

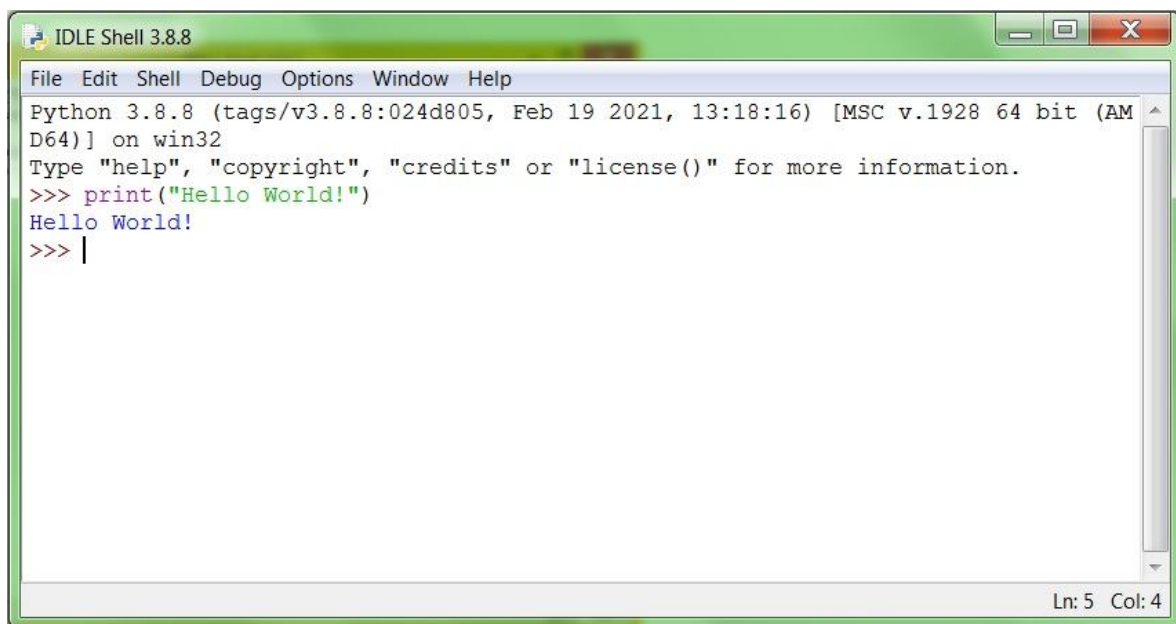
PYTHON/MPMATH/SYMPY INSTALLATION GUIDE FOR WINDOWS

Latest python version is available at the web site: <https://www.python.org/downloads/>

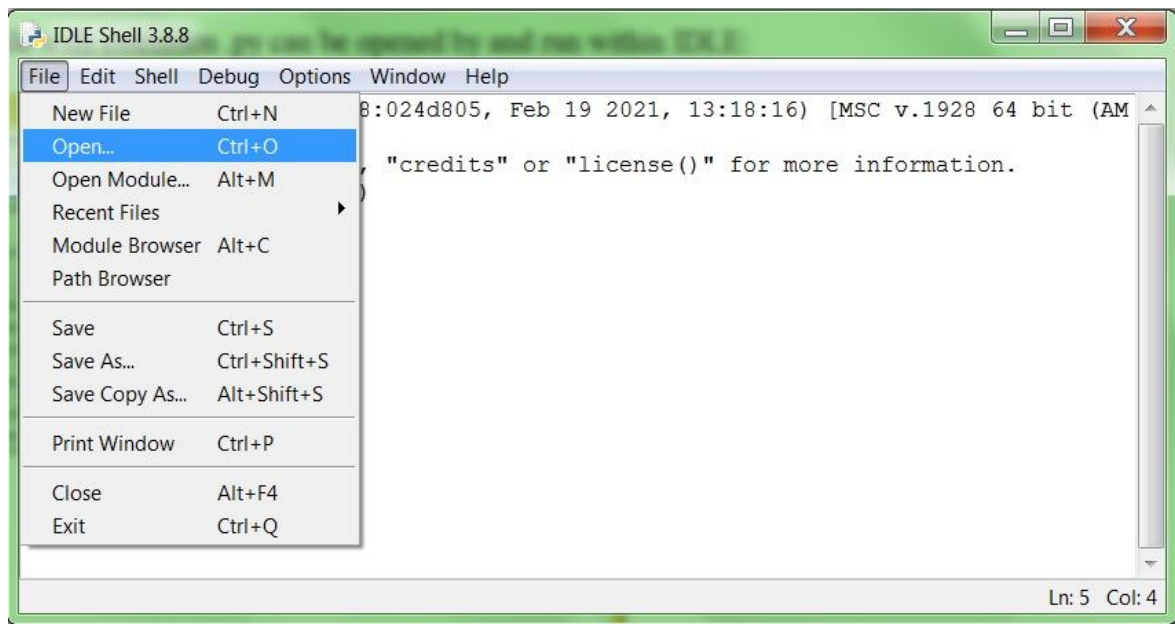
During installation, tick the box to add python version to PATH. Otherwise, you won't be able to use python commands from command prompt in Windows.



