STMC HKOI Training

Lesson 1: Hello World

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Goal today

- Install python
- Run your first program `helloworld.py`
- Understand different parts of `helloworld.py`
- Use VSCode as an integrated development environment (IDE) for coding

Installing python

- As mentioned before, a interpreter is need to run our code
- Now we shall learn how to install interpreter for python

Installing python

Step 1: Go to Python's website (https://www.python.org/)

Step 2: Click `Downloads` and choose `Python 3.X`

Step 3: Follow the link and download the installer

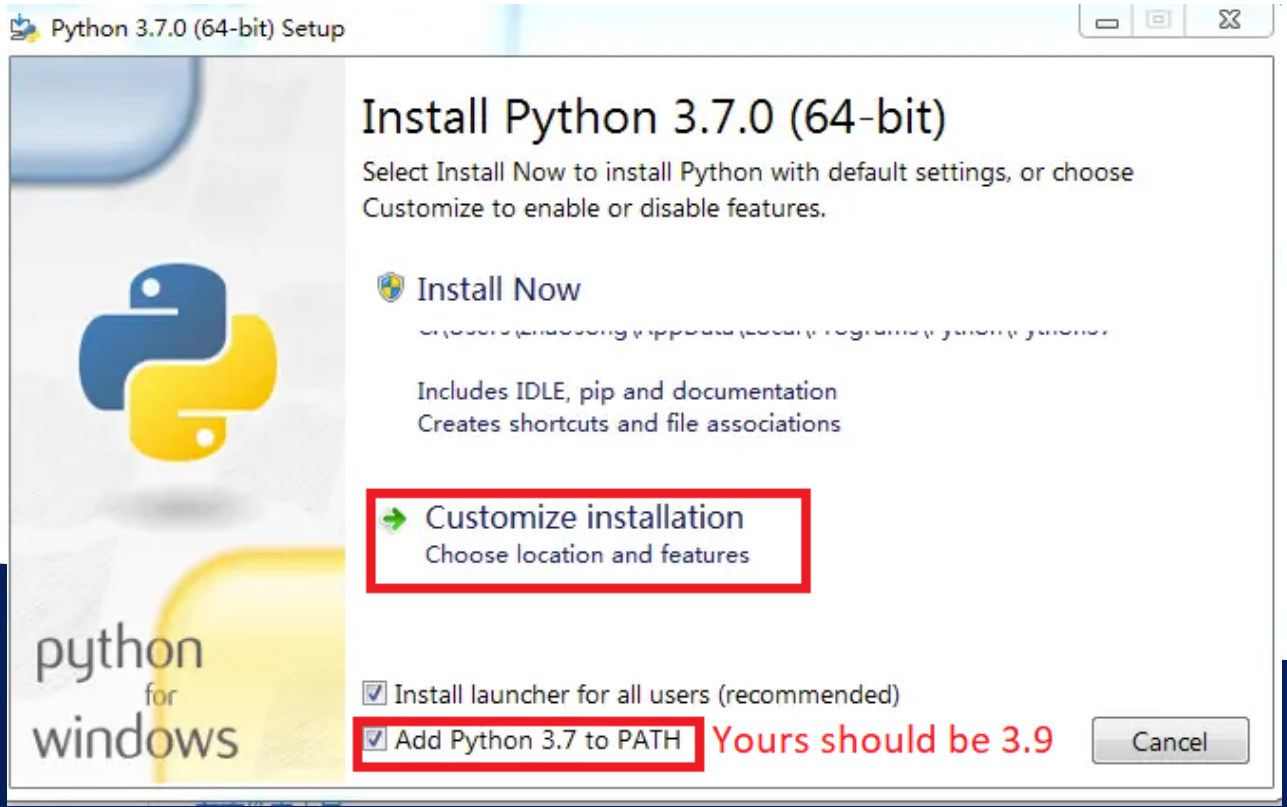
Installing python

Step 4: Double-click the installer and follow the installation instructions. Wait until it says installation success

