Python

UTOMO BUDIYANTO

What is Python ?

Python is a high level programming language for general purpose programming

Created by **Guido van Rossum** and first released in 1991

It is very dynamic and easy to use

It's **multiparadigm**, allowing programmers to write code in object-oriented, structural, or functional programming styles.

In 1989, Van Rossum was working on Amoeba, a microkernel-based distributed system. Guido realized that developing in C takes too much time. He decided to spend his free time building a language that would help him accomplish his work faster.

Source: https://gvanrossum.github.io

What is Python ?

He had an idea of a scripting language that would be somewhere between C and a shell script: **interpreted**, but much more **easily** programmable and **readable** than shell scripts.

As you probably have guessed, that language turned out to be **Python**.

*A fun fact: Python is not named after the snake species, but after the British surreal comedy troupe **Monty Python**.*

Source: https://legacy.python.org/

Future of Python ?

There are a couple of areas where Python is strong at right now:

Web development

With frameworks like Django and Flask, it's a great option for quick and simple web development.

Machine learning

Python has the best support for ML across all programming languages because of heavyweight libraries like TensorFlow and Keras. Furthermore, Python's easy syntax and simplicity makes it the programming language of choice for ML experts and data scientists.

Data science

Python has wonderful tools for data analysis and visualization, making it a reasonable choice at any point in a data pipeline.

Why Python ?

The PYPL PopularitY of Programming Language Index is created by analyzing how often language tutorials are searched on Google.

The more a language tutorial is searched, the more popular the language is assumed to be. It is a leading indicator. The raw data comes from Google Trends.

If you believe in collective wisdom, the PYPL Popularity of Programming Language index can help you decide which language to study, or which one to use in a new software project.

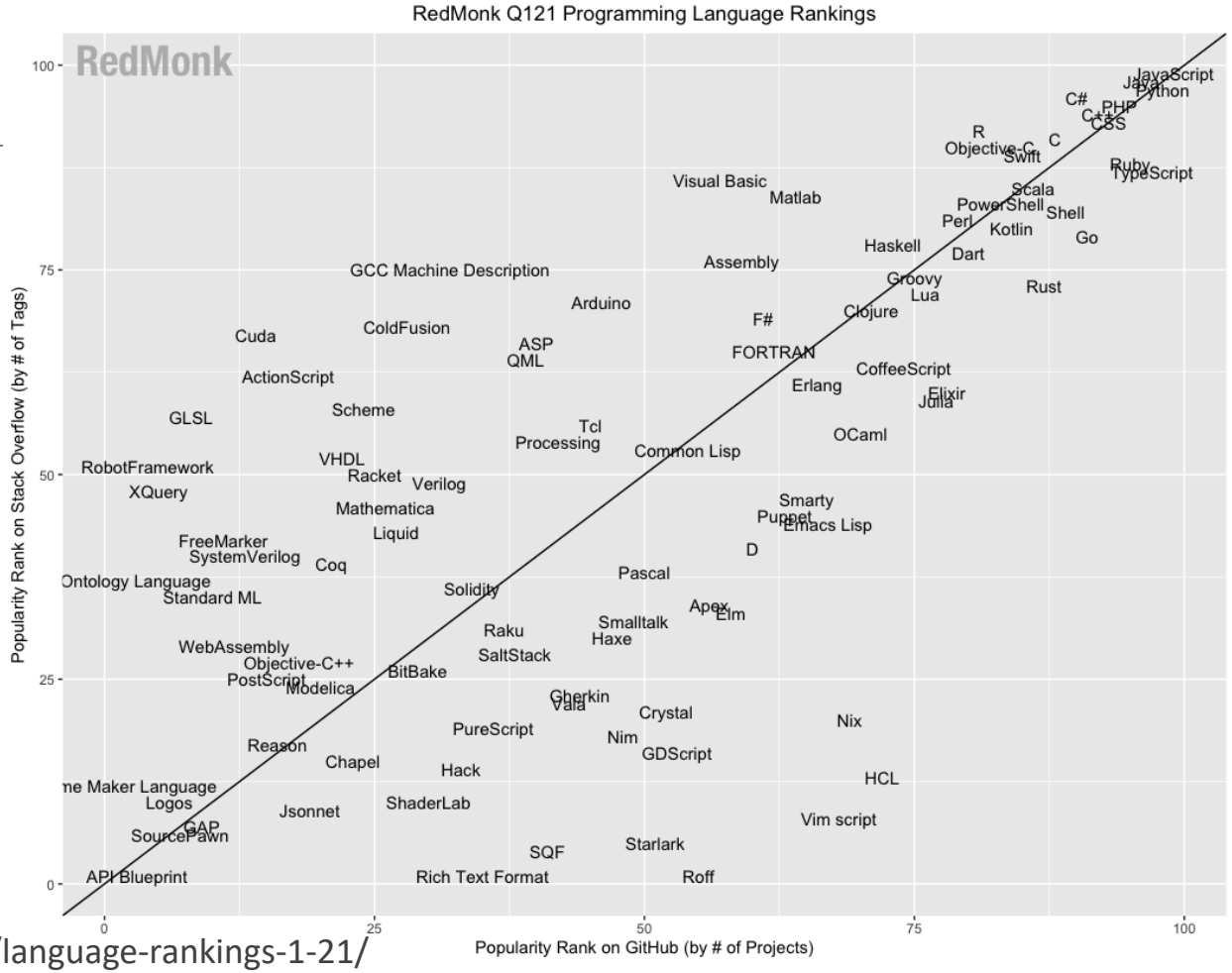
https://pypl.github.io/PYPL.html

Worldwide, Mar 2021 compared to a year ago:

Rank	Change	Language	Share	Trend
1		Python	30.17 %	-0.2 %
2		Java	17.18 %	-1.2 %
3		JavaScript	8.21 %	+0.2 %
4		C#	6.76 %	-0.6 %
5	↑	C/C++	6.71 %	+0.8 %
6	↓	PHP	6.13 %	+0.0 %
7		R	3.81 %	+0.0 %
8		Objective-C	3.56 %	+1.1 %
9		Swift	1.82 %	-0.4 %
10	↑	Matlab	1.8 %	-0.0 %
11	↑	Kotlin	1.76 %	+0.2 %
12	↓↓	TypeScript	1.74 %	-0.1 %
13	↑	Go	1.34 %	+0.0 %
14	↓	VBA	1.22 %	-0.1 %
15		Ruby	1.13 %	-0.1 %
16	↑↑	Rust	1.13 %	+0.5 %
17	↑↑↑↑↑↑	Ada	0.68 %	+0.4 %

