

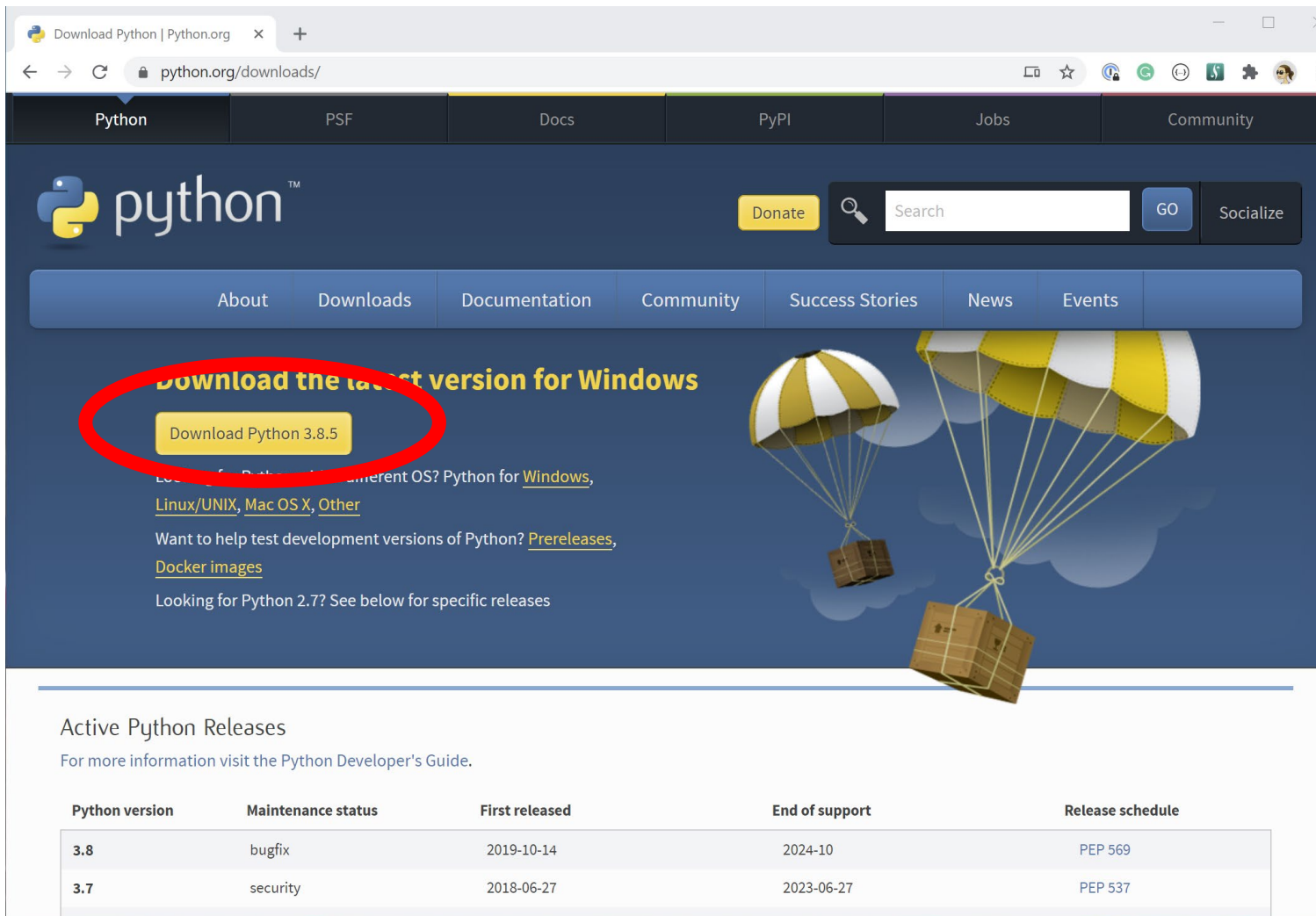
Python

- Python is a scripting language :
 - Free
 - Portable
 - dynamically-typed
 - object-oriented
- Python Combines software engineering features of traditional systems languages with power and flexibility of scripting languages.

