COMP1021
Introduction to Computer Science

Getting Started with Python

David Rossiter and Gibson Lam

Outcomes

- After completing this presentation, you are expected to be able to:
  1. Understand the history and some background information of the Python programming language
  2. Install Python and start using Python through the command line tool and IDLE

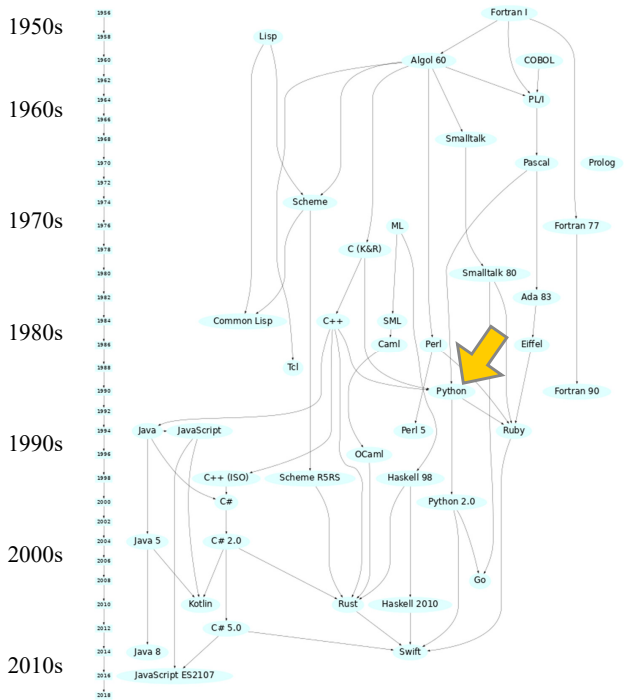
Computer Programming Languages

- 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



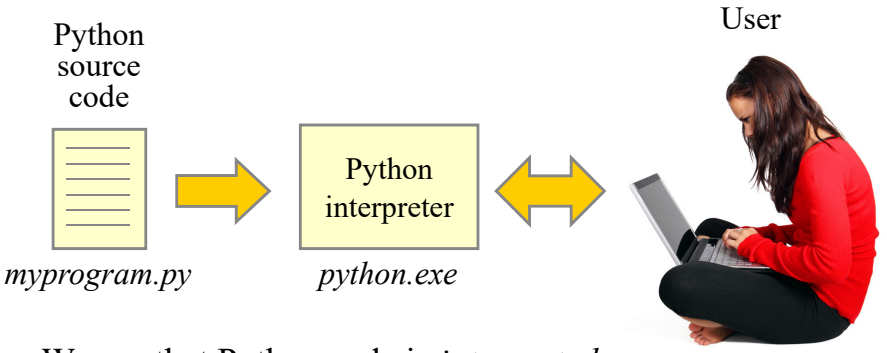
Python

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

Executing a Python Program

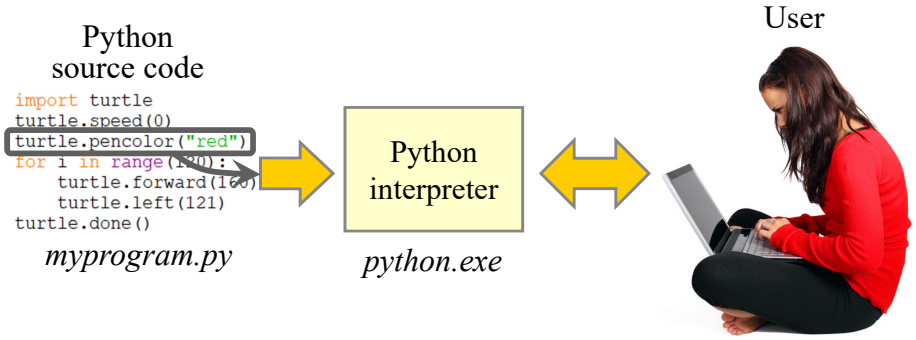
- Python programs have to be 'given' to a Python *interpreter* for execution



- 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



Different Versions of Python

- Python version 1 – this version disappeared a long time ago
- Python version 2 – this version officially died early 2020
- Python version 3 – this version is what we use
- Python 3.9 is the version we use this semester
- You can install it in your own computer, see next slide
  - This is probably the way most students use Python
- You can also run it virtually – details a few slides later
- (It has also been installed in all the ITSC computer barns, the Virtual Barn, and the CS department labs)

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

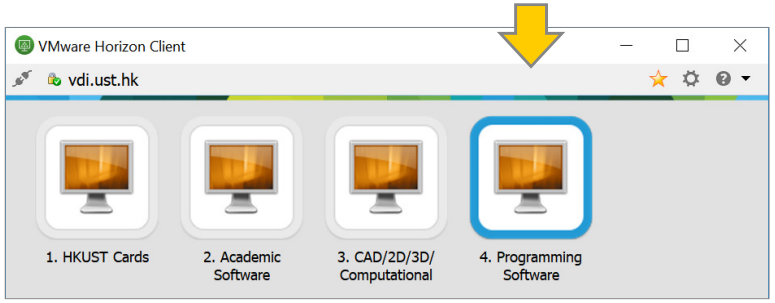
- Here's some ways you can access Python
  1. To do COMP1021 work on **your own computer**, you need to install Python on it
     - You should install one of these files (from here), which are the same versions we use on the course:
       - Python for Windows (64 bits) - python-3.9.5-amd64.exe
       - Python for Windows (32 bits) - python-3.9.5.exe
       - Python for MacOS X (11 or later) - python-3.9.5-macos11.pkg
  2. Python is already installed in the **Virtual Barn environment** of ITSC:
     - Please see here for more information
  3. The **ITSC Computer Barns** already have Python installed, at the HKUST campus
     - You can go to these physical rooms whenever you want
- The computers in the Computer Science Department (CSD) **lab room** also have Python installed, but we won't go there this semester

