Python

Python

- Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.
- It is used for:
  - Web development (server-side),
  - Software development,
  - Mathematics,
  - System scripting.

- **The latest version of python: 3.11**

What Python can do ?

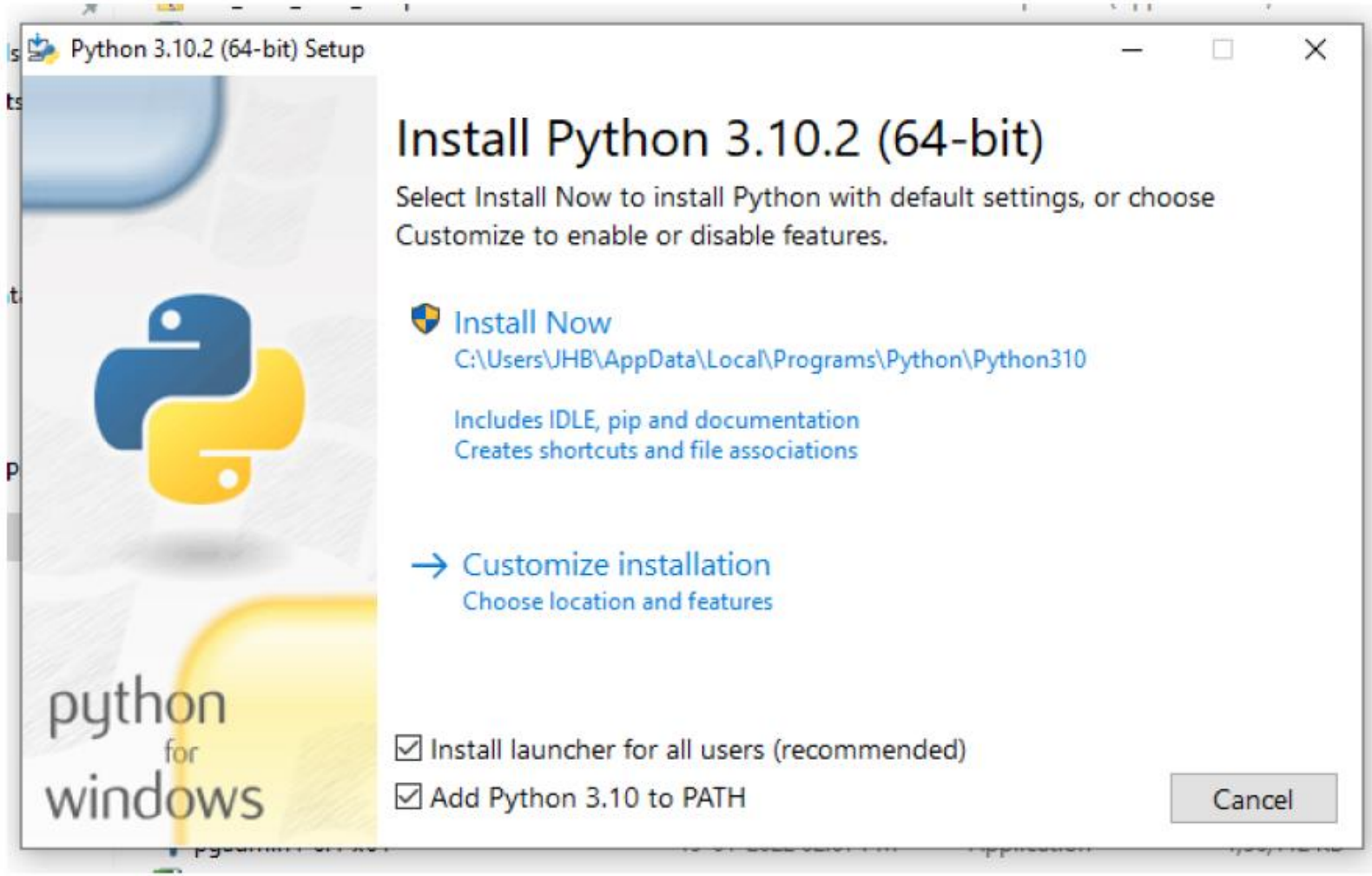
- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.
- **An interpreted programming language** because it executes every **Python-based instructions** line by line.

Why Python ?