Running Python Programs

- Hybrid compiled/interpreted architecture
- We will use **I**ntegrated **D**evelopment **L**earning **E**nvironment (IDLE), an integrated development environment for **Python**
- Options:
 - Start Interpreter from command line (>>>)
 - Type program statements
 - Import script file
 - Directly from IDLE

Download IDLE and Python <https://www.python.org/downloads/>



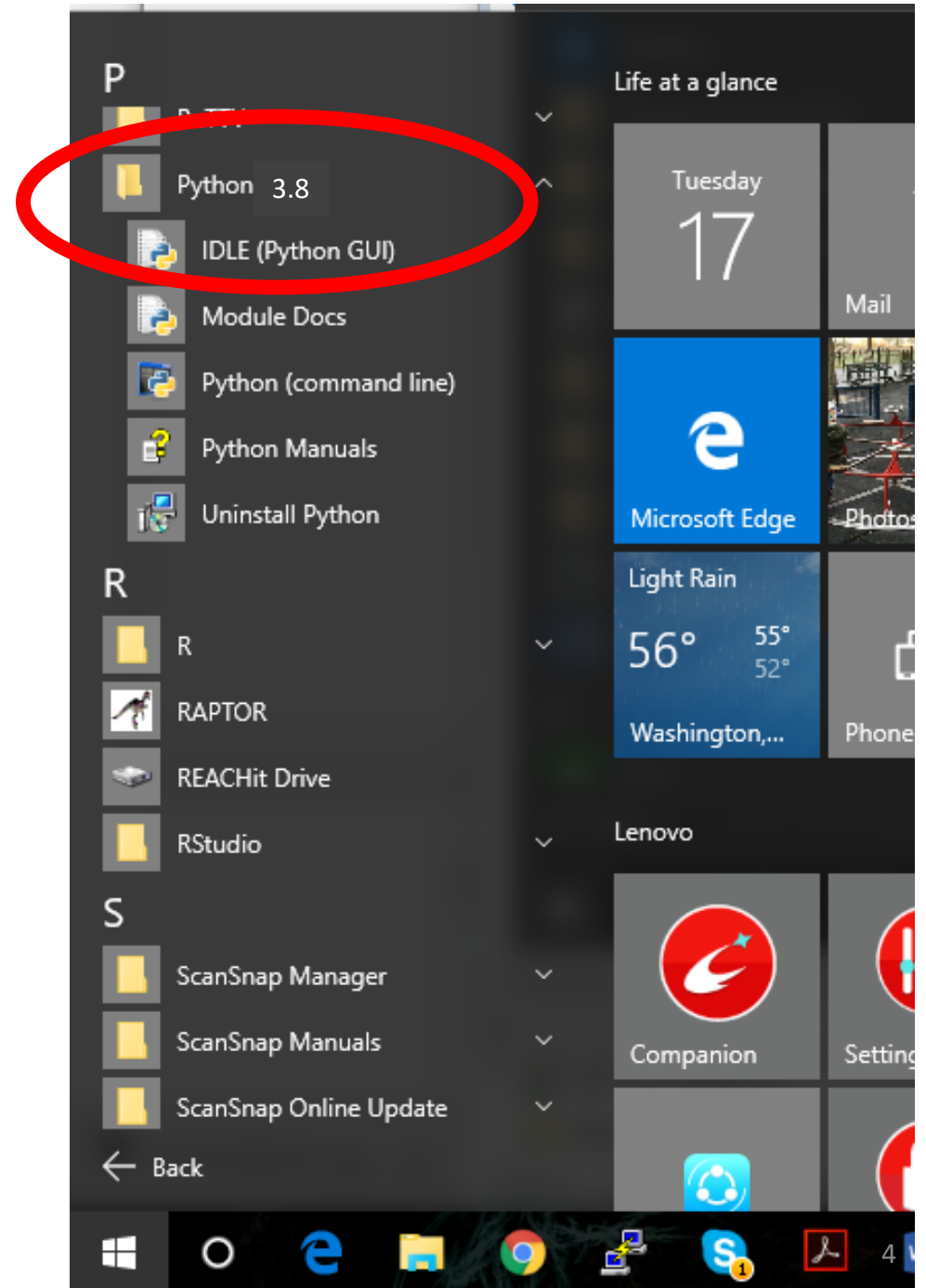
The screenshot shows the Python.org website's download page. The main heading is "Download the latest version for Windows" with a yellow button labeled "Download Python 3.8.5" circled in red. Below this, there are links for "Python for Windows, Linux/UNIX, Mac OS X, Other", "Prereleases", and "Docker images".

