Python Class:

<u>Pre-Requisite</u>

1. Suitable for beginners (without programming knowledges)
2. Install Anaconda from [Anaconda | The World's Most Popular Data Science Platform](#)
3. Install Visual Studio Code ([Visual Studio Code - Code Editing. Redefined](#))
4. Python IDE (https://www.python.org/downloads/)
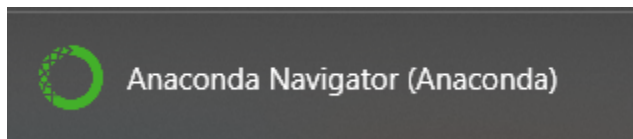
<u>Why Use Anaconda</u>

- Ease of installation and configuration
- Easy to see data and output from graph & excel file

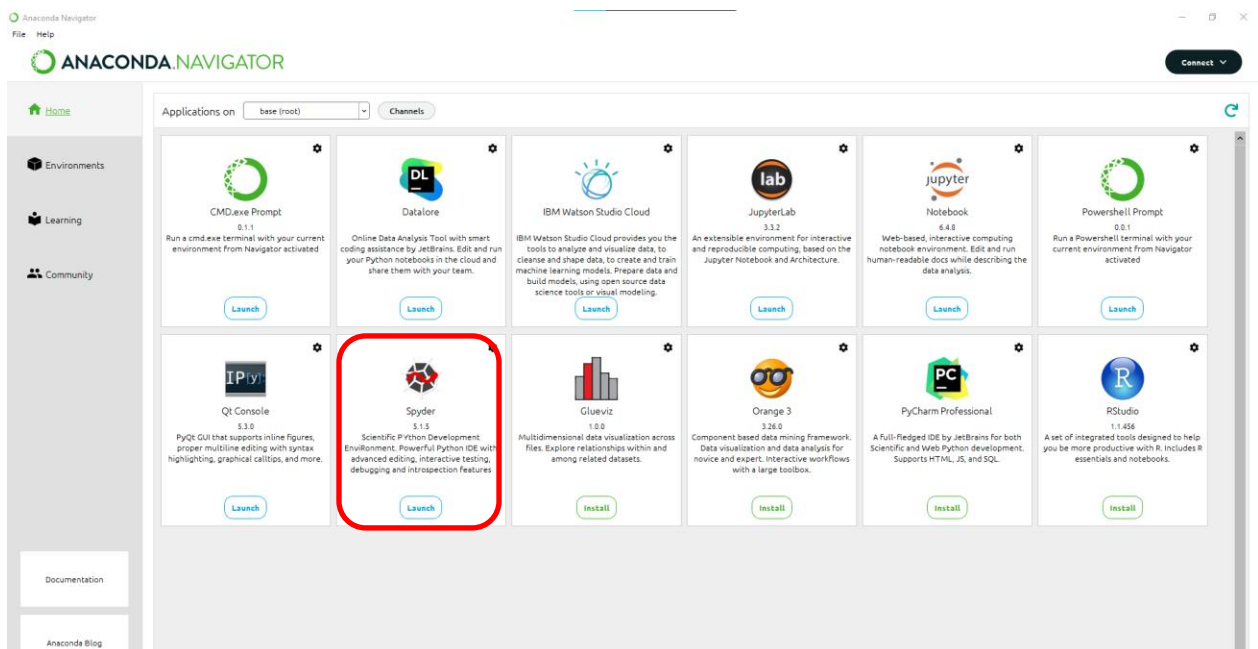<u>Other Alternatives than Anaconda (require less space in the system)</u>

- Google Colab (https://colab.research.google.com/?utm_source=scs-index)