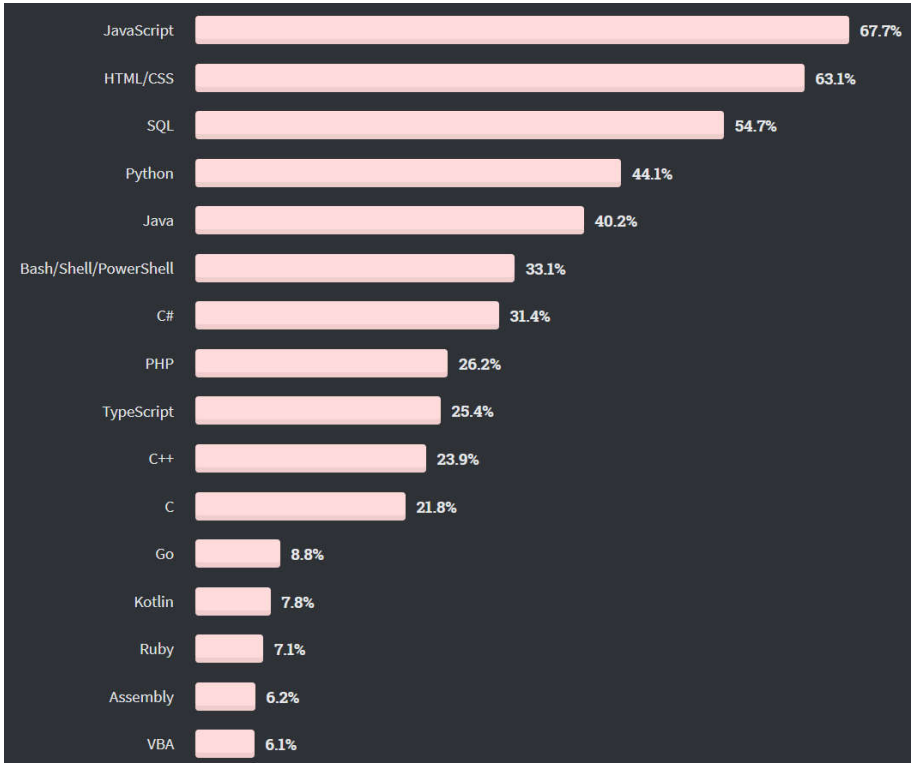
Why Python ?

1 JavaScript
2 Python
3 Java
4 PHP
5 C#
5 C++
5 CSS
8 TypeScript
9 Ruby
10 C
11 Swift
12 R
13 Objective-C
14 Shell
14 Scala
16 Go
17 PowerShell
18 Kotlin
19 Rust
20 Perl



https://redmonk.com/sogrady/2021/03/01/language-rankings-1-21/

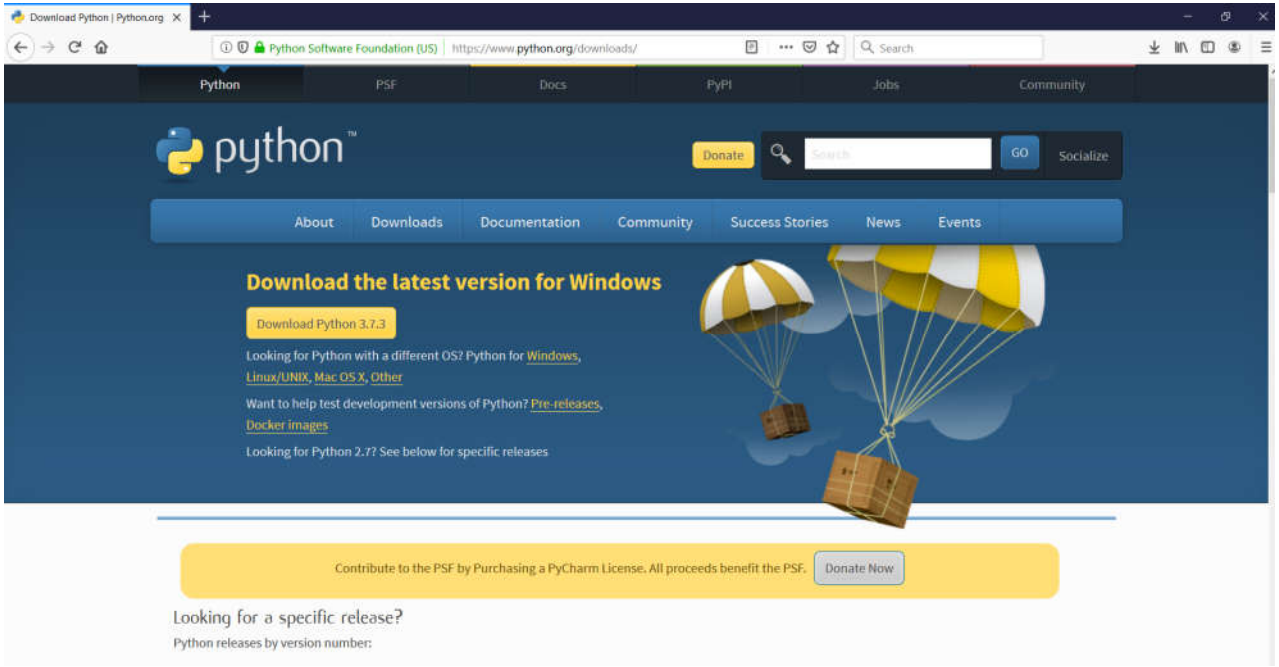
Why Python ?



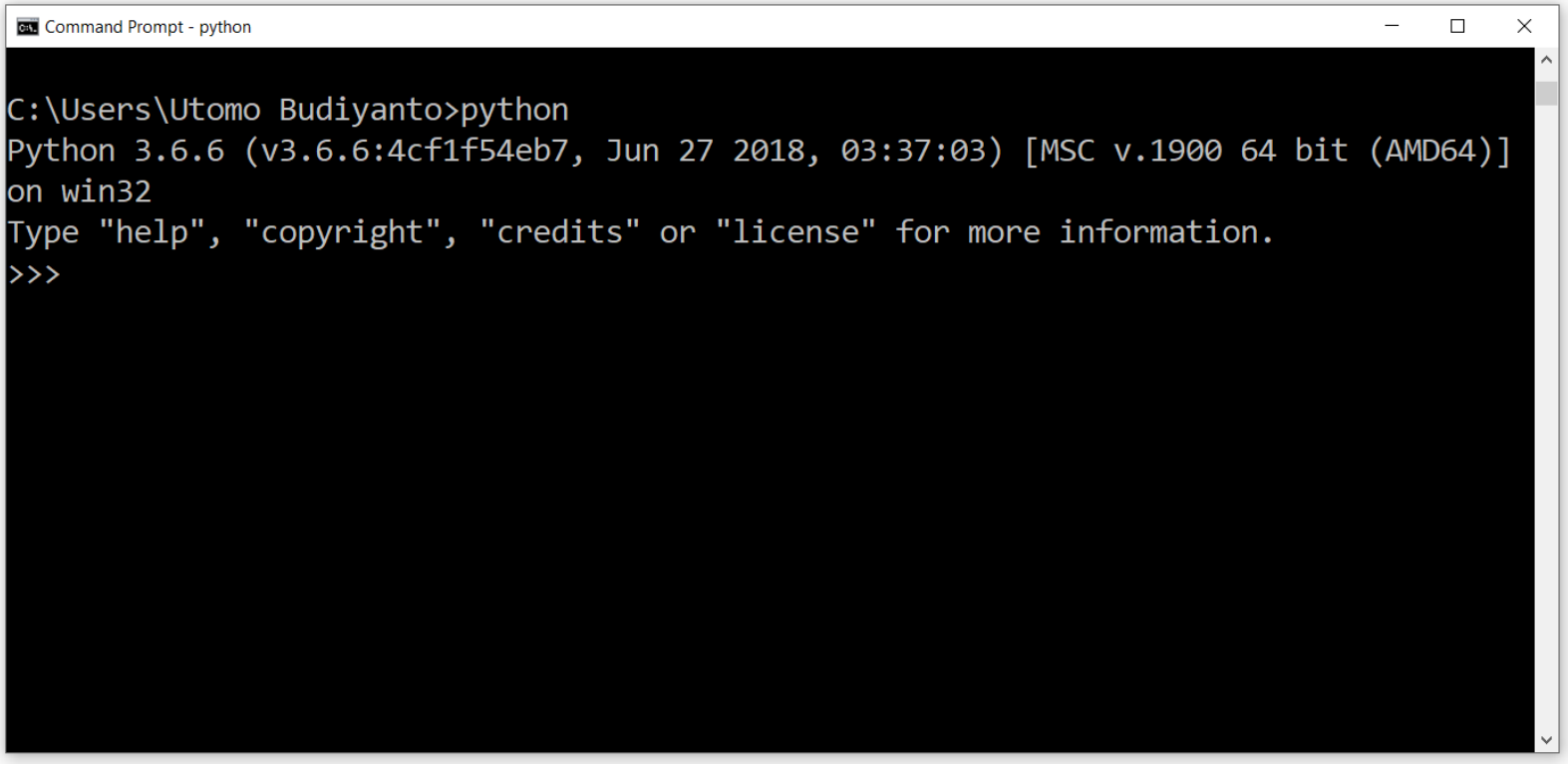
https://insights.stackoverflow.com/survey/2020#overview