Active Python Releases
For more information visit the Python Developer's Guide.

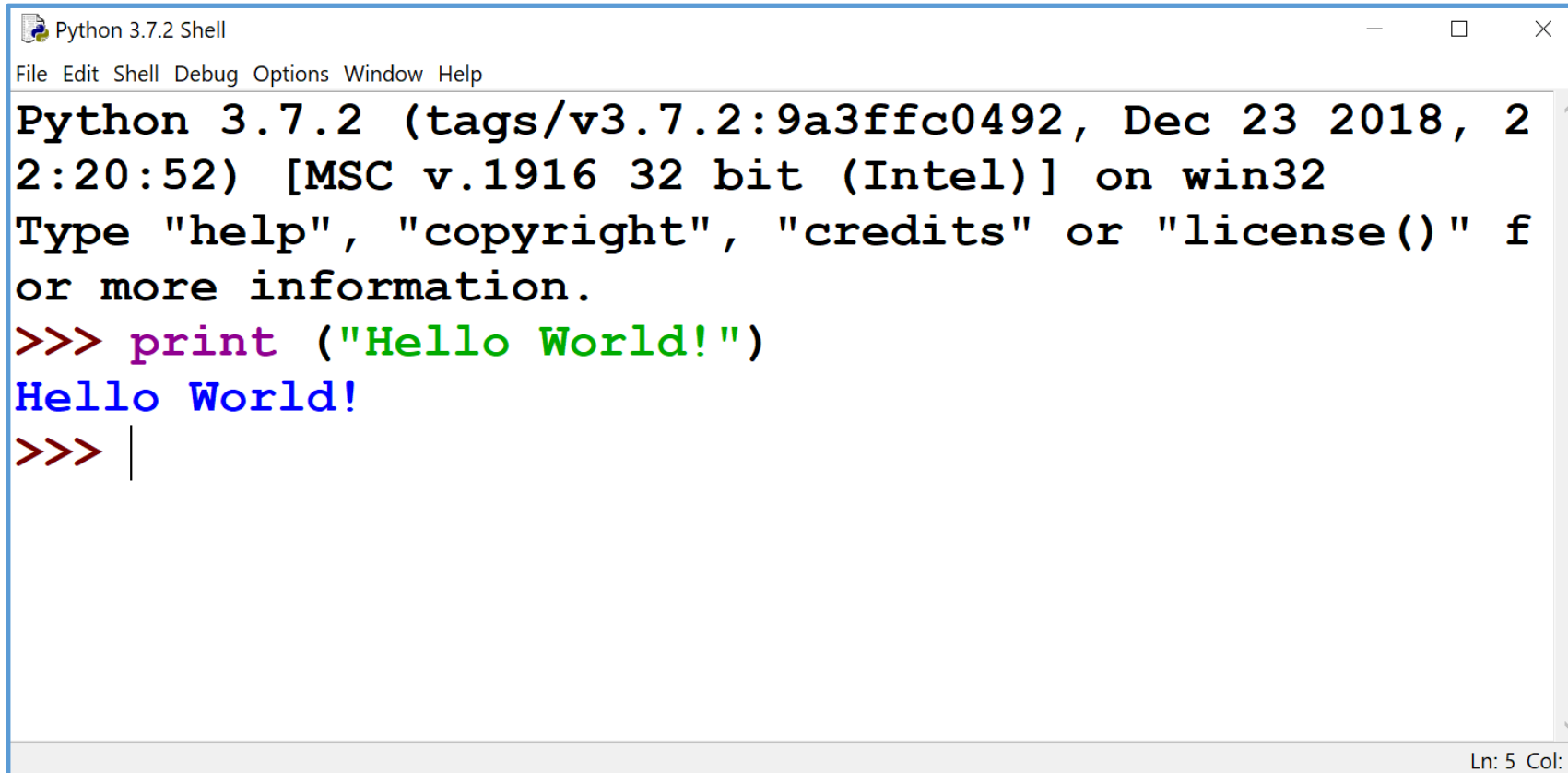
Python version	Maintenance status	First released	End of support	Release schedule
3.8	bugfix	2019-10-14	2024-10	PEP 569
3.7	security	2018-06-27	2023-06-27	PEP 537