After installation you can launch the IDE (Integrated Development Environment) IDLE:

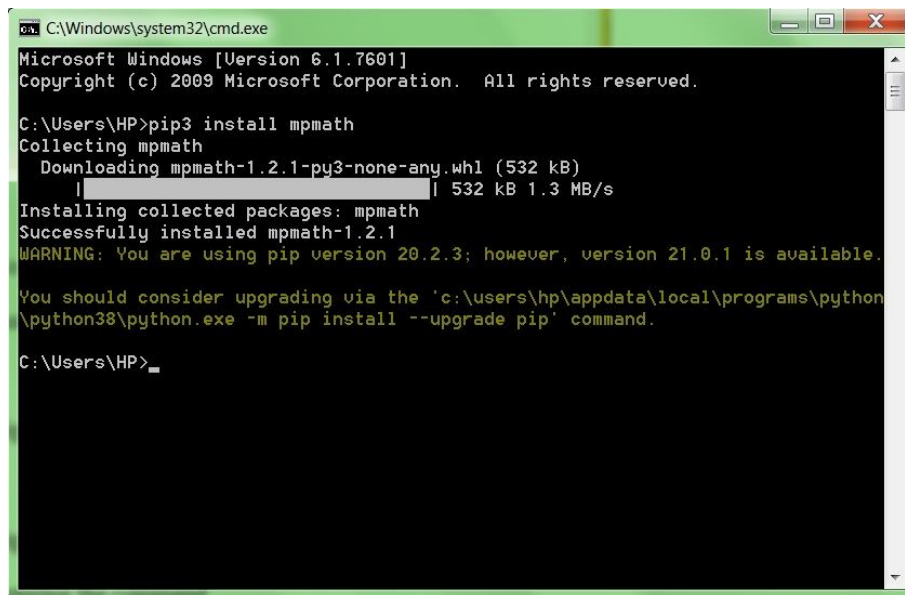


Any python file with extension .py can be opened by and run within IDLE:



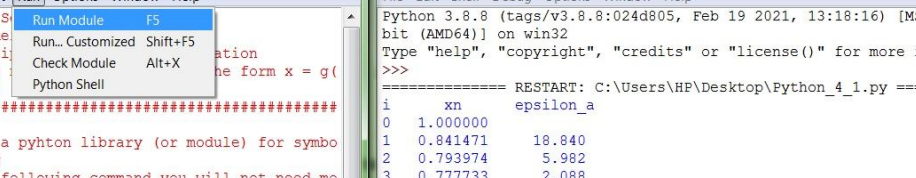
To be able to install SymPy, first you need to install the python library mpmath. For this installation, open the command prompt in windows and enter the command:

`pip3 install mpmath`



```
pip3 install sympy
```

IDLE:



The screenshot shows a Windows desktop with two open Python IDE windows. The left window, titled "Python_4_1.py", displays a script for solving a differential equation using SymPy. The script includes comments in red and code in black. A context menu is open over the "Run" button, showing options like "Run Module", "Run... Customized", "Check Module", and "Python Shell". The right window, titled "IDLE Shell 3.8.8", shows the execution output of the script. It displays a table of values for x and ϵ_a .

Python_4_1.py Script:

```
# Prof. Dr. S. ...
# ME 310 Name: ...
# Python scri...
# Solves the ...
# Python 4_1 ... the form  $x = g(t)$ 

#####

# SymPy is a pyhton library (or module) for symbo
# sympy.org
# with the following command you will not need mo

from sympy import *

x=Symbol('x')

# User input
# Maxium number of iterations: kmax
# Initial guess: x0
# Right-hand-side function: rhs
# Number of significant figures: n

n = 3
kmax = 20
x0 = 1
rhs = sin(sqrt(x))
g = lambdify(x, rhs)
```

IDLE Shell 3.8.8 Output:

```
Python 3.8.8 (tags/v3.8.8:024d805, Feb 19 2021, 13:18:16) [MSC v.1928 64
bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\HP\Desktop\Python_4_1.py =====
i      xn      epsilon_a
0      1.000000
1      0.841471      18.840
2      0.793974      5.982
3      0.777733      2.088
4      0.771943      0.750
5      0.769848      0.272
6      0.769086      0.099
7      0.768808      0.036
>>>
```