Installation

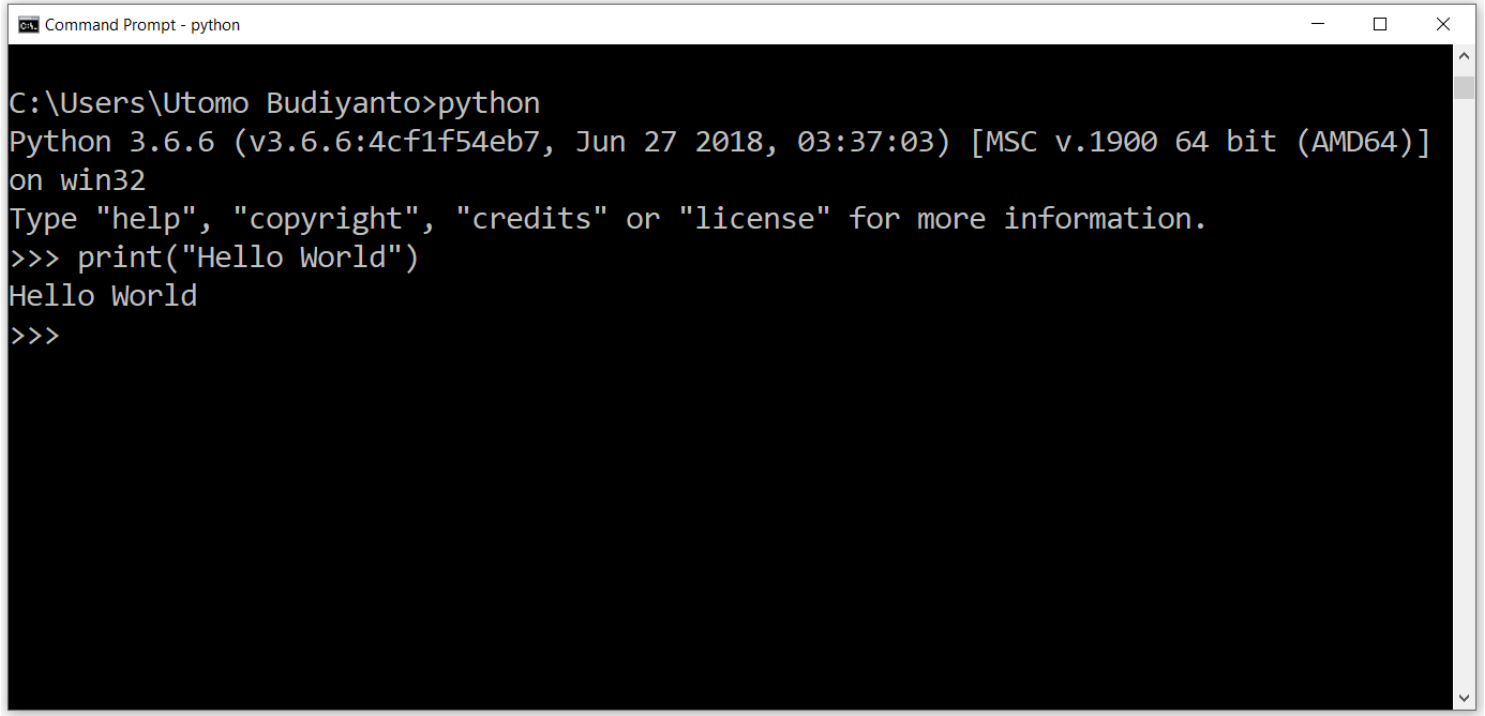
https://www.python.org



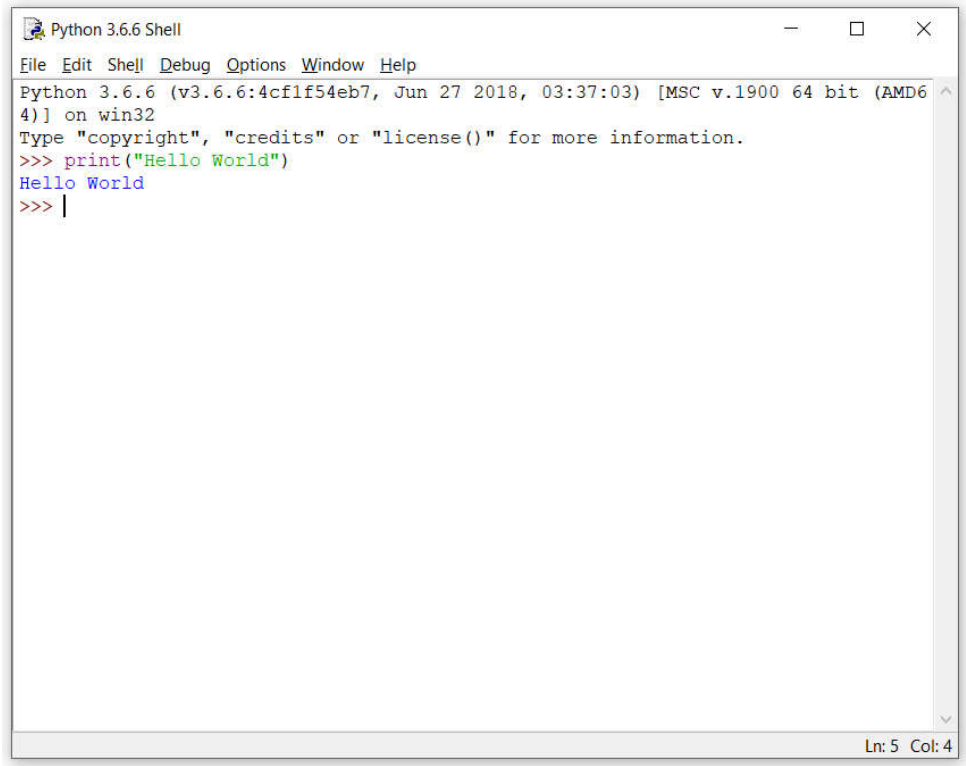
Running Python



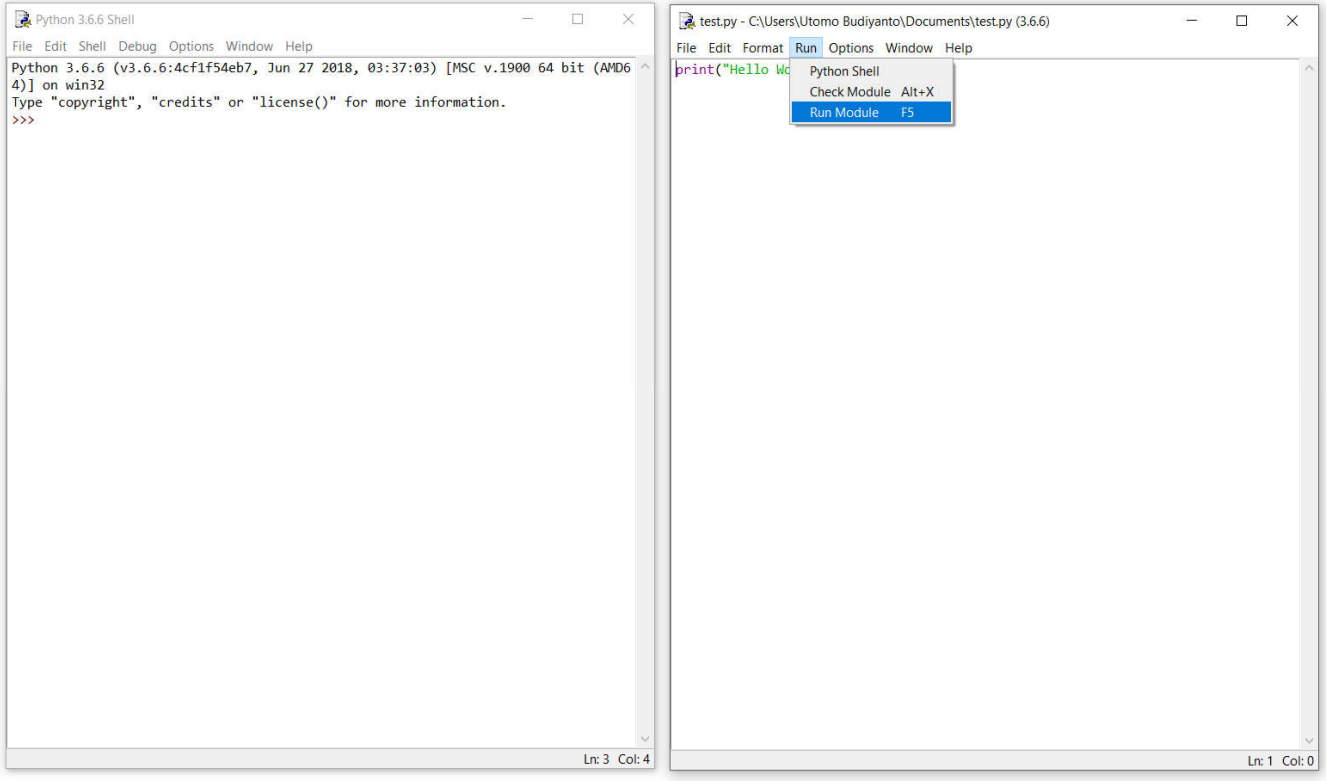
Hello World


Command Prompt - python
C:\Users\Utomo Budiyanto>python
Python 3.6.6 (v3.6.6:4cf1f54eb7, Jun 27 2018, 03:37:03) [MSC v.1900 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello World")
