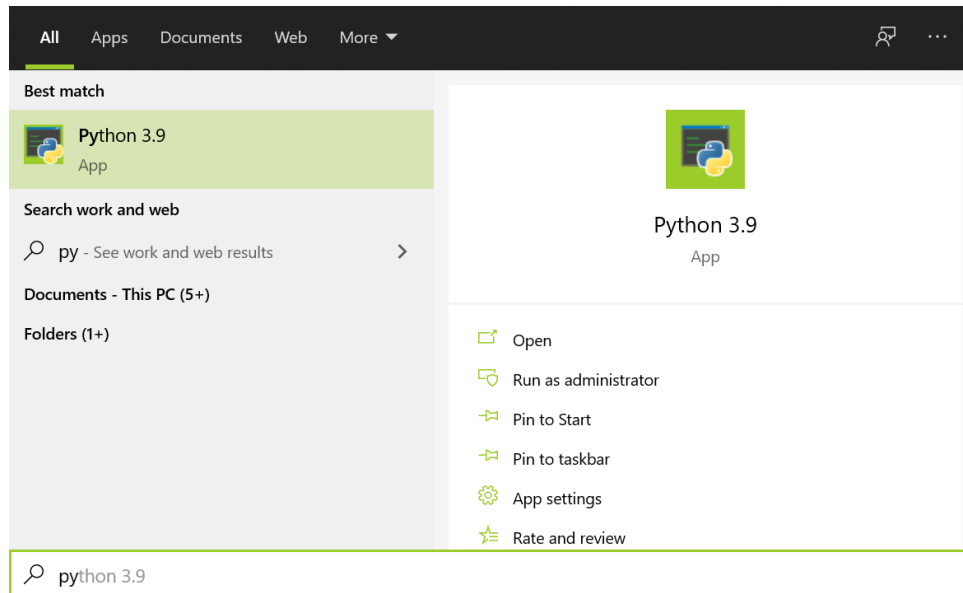
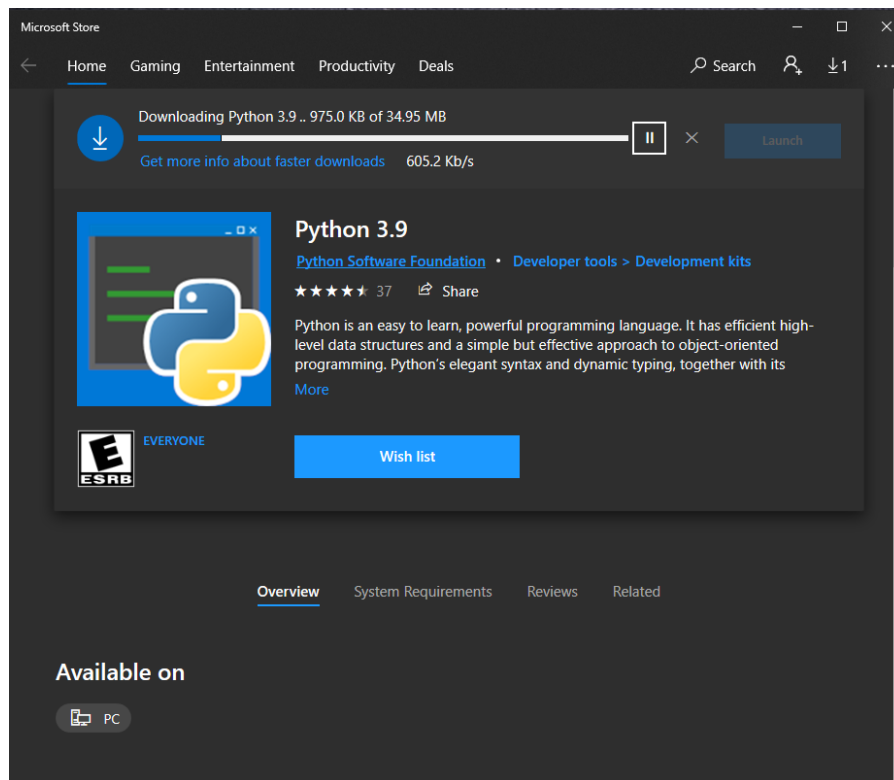


Install Python 3.9 for Windows 10.

