Introduction to PYTHON

Module 1 / Lecture-1

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Lecture-1 Topics

- About Python
- History
- Python Version
- Features of Python
- How to execute Python Program

About Python

- **Guido van Rossum**
- First released in the early 1990s.

- Its name comes from a 1970s British comedy sketch television show called ***Monty Python's Flying Circus*** .

History

- It was developed in **National Research Institute for Mathematics and Computer Science** in the **Netherlands**.
- Python is derived from many other languages:
  - ABC
  - Modula-3
  - C
  - C++
  - Algol-68
  - SmallTalk
  - Unix shell and other scripting languages.

Python Version

- Python 1.0 was released in November 1994.
- In 2000, Python 2.0 was released.
- Meanwhile, Python 3.0 was released in 2008.
- **Python 3 is not backward compatible with Python 2.**
- **Python 3.11.0a5 is available (2022-02-03).**

Python 2 vs. Python 3

- Python 2 uses **print** as a statement and used as ***print "something"***
- Python 3 uses **print** as a function and used as **print("something")**
- Python 2 uses the function ***raw_input()*** to accept the user's input.
- Python 3 uses **input()** function
- In Python 2, the implicit string type is ASCII, whereas.
- Python 3, the implicit string type is Unicode.
- Python 2 uses xrange() function which returns a xrange object that works similar to Java iterator.
- Python 3 range() returns a list for example the function range(0,3) contains 0, 1, 2.
- There is also a small change made in Exception handling in Python 3. It defines a keyword **as** which is necessary to be used.

Features of Python

Python is Interpreted:

- Processed at runtime by the interpreter.
- Do not need to compile your program before executing it.