Hello World
>>>

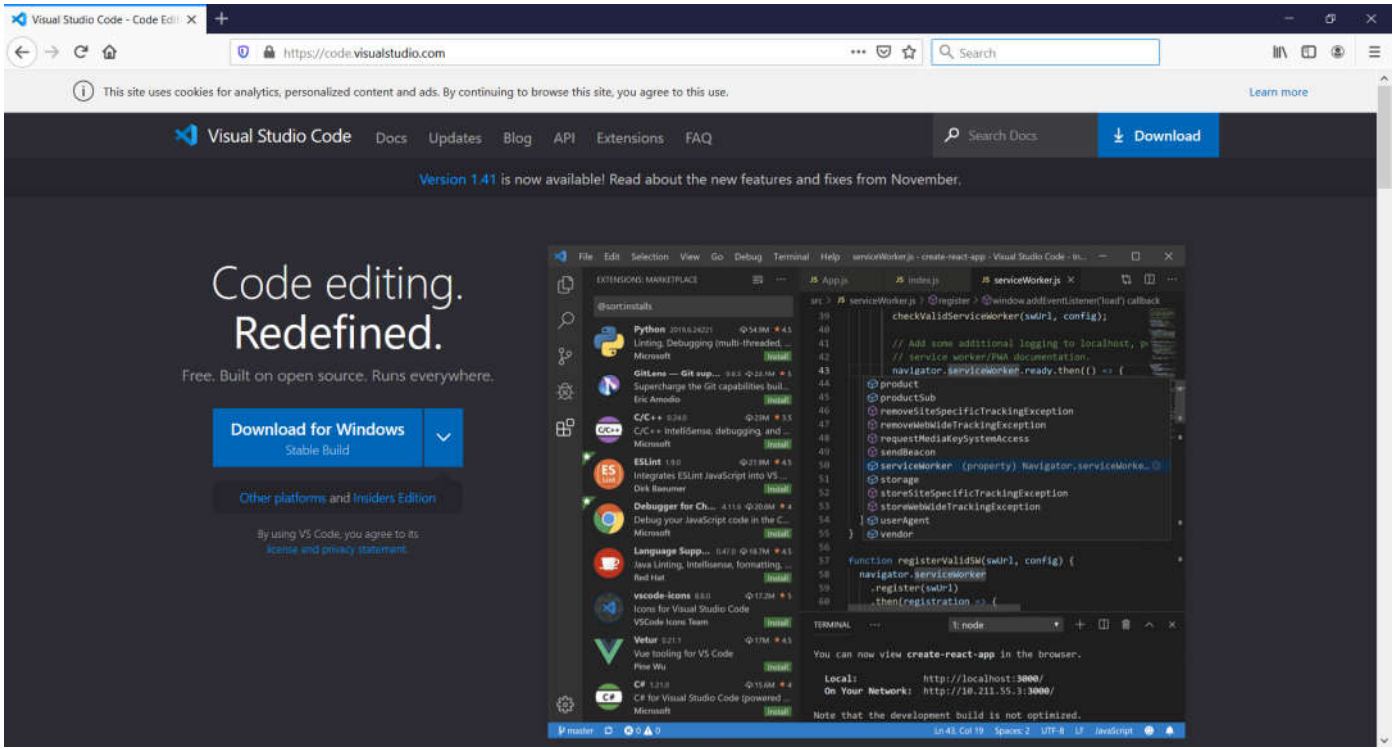
IDLE


Python 3.6.6 Shell
File Edit Shell Debug Options Window Help
Python 3.6.6 (v3.6.6:4cf1f54eb7, Jun 27 2018, 03:37:03) [MSC v.1900 64 bit (AMD6
4)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("Hello World")
Hello World
>>>
Ln: 5 Col: 4