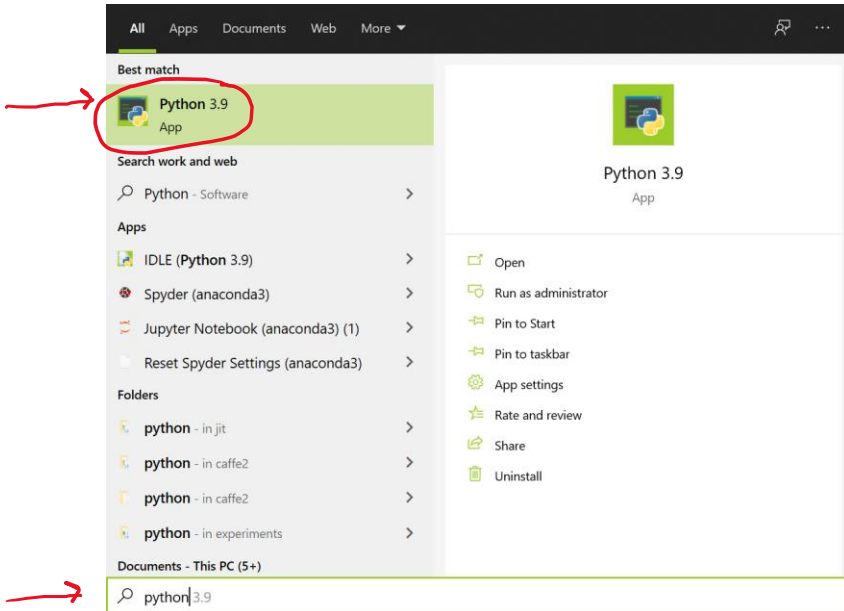


On Windows -> Start-> enter command “python” then press Enter.

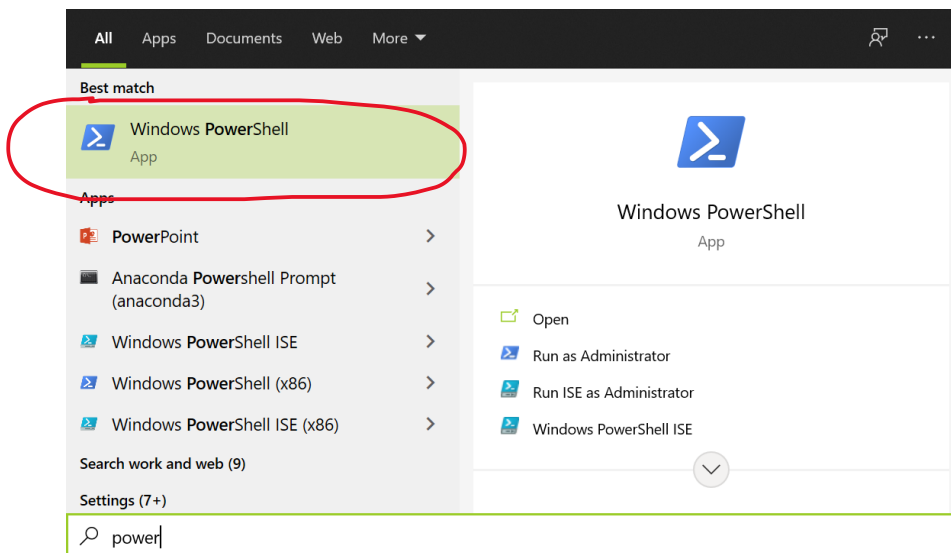
If you are first time for Python in your system, windows will show “Python in Microsoft Store”.