Features of Python…

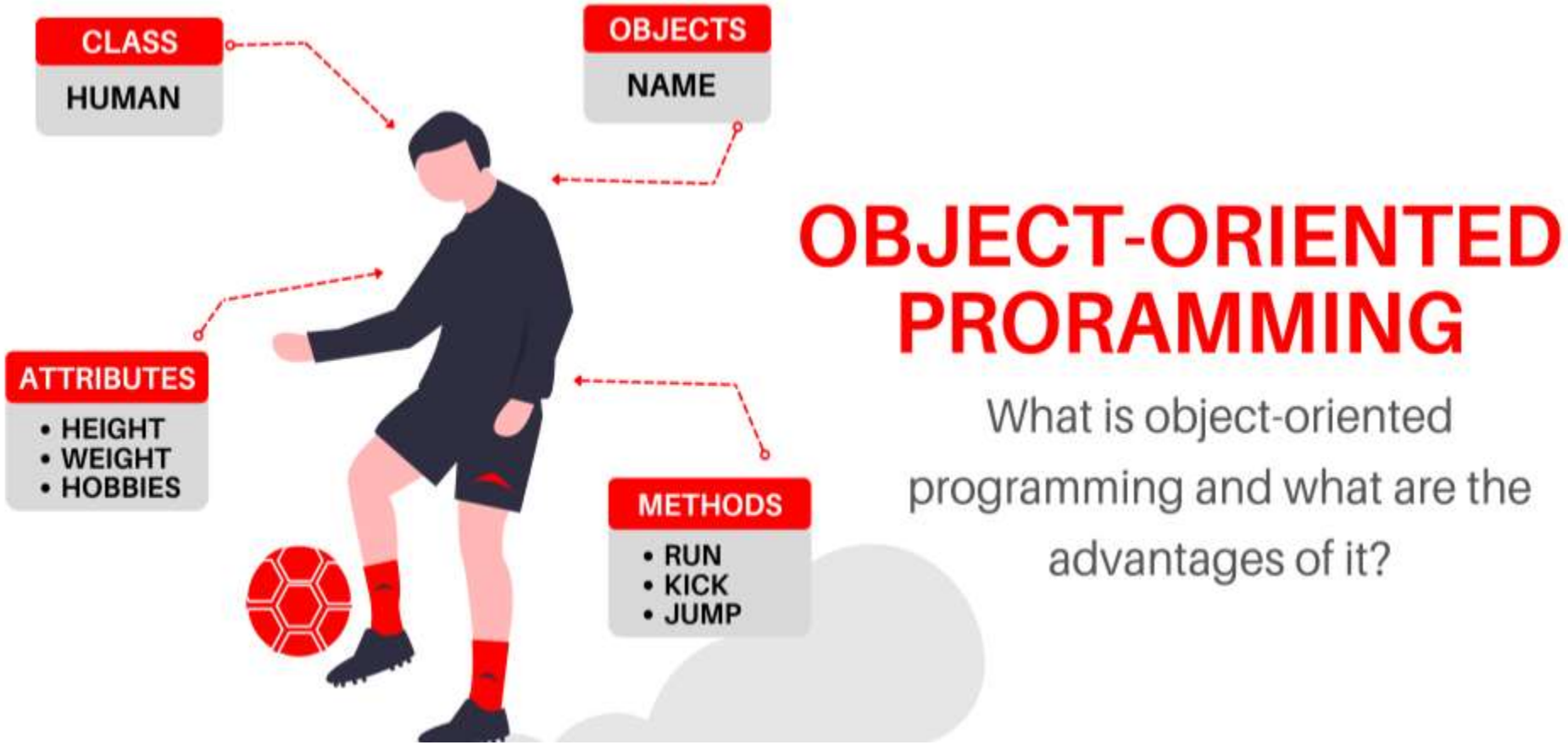
Python is Interactive

- You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.

```
>>>2+3
5
```

Features of Python…

Python is Object-Oriented



https://buggyprogrammer.com/what-is-the-object-oriented-programming-2021/

Features of Python…

Python is a Beginner's Language

Features of Python…

A broad standard library

Features of Python…

Portable

Features of Python…

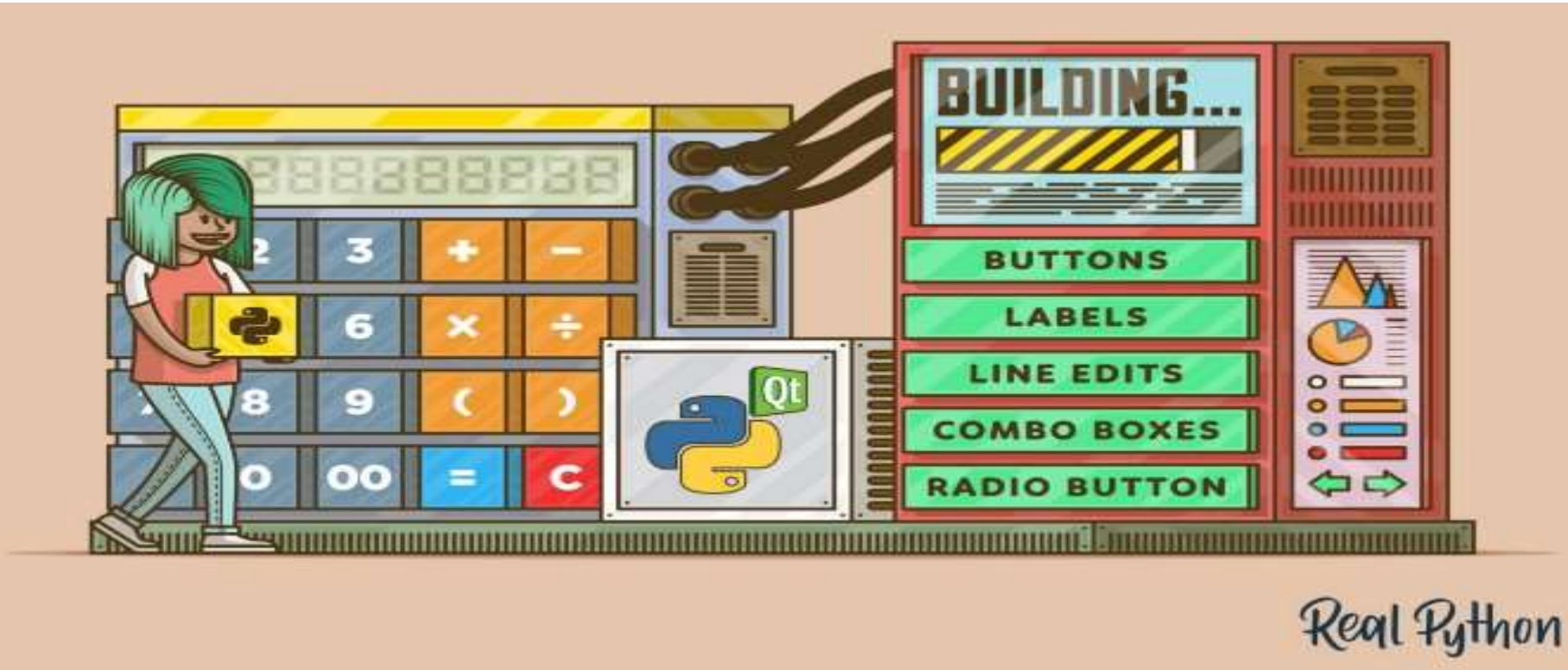
Databases

- Python provides interfaces to all major commercial databases.

Features of Python…

GUI Programming:

- Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems.

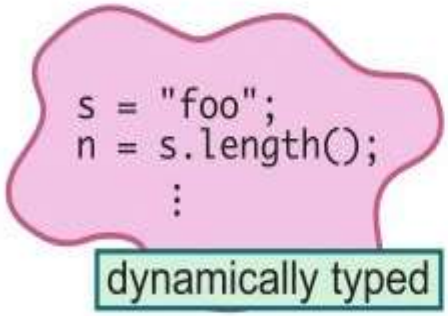


Features of Python…

Dynamically Typed Language:

- Does not require the declaration of type of a variable.
- **Python** interpreter does **type** checking only as code runs, and
- The **type** of a variable is allowed to change over its lifetime.

```
>>> a= 10
>>>type(a)
int
>>>a =“Hello”
>>>type(a)
str
```



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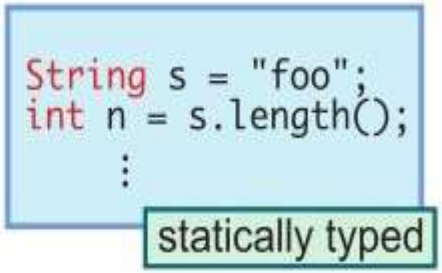


⊕ reliable

Python Applications

1. **Web and Internet Development**
   - Frameworks such as **Django** and **Pyramid**.
   - Micro-frameworks such as **Flask** and **Bottle**.
- Python's standard library supports many Internet protocols:
   - **HTML** and **XML**
   - **JSON**
   - **E-mail processing**.
   - Support for **FTP, IMAP**, and other Internet protocols.

2. Scientific and Numeric

- **SciPy** : collection of packages for mathematics, science, and engineering.
- **Pandas** : data analysis and modeling library.