PC users
Mac users
All users, optional but useful

The Virtual Barn

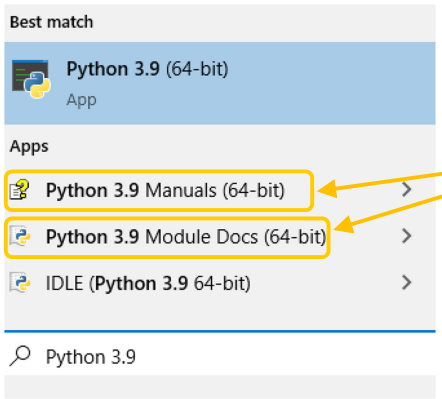
- The Virtual Barn is useful for several reasons e.g. it lets you access Python through the web
- It is optional
- See our guide:
- After you run the software you can find Python here

Getting Started with Python [1spp, 4spp, 6spp, 9spp]
Book chapter 1
Different ways to access Python here
The Virtual Barn here



After Installing Python 3.9

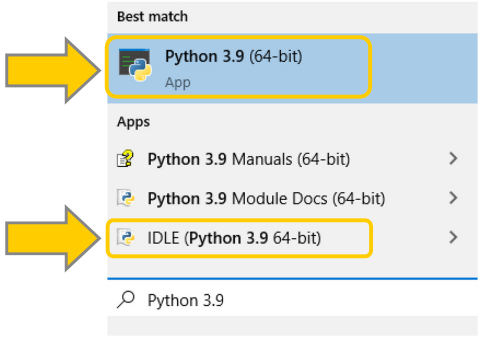
(These images are from a PC)



- After installing, you will see several options if you search for *Python* or perhaps *Python 3.9* in Windows
- Here is some documentation about Python
  - Probably you won't need to look at this, the COMP1021 notes and labs should be enough

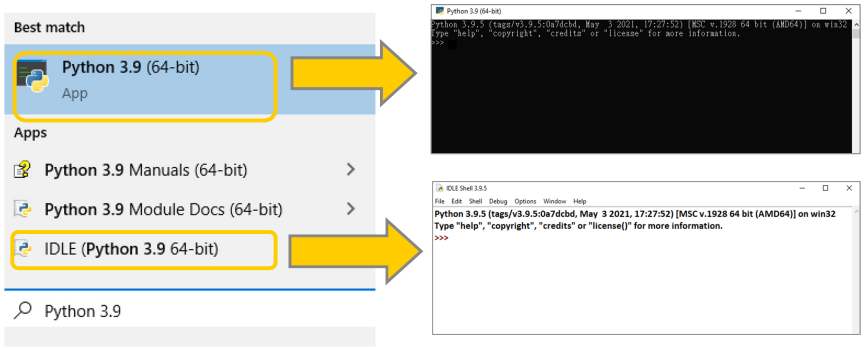
Using Python

- Let's look at how we can start using Python
- There are two ways we will look at now

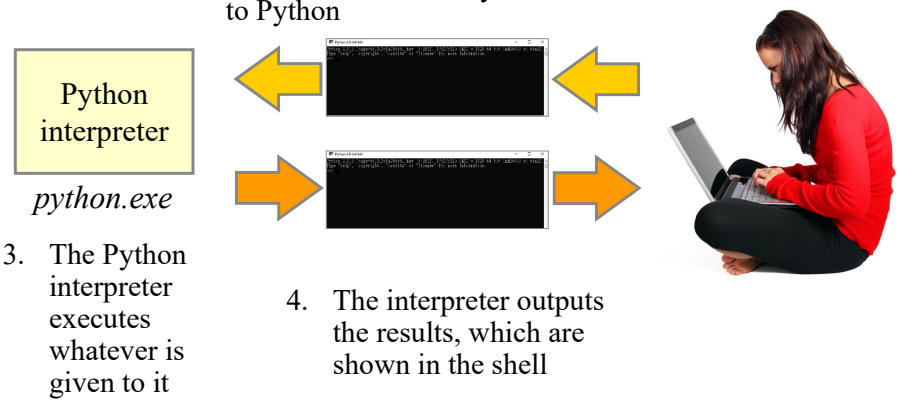


Using Python

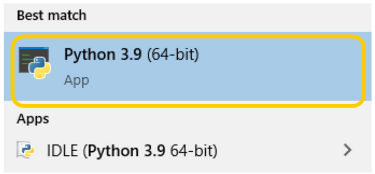
- Both options give you a *shell*



The Basic Idea of Using a Python Shell



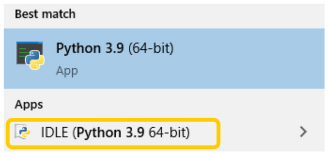
Using a Python Shell – Some Simple Python Code




```
Python 3.9 (64-bit)
Python 3.9.5 (tags/v3.9.5:0a7dcbd, May  3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print(1000 * 21)
21000
>>> print("there are these many seconds in one lecture:", 60 * 50)
there are these many seconds in one lecture: 3000
>>> print("Payment for 8 weeks, 15 hours per week =", 8 * 15 * 45)
Payment for 8 weeks, 15 hours per week = 5400
>>>
```

>>> is generated by the shell,
it means 'this is where your input is shown'

Using the IDLE Environment



- The IDLE environment is better
- One reason is that colours are automatically used, which is sometimes very helpful for understanding
- We'll see other useful features of IDLE soon, especially in the lab work that we'll do

```
IDLE Shell 3.9.5
File  Edit  Shell  Debug  Options  Window  Help
Python 3.9.5 (tags/v3.9.5:0a7dcbd, May  3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win32
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