IDLE

- A quick way to launch IDLE is from Window's Start Menu
 - → choose IDLE (Python GUI)
 - If you use Windows 10, see the example
 - For Windows 7 or Vista see the example in the [HowToStartIDLE.pdf](#) tutorial



IDLE Shell



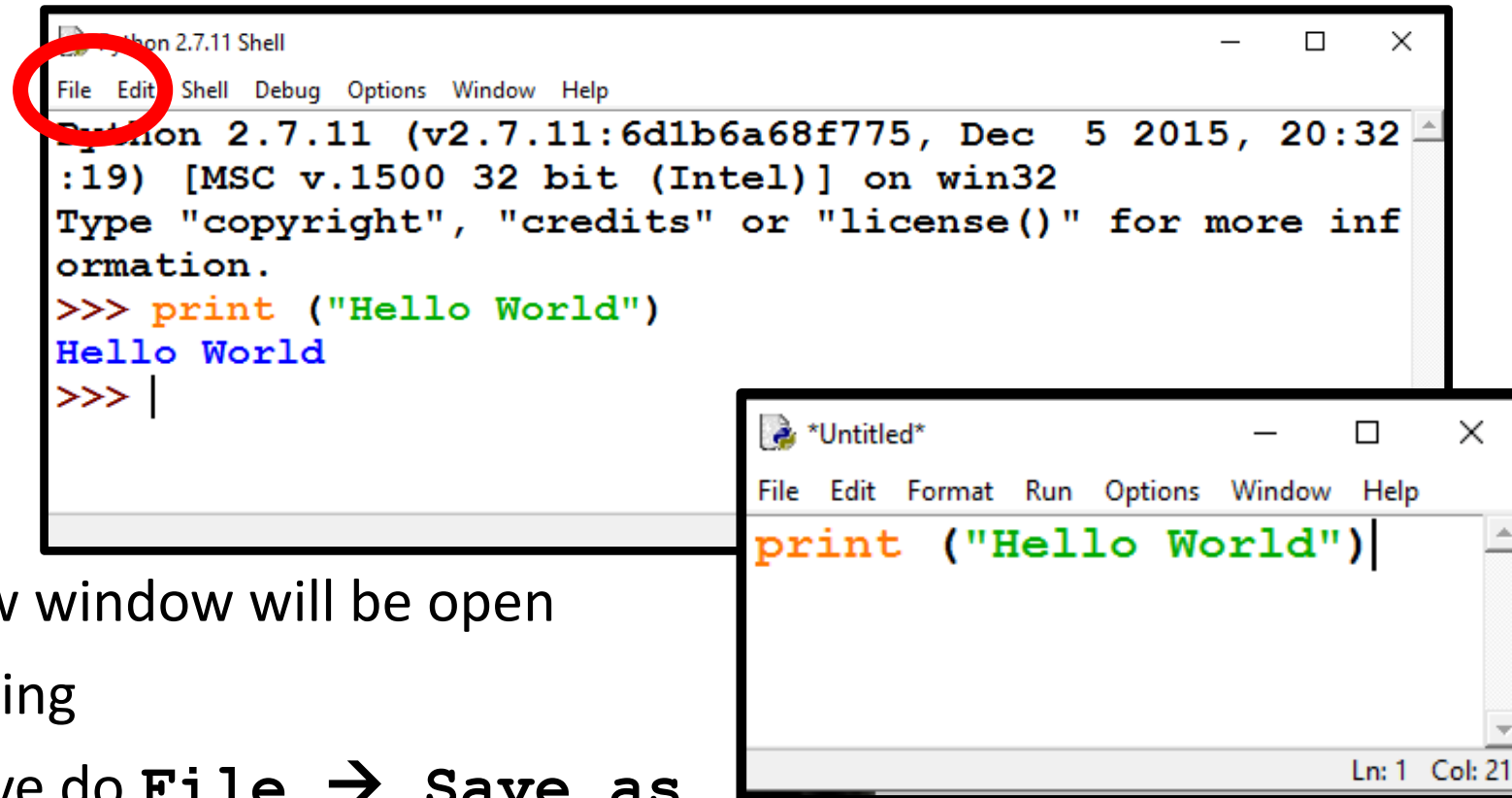
```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 2
2:20:52) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" f
or more information.
>>> print ("Hello World!")
Hello World!
>>> |
```