3. Desktop GUIs

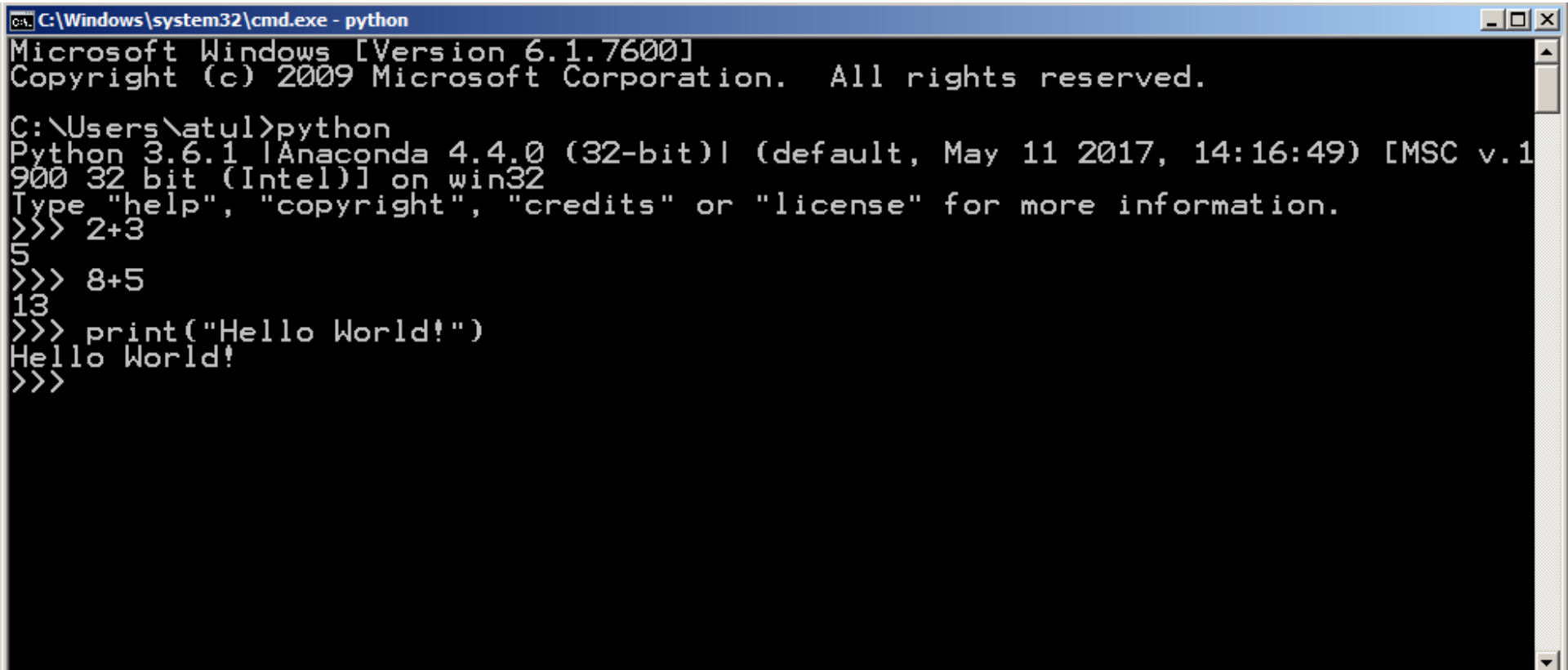
- The **Tk** GUI library is included with most binary distributions of Python.
- Some toolkits that are usable on several platforms are available separately:
  - **wxWidgets**
  - **Kivy**, for writing multi-touch applications.
  - **Qt** via **pyqt** or **pyside**

4. Software Development

- Python is often used as a support language for software developers, for build control and management, testing, and in many other ways.
  - **SCons** for build control.
  - **Buildbot** and **Apache Gump** for automated continuous compilation and testing.
  - **Roundup** or **Trac** for bug tracking and project management.

Executing Python Program

1. **Using Interactive interpreter prompt**
   - The “>>>” indicates that the shell is ready to accept interactive commands.