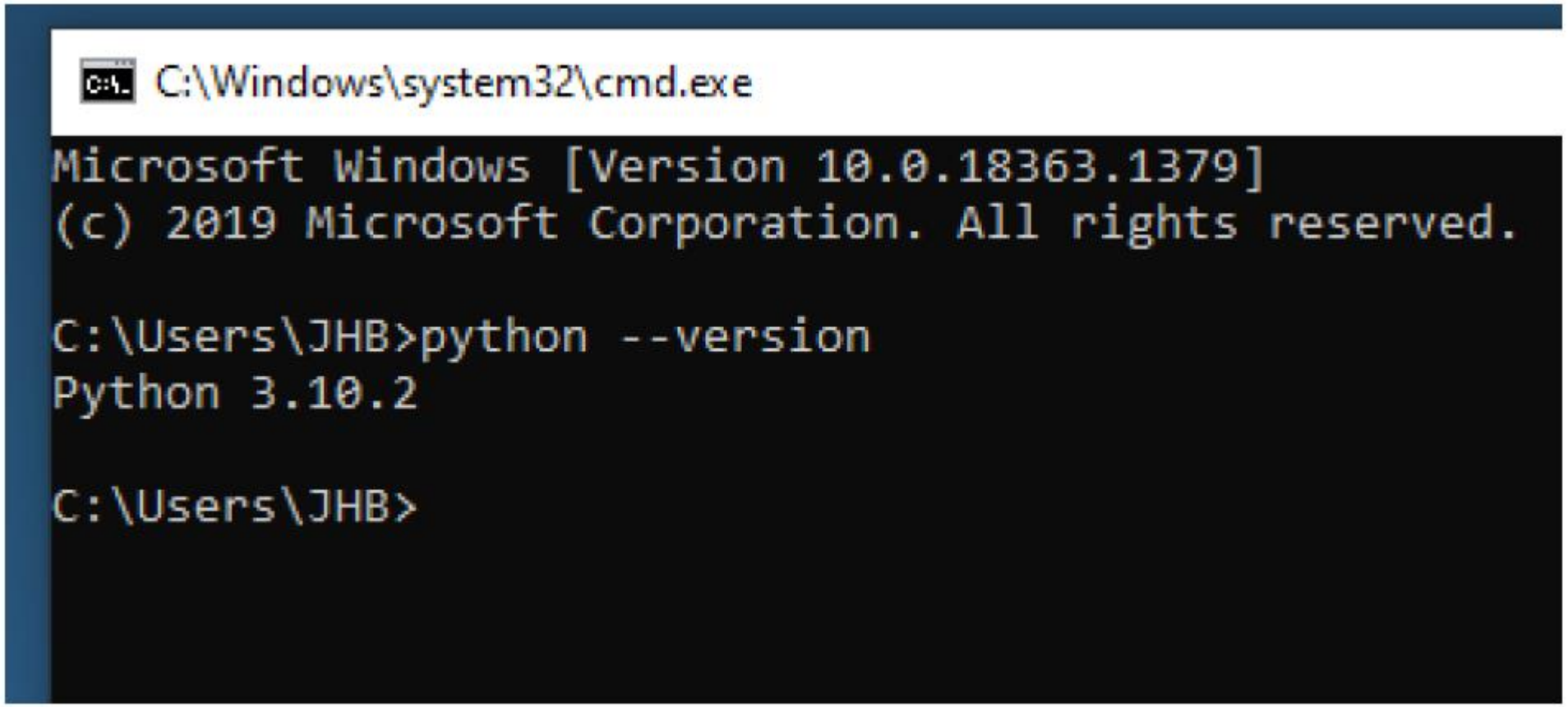
- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.

Installation

From www.python.org download latest version of Python


Python 3.10.2 (64-bit) Setup
Install Python 3.10.2 (64-bit)
Select Install Now to install Python with default settings, or choose
Customize to enable or disable features.
Install Now
C:\Users\JHB\AppData\Local\Programs\Python\Python310
Includes IDLE, pip and documentation
Creates shortcuts and file associations
Customize installation
Choose location and features
python
for
windows
Install launcher for all users (recommended)
Add Python 3.10 to PATH
Cancel