Ln: 5 Col: 4

Put the statement that you want to be displayed on the screen in double quotes. This is a String type that we will discuss later.

Creating and Running a Python program

- To create a new Python program, choose **File** → **New File** to open a text editor window

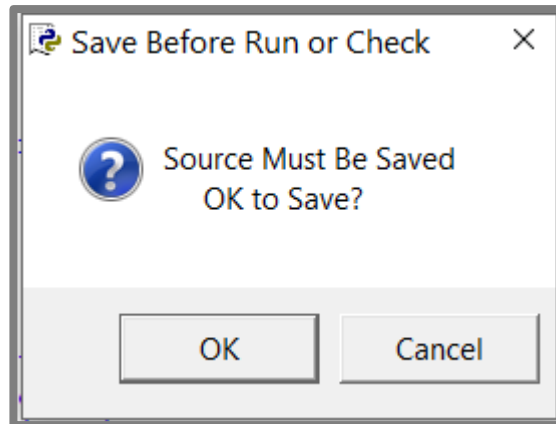


The image shows two overlapping windows from an IDE. The top window is titled 'Python 2.7.11 Shell' and has a menu bar with 'File', 'Edit', 'Shell', 'Debug', 'Options', 'Window', and 'Help'. The 'File' menu is circled in red. The shell displays the following text: 'Python 2.7.11 (v2.7.11:6d1b6a68f775, Dec 5 2015, 20:32:19) [MSC v.1500 32 bit (Intel)] on win32', 'Type "copyright", "credits" or "license()" for more information.', and a prompt '>>>' followed by the command 'print ("Hello World")' and its output 'Hello World'. The bottom window is titled '*Untitled*' and has a menu bar with 'File', 'Edit', 'Format', 'Run', 'Options', 'Window', and 'Help'. It contains the code 'print ("Hello World")' with a cursor at the end of the line. The status bar at the bottom right of this window shows 'Ln: 1 Col: 21'.

- A new window will be open for editing
- To save do **File** → **Save as**
- To run do **Run** → **Run module** or click **F5**

Saving file

- If the file that you try to run does not have all the recent updates you will see the following window. Click OK, follow the prompt and save your work



Comments

- Comments improve code readability and documentation
- Comments are not executed by a computer (a compiler skips them):
 - Comments are for programmers and users
 - Comments are not for computers

IPython Notebooks

- Anaconda: <https://ipython.org/install.html>
- Microsoft Azure
- Google CoLab:
<https://colab.research.google.com/notebooks/intro.ipynb>
 - Get a gmail account that you can use for running Google Colab