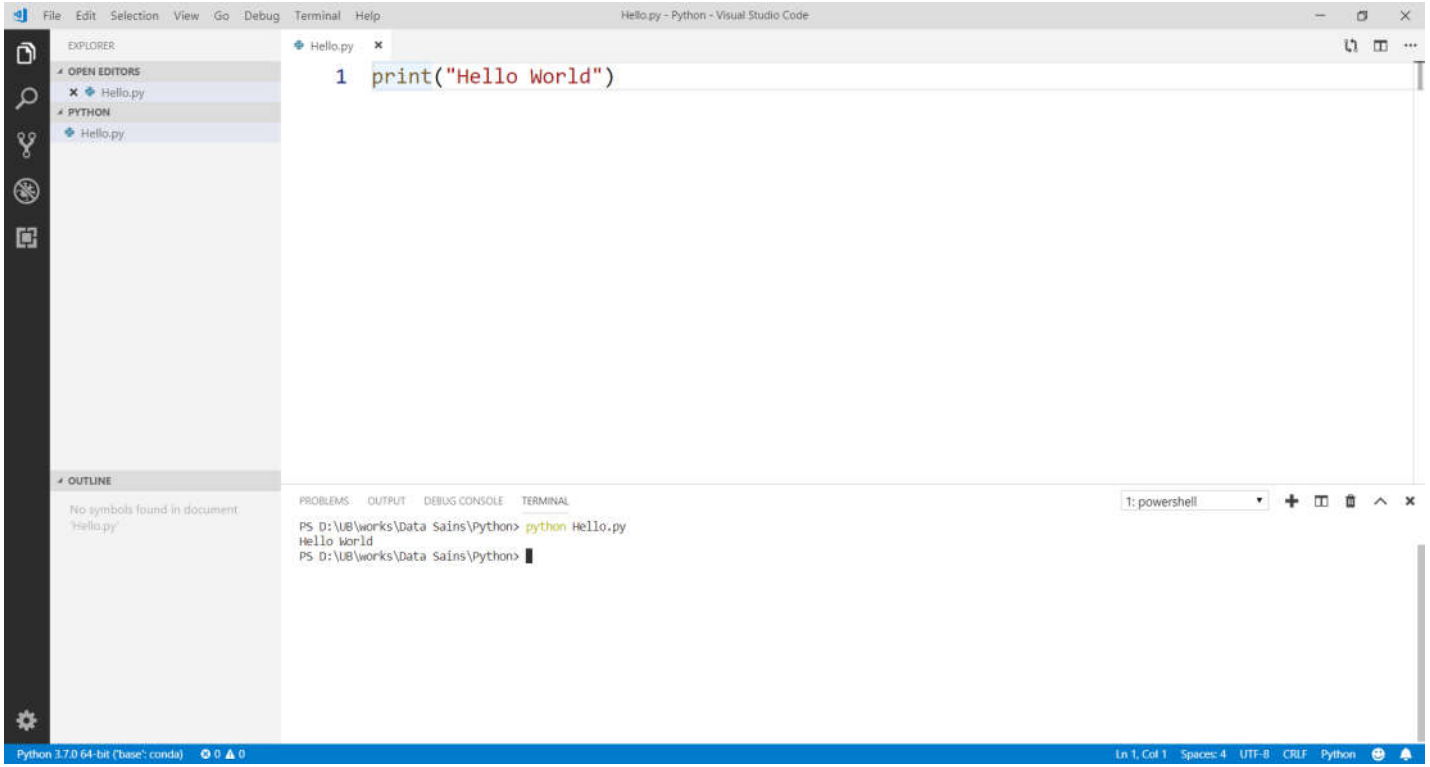
IDLE


Python 3.6.6 Shell
File Edit Shell Debug Options Window Help
Python 3.6.6 (v3.6.6:4cf1f54eb7, Jun 27 2018, 03:37:03) [MSC v.1900 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
Ln: 3 Col: 4
test.py - C:\Users\Utomo Budiyanto\Documents\test.py (3.6.6)
File Edit Format Run Options Window Help
print("Hello Wo
Python Shell
Check Module Alt+X
Run Module F5
Ln: 1 Col: 0

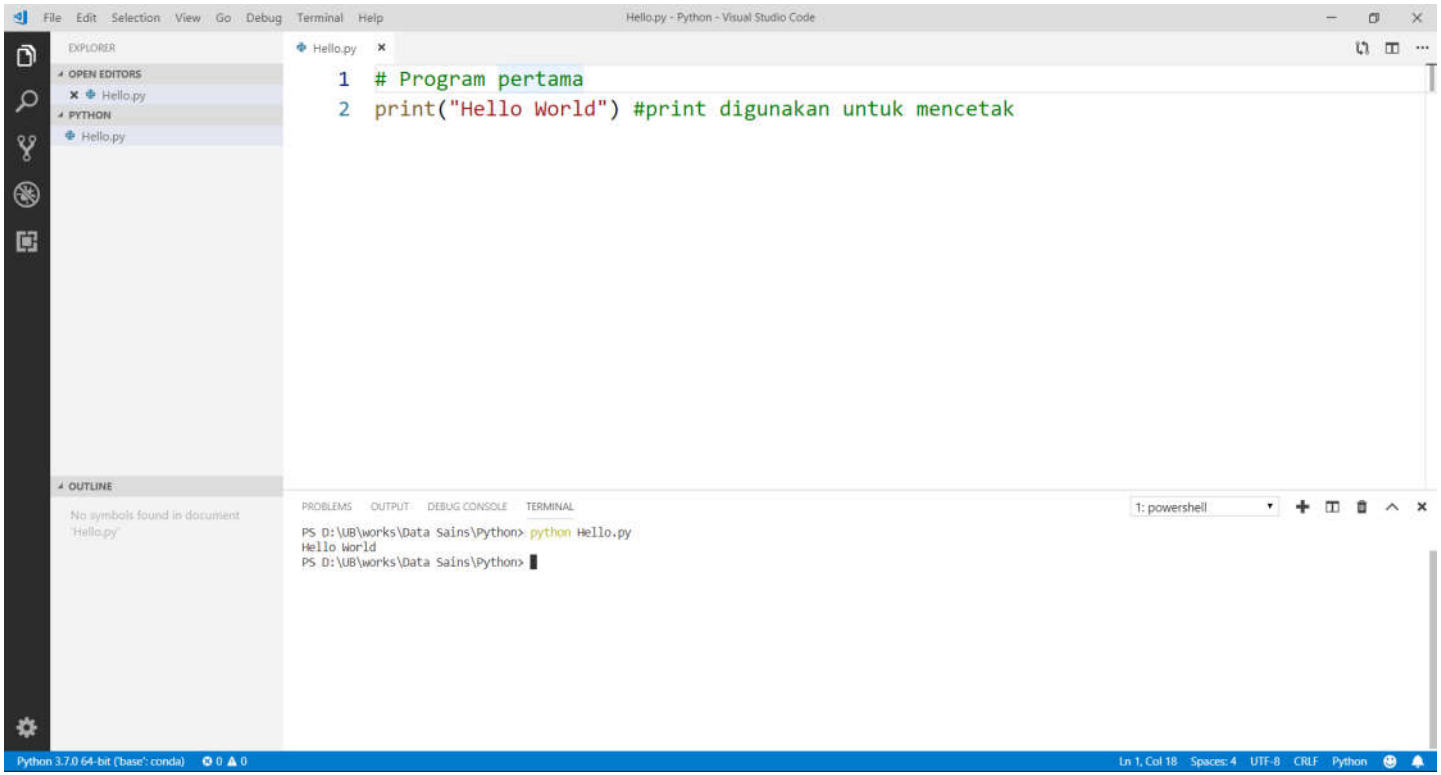
Visual Studio Code (https://code.visualstudio.com/)



