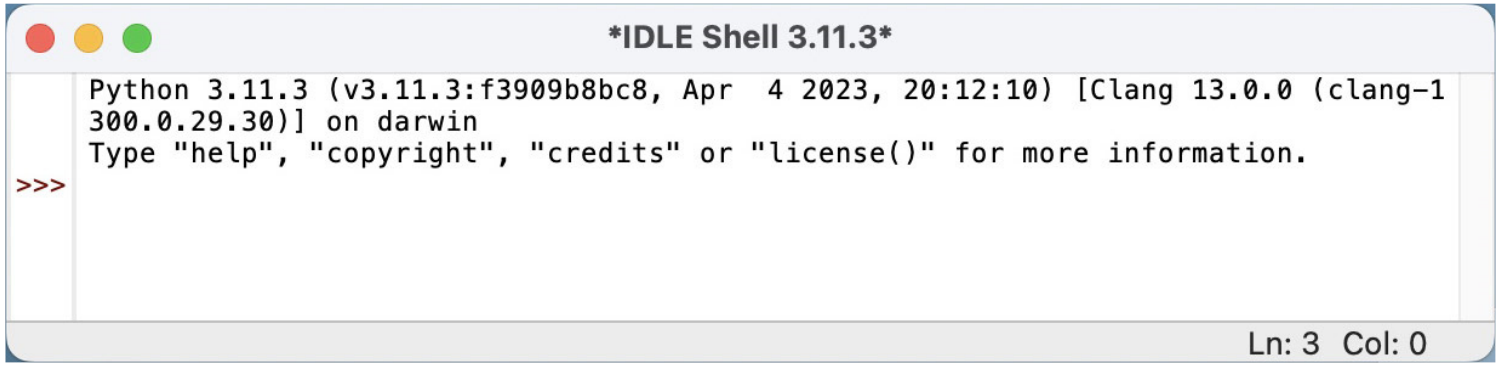
Using the Mac OS

1) Click and open Launchpad

2) Search for ‘idle’

3) Click on IDLE to start

4) Then you will see the IDLE white window:



The Basic Idea of Using a Shell

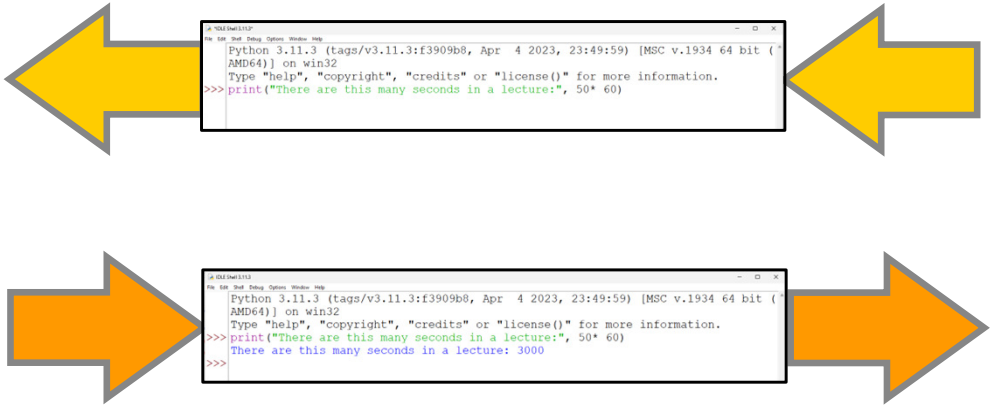
2. The shell passes whatever you type to Python

1. User types things one line at a time, in the Python shell

The User

Python interpreter

python.exe

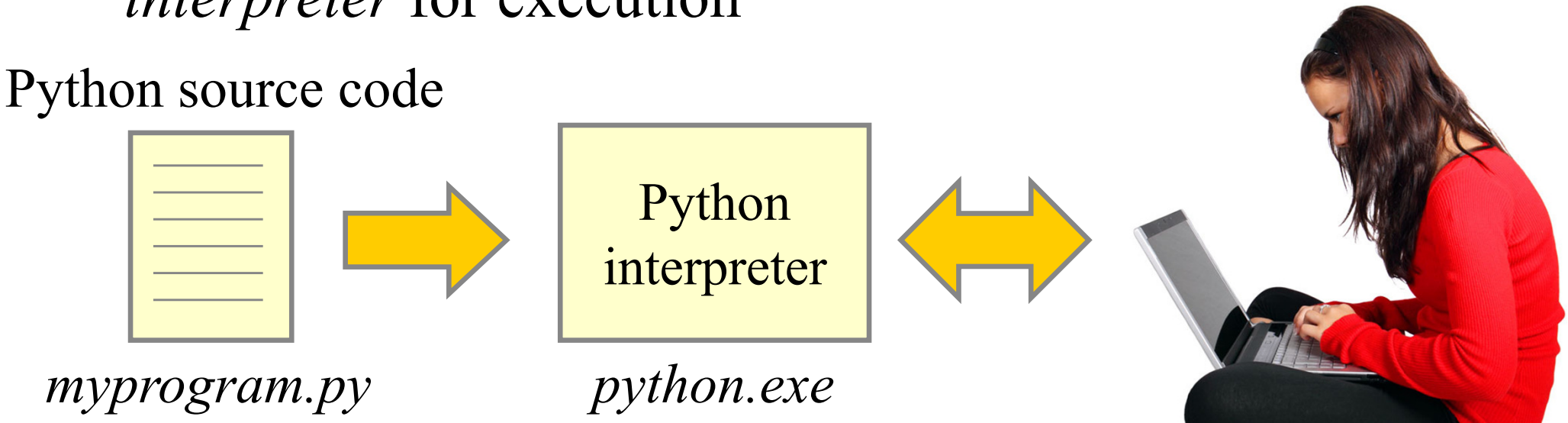


3. The Python interpreter executes whatever is given to it

4. The interpreter outputs the result, which is shown in the shell

Executing a Python Program

- Instead of executing one line of code at a time, you can put lots of lines together in a *program*
- Python programs are given to a Python *interpreter* for execution



- We say that Python code is *interpreted*
- This is the most common way that Python is used

Python is Interpreted

- *Interpreted* means that each line of code is given to the interpreter and executed, one by one