To check Python is ready in your system: Windows Start -> python



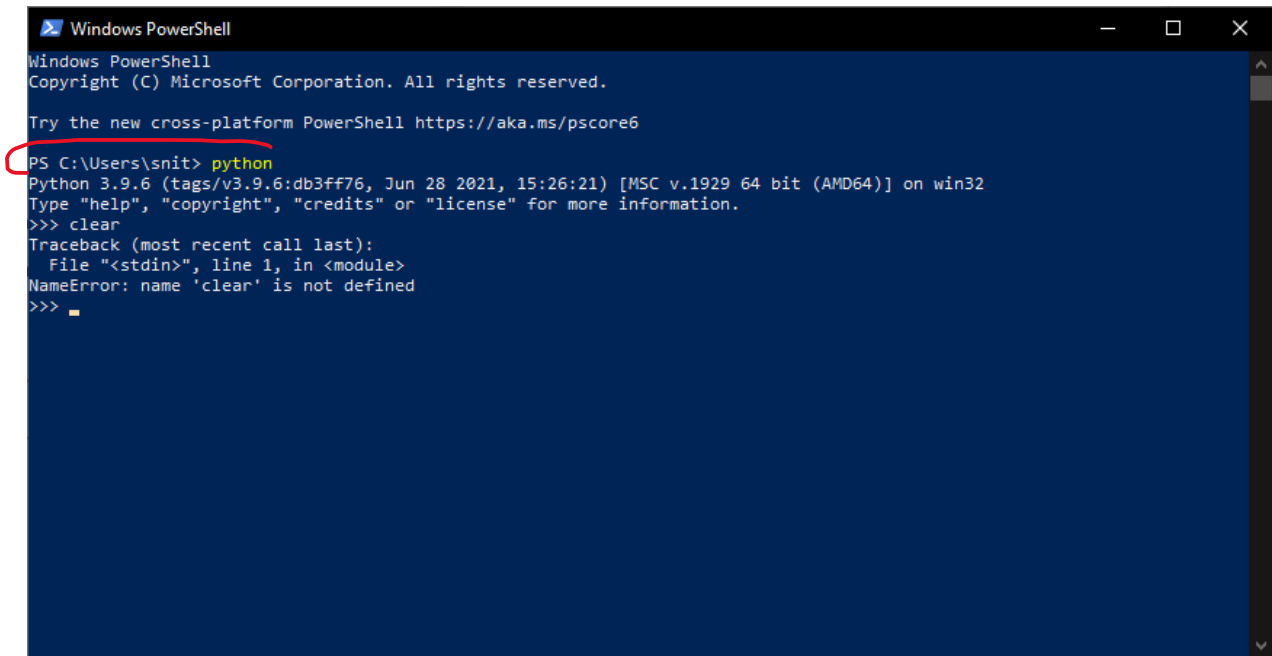
To play with python interpreter: Windows Start -> powershell



At powershell, you can control Windows with command line, such as call python interpreter.

Shell show where you are in file system tree such as in this case home directory of snit on drive C: path \User\snit. Here, this folder or directory you can work on files.

Python interpreter show in the examples, so you can try to instruct computer do some job or playing game in Python statements.

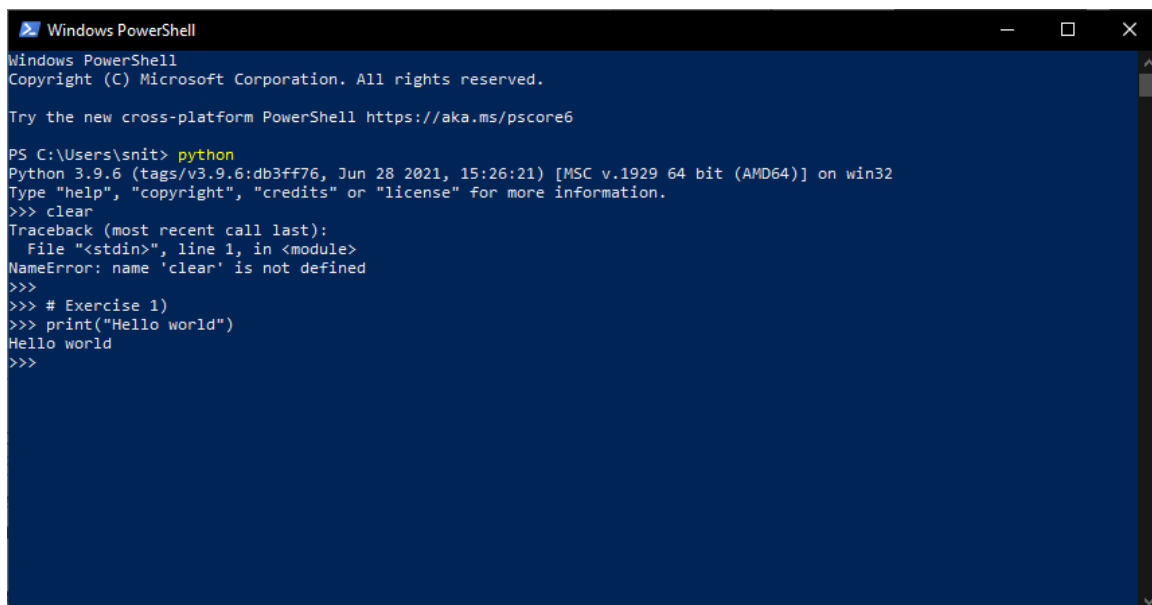


```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\snit> python
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> clear
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'clear' is not defined
>>> 
```