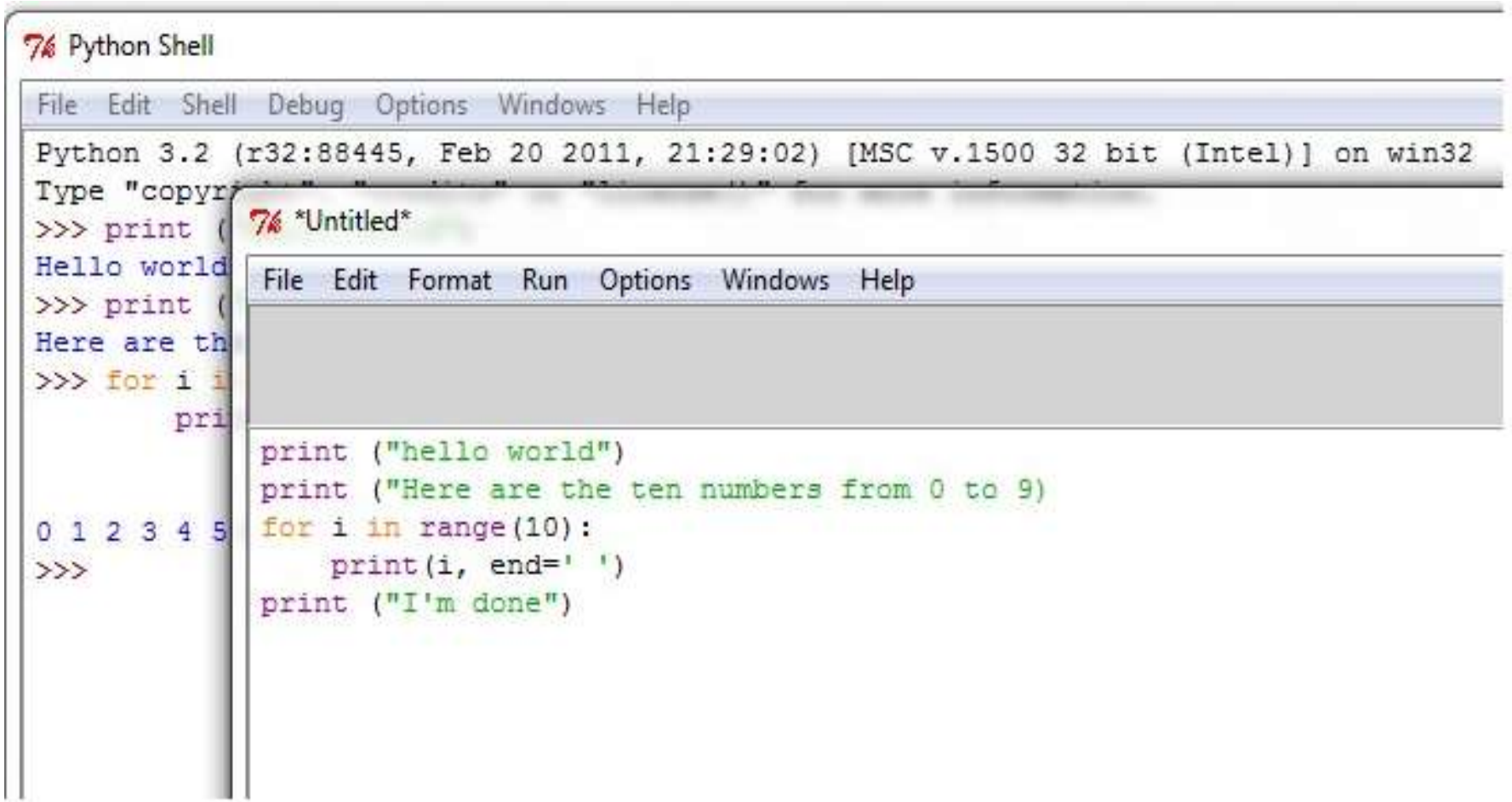
Executing Python Program

2. Using a script file:

- In script mode, write your code in a text file
- Then save it with a .py extension which stands for "Python".

OR

- In windows goto standard Python shell,
- click "File"
- then choose "New" or simply hit "Ctrl + N“
- a blank script file will be open
- write your code.
- press "Ctrl + S" to save it.
- run it by clicking "Run" then "Run Module" or simply press F5.



https://www.cs.uky.edu/~keen/help/python-tutorial/Lab0.html

“Hello World”

>>>**print(**“Hello World !”**)**

Hello World !

Basics of PYTHON

```
print ("Hello”)
print(“World”)
```

Output 1:

Hello
World

Output 2:

HelloWorld

Basics of PYTHON

```
print ("Hello”, end=“ \n ”)
print(“World”, end = “\n”)
```

Output :

Hello
World

Basics of PYTHON

```
print ("Hello”, end=“”)
print(“World”, end = “\n”)
```

Output :

HelloWorld