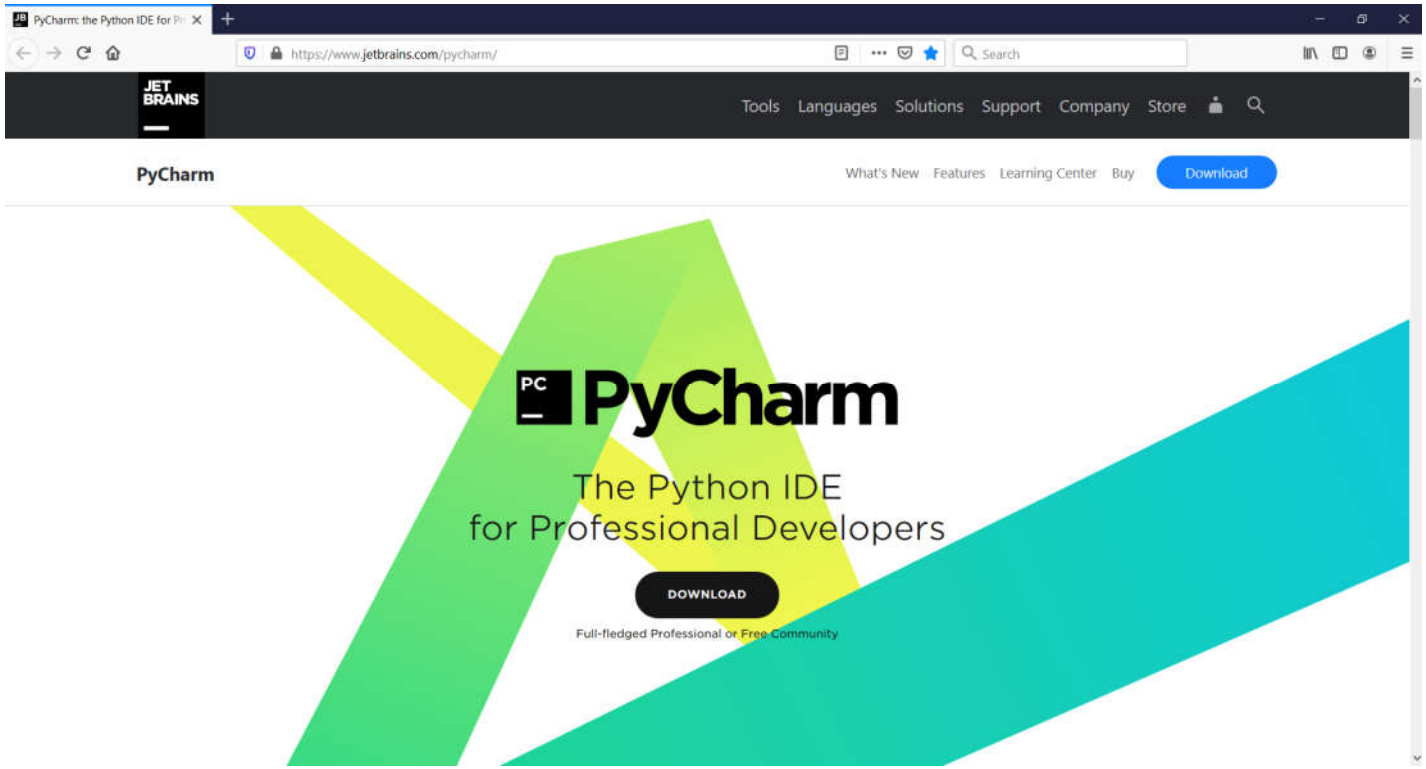
Visual Studio



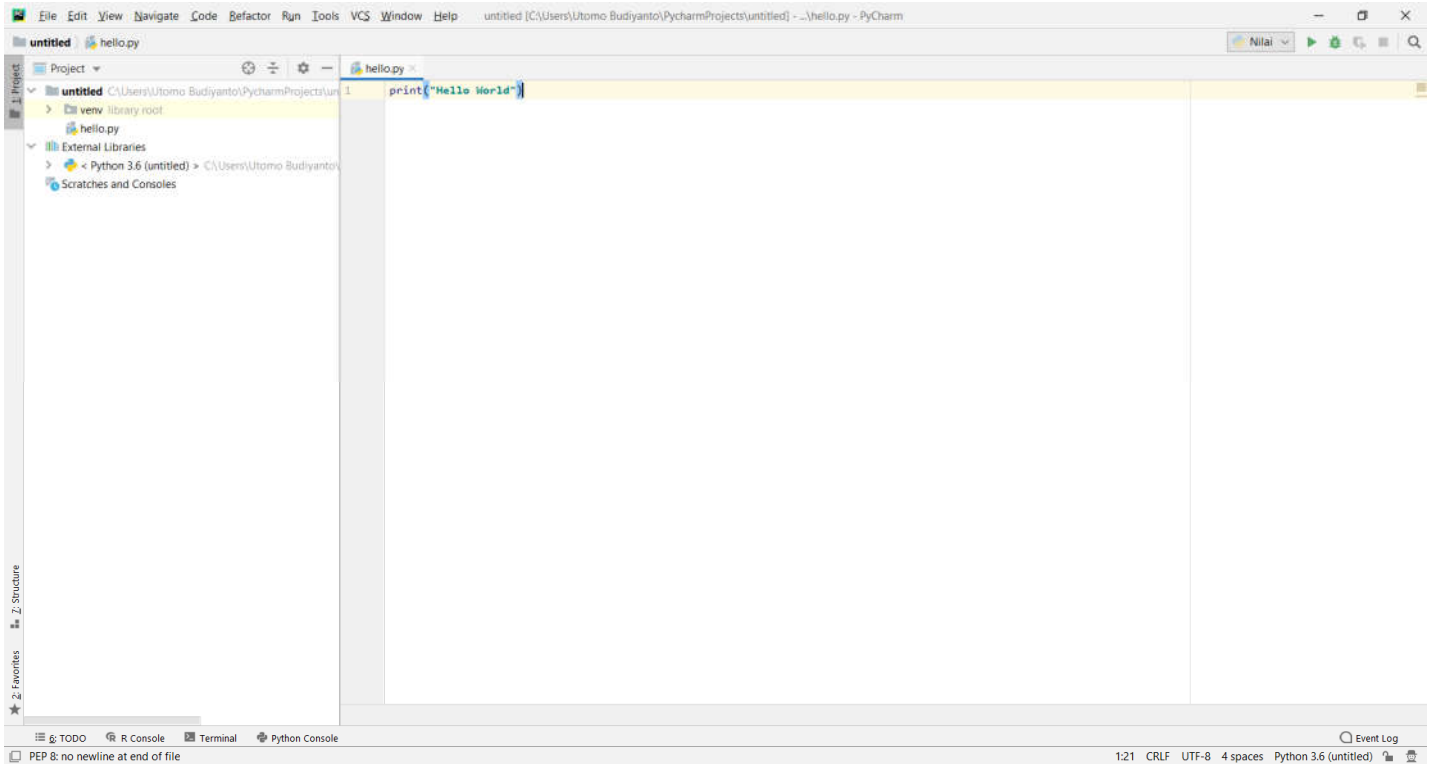
Comment


File Edit Selection View Go Debug Terminal Help
Hello.py - Python - Visual Studio Code
EXPLORER
OPEN EDITORS
Hello.py
PYTHON
Hello.py
OUTLINE
No symbols found in document 'Hello.py'
Hello.py
1 # Program pertama
2 print("Hello World") #print digunakan untuk mencetak