After this point, you can work on Laboratory 1, example 1



```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

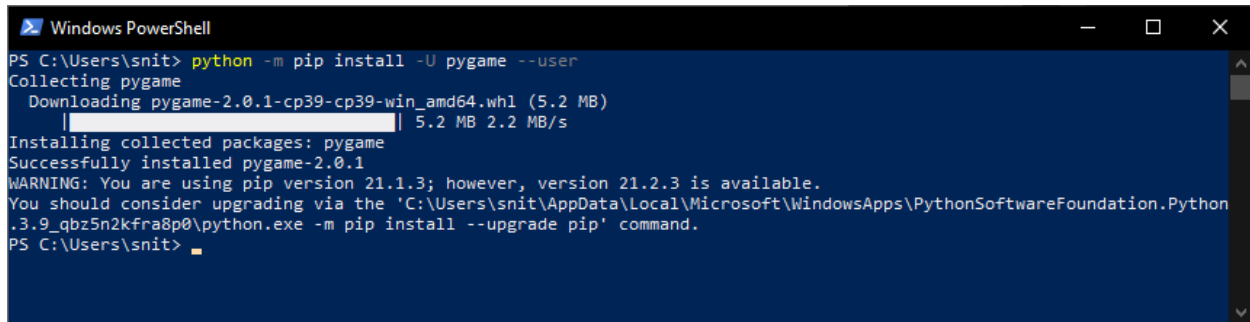
PS C:\Users\snit> python
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> clear
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'clear' is not defined
>>> 
>>> # Exercise 1
>>> print("Hello world")
Hello world
>>> 
```

To exit from python interpreter : `exit()`.

Install new module in Python

To install new library or module in Python, such game, pip is package management in Python.

You can add or remove library easier than C++.



```
Windows PowerShell
PS C:\Users\snit> python -m pip install -U pygame --user
Collecting pygame
  Downloading pygame-2.0.1-cp39-cp39-win_amd64.whl (5.2 MB)
    | 5.2 MB 2.2 MB/s
Installing collected packages: pygame
Successfully installed pygame-2.0.1
WARNING: You are using pip version 21.1.3; however, version 21.2.3 is available.
You should consider upgrading via the 'C:\Users\snit\AppData\Local\Microsoft\WindowsApps\PythonSoftwareFoundation.Python
.3.9_qbz5n2kfra8p0\python.exe -m pip install --upgrade pip' command.
PS C:\Users\snit>
```

You can test above installation, in powershell by

```
python -m pygame.examples.aliens
```

Python Script : How to start writing your own game. (prepare for Example #15)

In C++, we need to tell compiler where is end of line, not in Python.

In C++, we need to tell compiler where is boundary of block of code such loop or function with {}, indentation or tab/space at same column is detected as block in Python as how in follow example how to indentation used in loop and if statements.

To review Python as Script, Python Structure.

1. Open PowerShell (or Windows Command Prompt) and create an empty folder called "bounce". Navigate to this folder and create a file named "bounce.py". Open the folder in VS Code:

```
mkdir bounce
cd bounce
new-item bounce.py
code .
```

2. Using VS Code or any IDE editor, enter the following Python code (or copy and paste it):

```
import sys, pygame

pygame.init()

size = width, height = 640, 480
dx = 1
dy = 1
x= 163
y = 120
black = (0,0,0)
white = (255,255,255)

screen = pygame.display.set_mode(size)

while 1:

    for event in pygame.event.get():
        if event.type == pygame.QUIT: sys.exit()

    x += dx
    y += dy

    if x < 0 or x > width:
        dx = -dx

    if y < 0 or y > height:
        dy = -dy

    screen.fill(black)

    pygame.draw.circle(screen, white, (x,y), 8)

    pygame.display.flip()
```

3. Save it as: bounce.py.
4. From the PowerShell terminal, run it by entering: python bounce.py