Verify installation



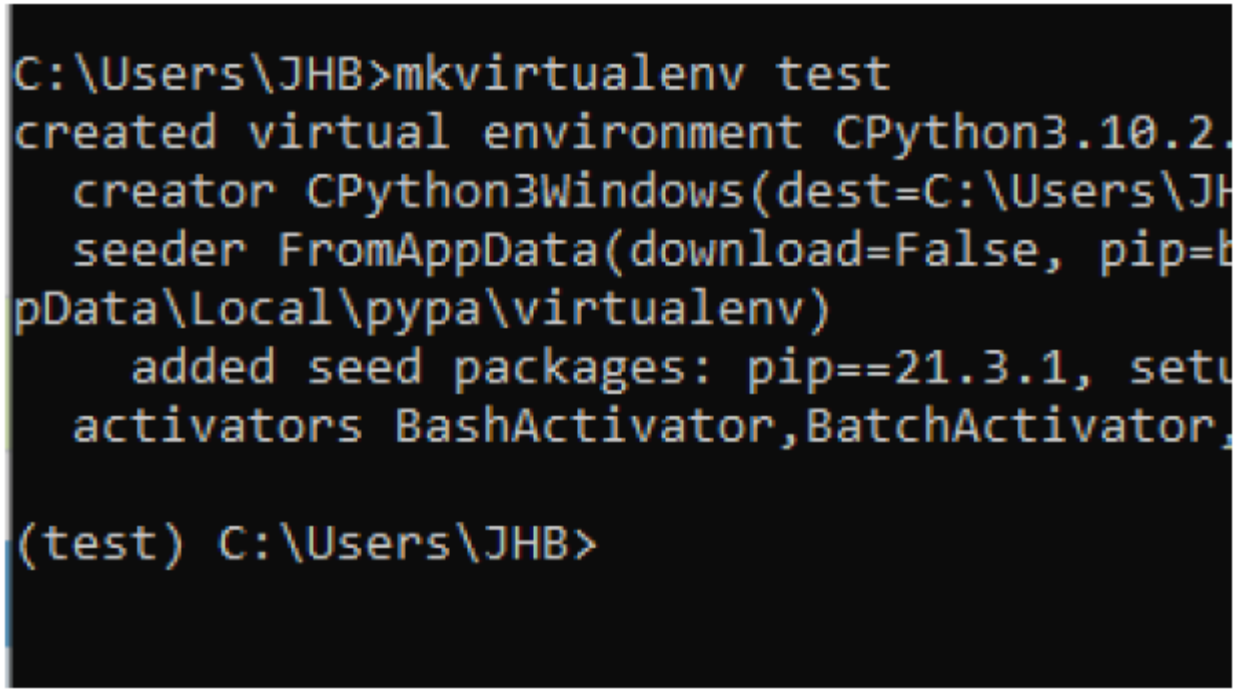
Install Virtual Environment

- pip install virtualenvwrapper-win

```
C:\Users\JHB>pip install virtualenvwrapper-win
Collecting virtualenvwrapper-win
  Downloading virtualenvwrapper_win-1.2.7-py3-none-any.whl (18 kB)
Requirement already satisfied: virtualenv in c:\users\jhb\appdata\loca
m virtualenvwrapper-win) (20.13.0)
Requirement already satisfied: filelock<4,>=3.2 in c:\users\jhb\appdat
s (from virtualenv->virtualenvwrapper-win) (3.4.2)
Requirement already satisfied: distlib<1,>=0.3.1 in c:\users\jhb\appda
es (from virtualenv->virtualenvwrapper-win) (0.3.4)
Requirement already satisfied: platformdirs<3,>=2 in c:\users\jhb\appd
ges (from virtualenv->virtualenvwrapper-win) (2.4.1)
Requirement already satisfied: six<2,>=1.9.0 in c:\users\jhb\appdata\l
from virtualenv->virtualenvwrapper-win) (1.16.0)
Installing collected packages: virtualenvwrapper-win
Successfully installed virtualenvwrapper-win-1.2.7
WARNING: You are using pip version 21.2.4; however, version 21.3.1 is
You should consider upgrading via the 'C:\Users\JHB\AppData\Local\Prog
upgrade pip' command.
```

Create Virtual Environment

- mkvirtualenvtest



Python Hello world program

- Create file test.py
- Write single line of code : print(“Hello”)
- Open terminal and execute python test.py

Python editors

- VS Code
- Sublime
- Spyder
- Idle
- Pycharm etc.

Jupyter Notebook (https://jupyter.org/)

- The Jupyter Notebook is an open source web application that you can use to create and share documents that contain live code, equations, visualizations, and text. Jupyter Notebook is maintained by the people at Project Jupyter.

- Supported languages :**Python, Java, R, Julia, Matlab, Octave, Scheme, Processing, Scala, and many more**

- We can execute python code along with notes in Jupyter notebook.

Google Colab

- Colaboratory, or “Colab” for short, is a product from Google Research. Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning, data analysis and education. More technically, Colab is a hosted Jupyter notebook service that requires no setup to use, while providing access free of charge to computing resources including GPUs.
- Integration with Google drive.