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
1: powershell
PS D:\UB\works\Data Sains\Python> python Hello.py
Hello World
PS D:\UB\works\Data Sains\Python>
Python 3.7.0 64-bit ('base': conda) 0 0
Ln 1, Col 18 Spaces: 4 UTF-8 CRLF Python

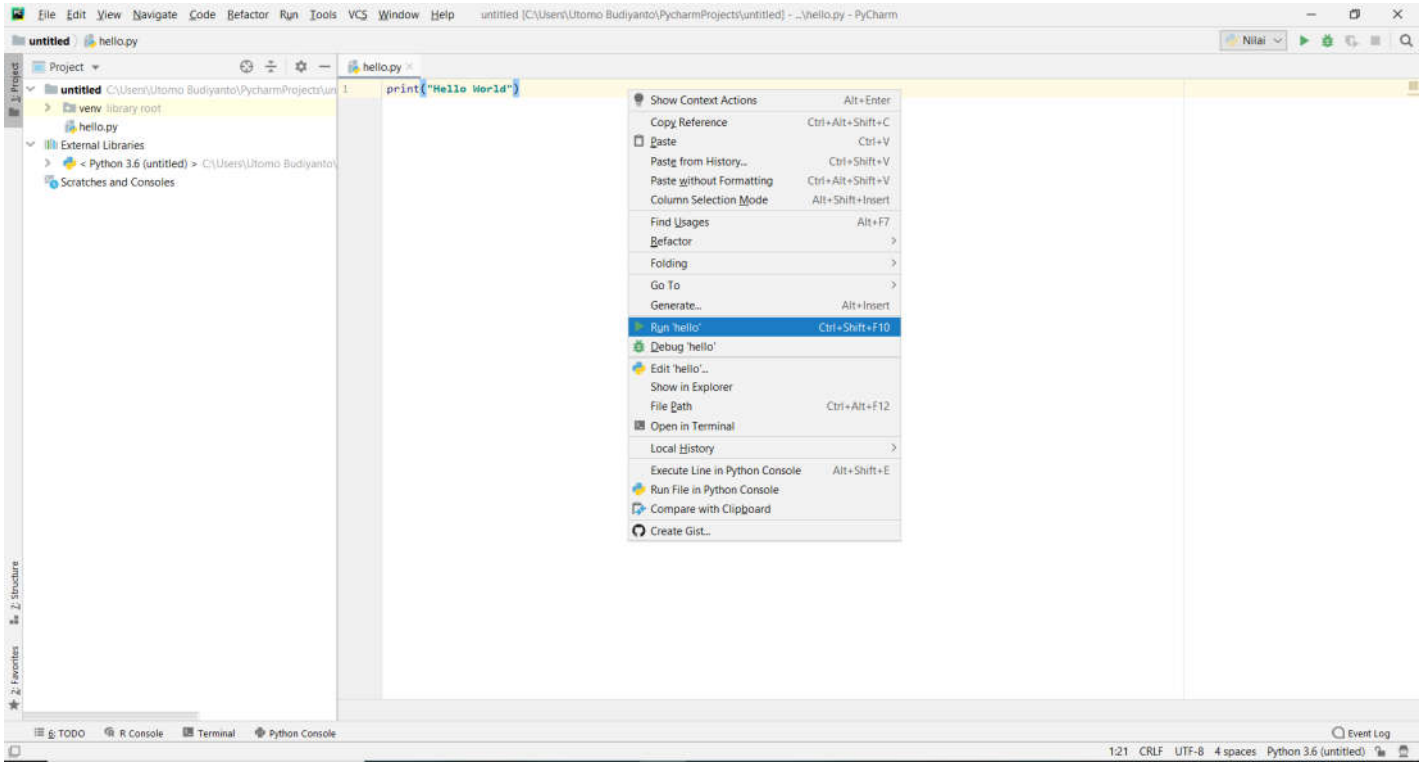
PyCharm (https://www.jetbrains.com/pycharm/)