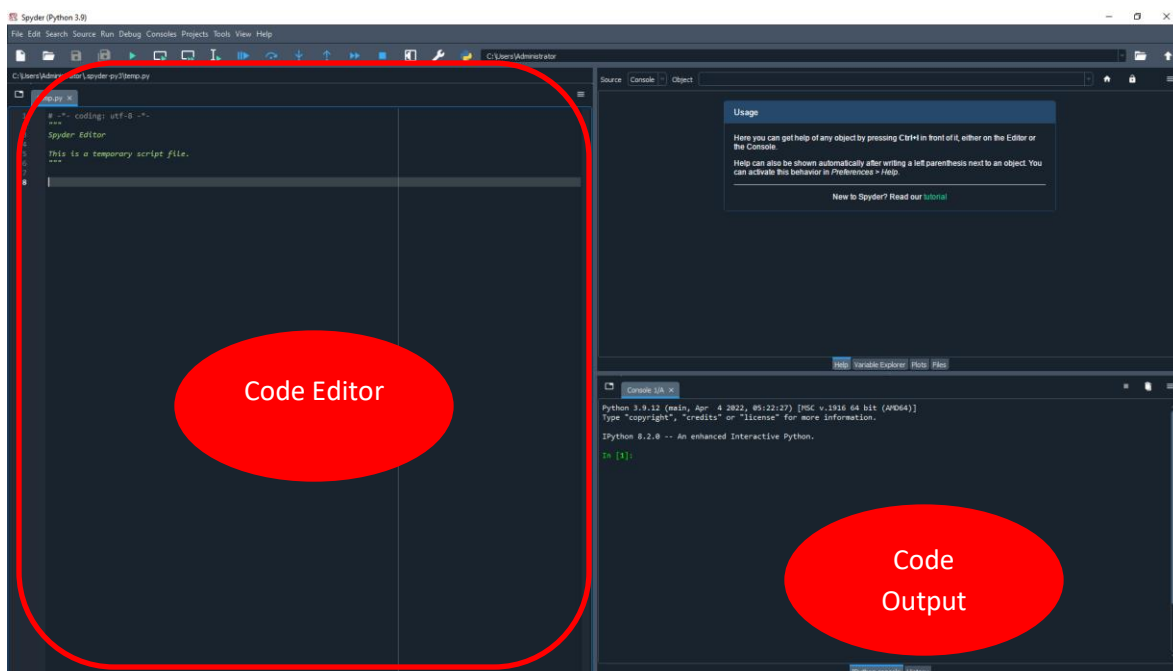<u>Getting Start with Anaconda</u>

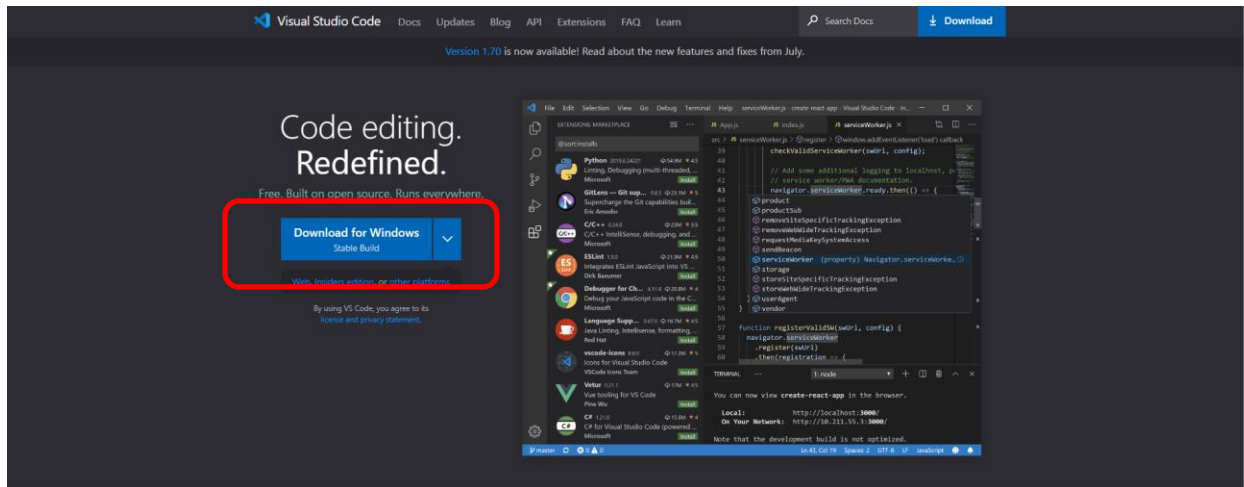After Installation, Search for Anaconda Navigator: (Run as Administrator)

Launch Spyder:

Initialization:

In case not working: Run > Configuration per file > Execute in an external system terminal

<u>Getting Start with VS Code</u>

- Accept the agreement and click "Next"
- Choose where you want to install the Visual Studio Code and click "Next"
- Select start menu folder and click "Next"

Tick the additional tasks as below and click "Next"

Select the additional tasks you would like Setup to perform while installing Visual Studio Code, then click Next.
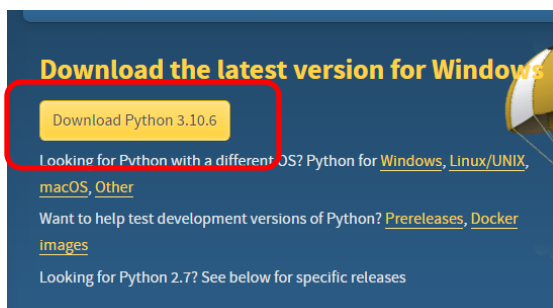
Additional icons:

☑ Create a desktop icon

Other:

☐ Add "Open with Code" action to Windows Explorer file context menu

☐ Add "Open with Code" action to Windows Explorer directory context menu

☑ Register Code as an editor for supported file types

☑ Add to PATH (requires shell restart)

And install it!!!