Step 5: Close the installer window

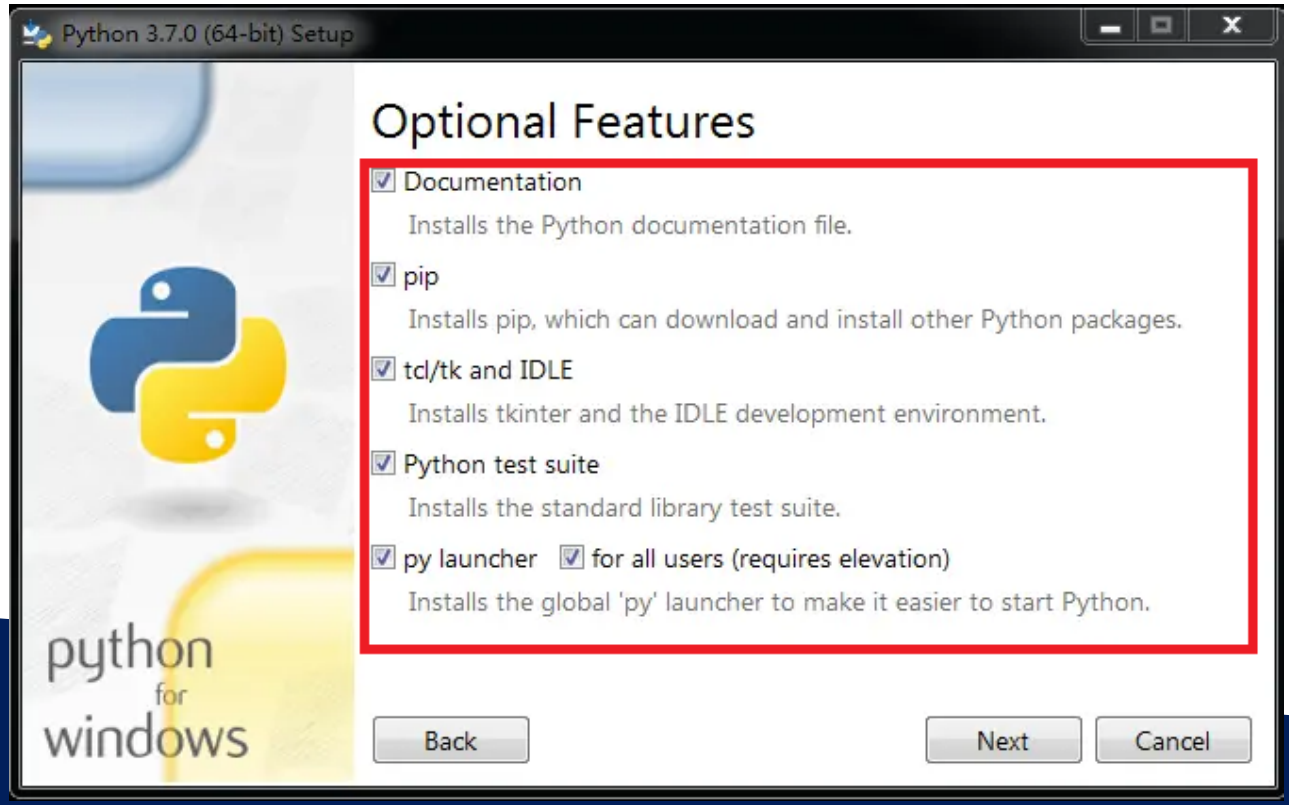
Installing python

Step 6: Double click the installer again. Tick ”Add Python 3.9 to PATH” and click ”Custom Installation”



Installing python

Step 7: Tick the following and press ”Next” to install



Running your first program (I)

Step 1: Download `helloworld.py` from course webpage and paste it on your Desktop

Step 2: Open CMD (Windows) / Terminal (Mac)

Step 3: Type `cd Desktop` (Windows) or `cd ~/Desktop/` (Mac)

Step 4: Type `dir .` (Windows) or `ls .` (Mac). That should list all your files on Desktop, including `helloworld.py`

Running your first program (II)

Now run the following command:

```
python helloworld.py
```

You should see the following results:

```
  Hello world!
```

Understand helloworld.py

Congrats, you just compile your first program. Now, let's open `helloworld.py` and see what's under the hood:

```
1 print("Hello world!") # Printing Hello world
```

Experiments

Let's explore the function of different parts of the program by doing some experiments:

- Change "Hello World" to "Bye bye world" and rerun, what do you observe?
- Similar to the first line, add more `print` to see if you can print multiple lines
- Enter "Hello\n World" and rerun, what do you observe? How about adding more "\n"? What is the function of "\n"?
- Change the text behind # and recompile, does it change anything about the code? Now try to add # before `print`, what happens?

Explaining helloworld.py: print

- `print` is a function used for printing things
- In `helloworld.py`, `print` is used to print our hello message ”Hello world”
- You can also do something like this:

```
1  print("Text 1", "Text 2", "Text 3")
```

  These text will be separated by spaces (Try it!)

- You can read more about `print` from the documentation

Explaining helloworld.py: \n

- From your experiments, you can see that \n is not printed literally as ”\” and ”n”
- \n turns out are one of those we called **escape characters**
- Escape characters are *treated differently* by computer
- For example, \n is interpreted as new line (Enter) by Python
- Usually it takes the form ”\”+”<another character>”

Explaining helloworld.py: \n

Here are more escape characters. Try them out!

\n	New Line
\r	Carriage Return
\t	Tab (Horizontal)
\\	Backslash
\’	Single Quote
\”	Double Quote

Explaining helloworld.py : Comments

- Those lines after # are called **comments**
- They are ignored by compiler and will not affect how the code run
- Their are notes left by programmers to help himself/herself/others to understand the code
- **For more complicated program, comments are necessary**. Otherwise, code will be very difficult to comprehend and debug

Explaining helloworld.py : Comments

Another type of comments available in Python (and many other languages) is the **block comment**. They look something like this:

```
# This is the single line comment we just saw

"""
   This is a block comment,
   anything inside this block will be ignored
"""

""" This is also a block comment """
```

Using an IDE

- As you can probably experience just now, using command line is sometimes a bit troublesome
- Hence programmers invented **integrated development environment (IDE)** to aid coding
- Here we will setup one of the most popular IDE / text editor on the market: **VSCode**

Setting up VSCode for Python

Step 1: Download **Visual Studio Code** from https://code.visualstudio.com/

Step 2: Follow the instructions in https://code.visualstudio.com/docs/python/python-tutorial to install learn how to integrate python with VSCode