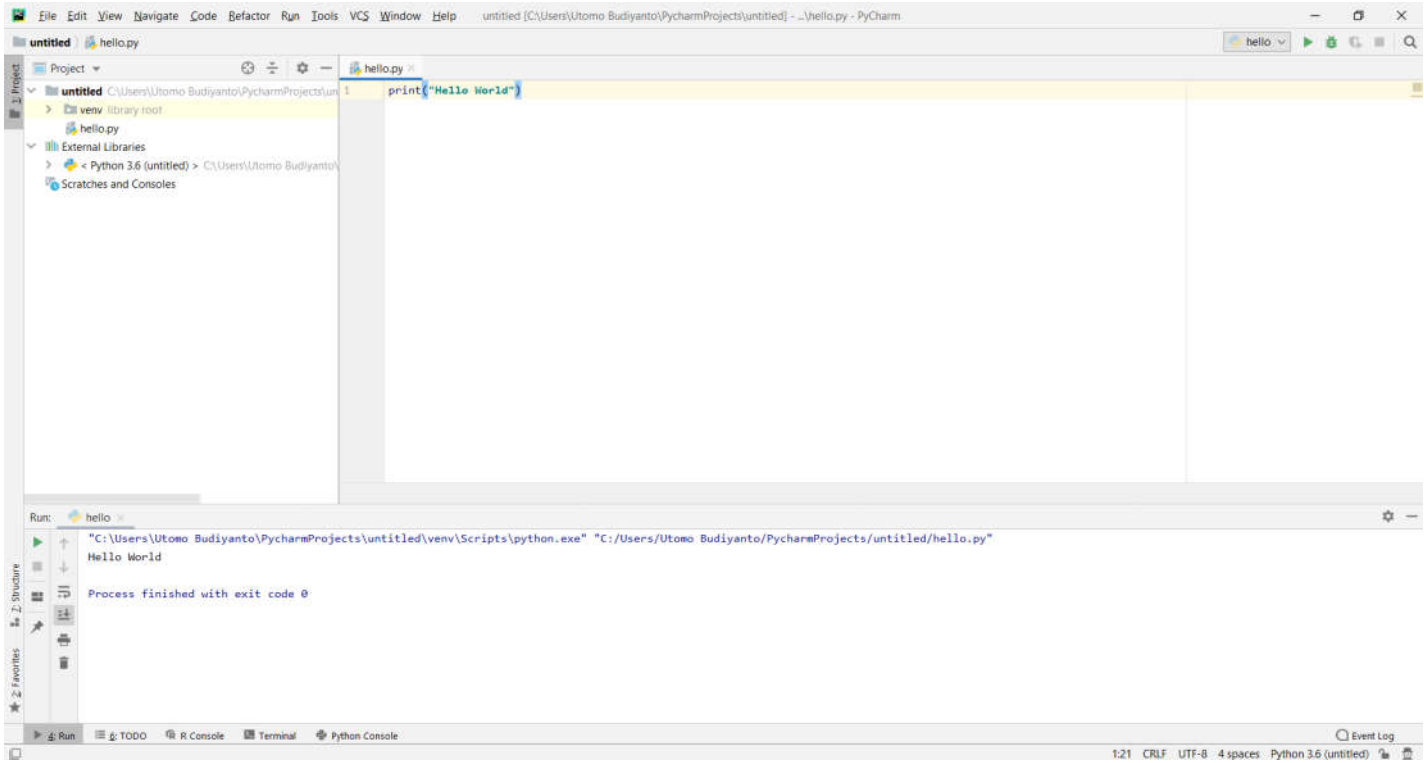
PyCharm


File Edit View Navigate Code Refactor Run Tools VCS Window Help
untitled [C:\Users\Utomo Budiyanto\PycharmProjects\untitled] - ...\hello.py - PyCharm
untitled
hello.py
Nilai
Project
hello.py
untitled C:\Users\Utomo Budiyanto\PycharmProjects\un
venv library root
hello.py
External Libraries
< Python 3.6 (untitled) > C:\Users\Utomo Budiyanto\
Scratches and Consoles
1 print("Hello World")
1: Project
Z: Structure
2: Favorites
6: TODO
R Console
Terminal
Python Console
Event Log
PEP 8: no newline at end of file
1:21 CRLF UTF-8 4 spaces Python 3.6 (untitled)

PyCharm (Running Program)



PyCharm (Result)



Variable

Digunakan untuk menyimpan data

Nilainya bisa berubah

Case Sensitive

Terdiri dari huruf, angka atau karakter garis bawah (_)

Diawali oleh huruf atau garis bawah

Tidak boleh ada spasi

Tidak boleh menggunakan Reserved Word

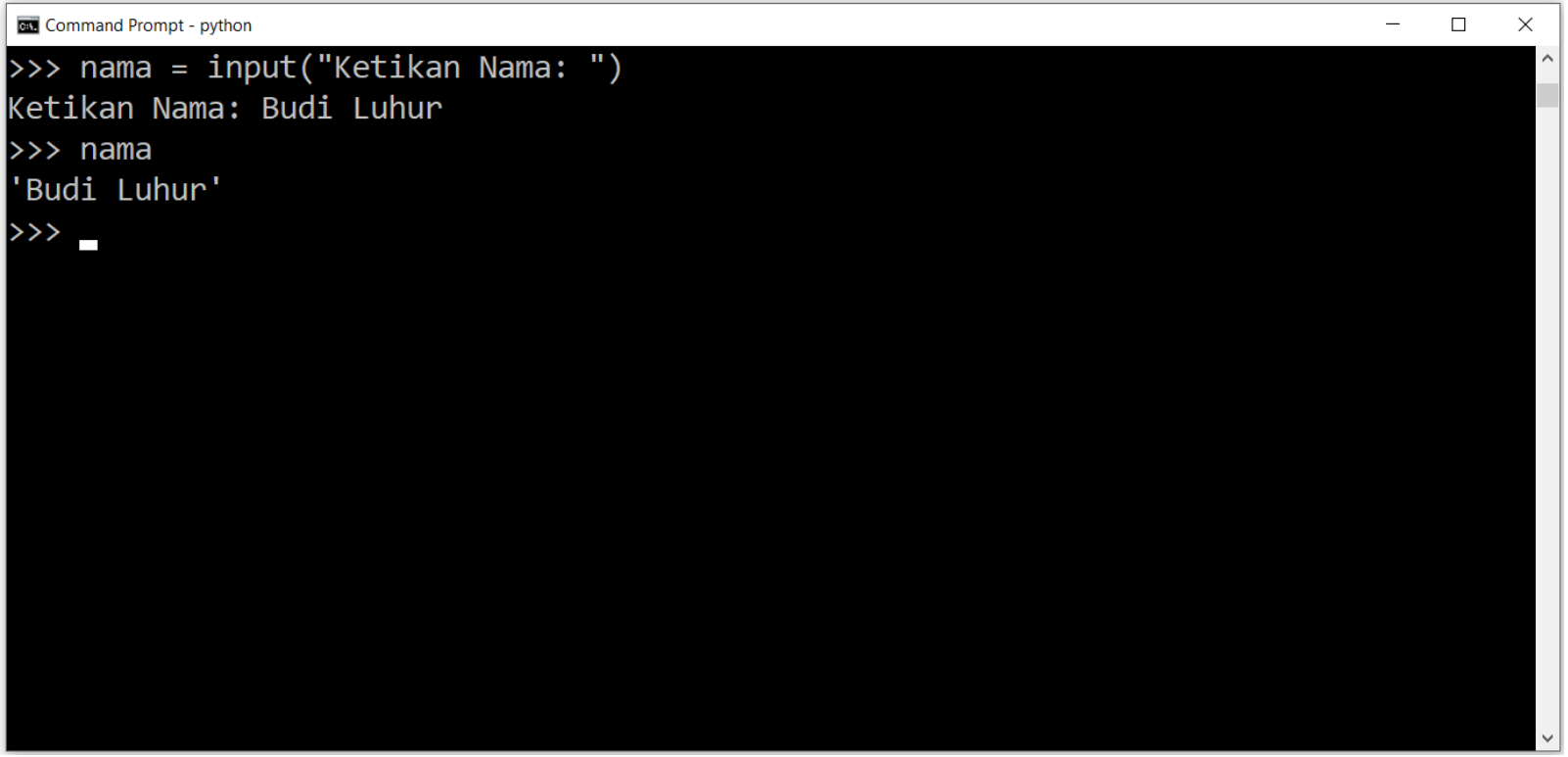
Variabel.py

```
1  #Variabel.py
2
3  greeting = "Salam Budi Luhur"
4  print(greeting)
5
6  x = 70
7  hasil = x / 2
8  print(x)
9  print(hasil)
10
11 print("Nilai x: ", x)
12 print("Nilai hasil: ", hasil)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS D:\UB\works\Data Sains\Python> python .\Variabel.py
Salam Budi Luhur
70
35.0
Nilai x:  70
Nilai hasil:  35.0
PS D:\UB\works\Data Sains\Python>
```

Input()


Command Prompt - python
>>> nama = input("Ketikan Nama: ")
Ketikan Nama: Budi Luhur
>>> nama
'Budi Luhur'
>>>

Luas.py

```python
#Luas.py

p = input("Input Panjang: ")
l = input("Input Lebar: ")

p = int(p)
l = int(l)

luas = p * l

print("Panjang: ", p)
print("Lebar: ", l)
print("Luas: ", luas)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS D:\UB\works\Data Sains\Python> python Luas.py
Input Panjang: 8
Input Lebar: 3
Panjang:  8
Lebar:  3
Luas:  24
PS D:\UB\works\Data Sains\Python>
```