Then install Python at: (https://www.python.org/downloads/)

Download the latest version for Windows

Download Python 3.10.6

Looking for Python with a different OS? Python for Windows, Linux/UNIX, macOS, Other

Want to help test development versions of Python? Prereleases, Docker images

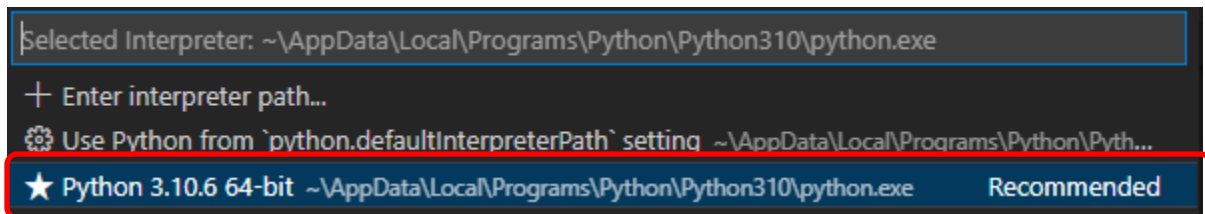Looking for Python 2.7? See below for specific releases

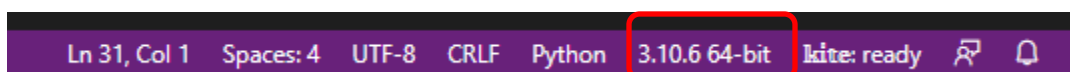Select Add Python 3.10 to Path & "Install Now"

Open Visual Studio Code and "Select Interpreter" after finish installing Python
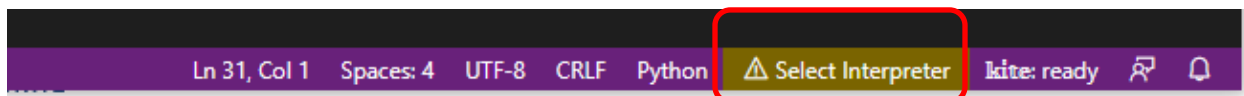
Select the Python that you had just installed

Once Interpreter selected

Now you are good to go for the lesson 1.

`Python Cheat Sheet`

Main Rule

Indentation refers to the spaces at the beginning of a code line.

Where in other programming languages the indentation in code is for readability only, the indentation in Python is very important.

```
if 5 > 2:
  print("Five is greater than two!")      - OK

if 5 > 2:
print("Five is greater than two!")        - Syntax Error
```

Variable Name

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume). Rules for Python variables:

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive (age, Age and AGE are three different variables)

Variable's Data Type

Example	Data Type	Remarks
a = "Hello World"	str	String
a = 5	int	Integer
a = 5.0	float	Float
a = 5j	complex	Complex
	list	
	Tuple	
	Range	
	set	
	Bool	
	Bytes	
	NoneType	

Comments – Comments start with a #

```
#This is comment
```
← Will not be displayed at the Output, only for your reference

```
print("Hello World")
```
↑ Python built in function to print/display the output

Operator	Example	Same as	Remarks
=	x = 5	x = 5	x is 5
+=			
-=			
*=			
/=			
%=			
//=			
**=			
&=			
|=			
^=			
>>=			
<<=			

Python Arithmetic Operators – Perform Common Mathematical Operations

Operator	Name	Example
+	Addition	x + y
-	Subtraction	X - y
*	Multiplication	x * y
/	Division	x / y
%		
**		
//		

Python Comparison Operators – Used to compare two values

Operator	Name	Example
==	Equal	x == y
!=		
>		
<		
>=		
<=		

User Input

Method 1	Name = input("What is Your Name : ")
Method 2 (Expected input in int)	age = input("What is Your Age : ") age = int(age)
Method 2a (Expected input in int)	age = int(input("What is Your Age : ")

```python
#This is a comment

#Variable Naming
# A variable name must start with a letter or the underscore character
# A variable name cannot start with a number
# A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _ )
# Variable names are case-sensitive (age, Age and AGE are three different variables)

#  1.0  Data Types

#String
greet =  "Hello World"
#To check the data type & display output
print(type(greet))

#Integer
#Try to check the datatype
number = 1

#Float
#Try to check the datatype
float_number = 5.0

#Complex Number
#Try to check the datatype
complex_number = 1+3j

# 1.1 Assigning Operator
x =  5
## What is the value of x? Try to print out and check the results at terminal

# 1.2 Arithmetic Operator
## What is the value of c,d,e,f? Try to print out and check the results at terminal
a = 4
b = 2
c =  a+b
d =  a-b
e =  a*b
d =  a/b

## Try to use other arithmetic operator %, **, // on y&z and check the results at terminal
y = 3
z = 2
```

```python
## Can we do more advance calculation which involved more than 2 numbers, or different
datatype (int & float), try it out!!!
# 1.3 Input data
name = input("Enter Your Name")
age = input("What is your age? ")
## How to accept only int as the format for age?
```