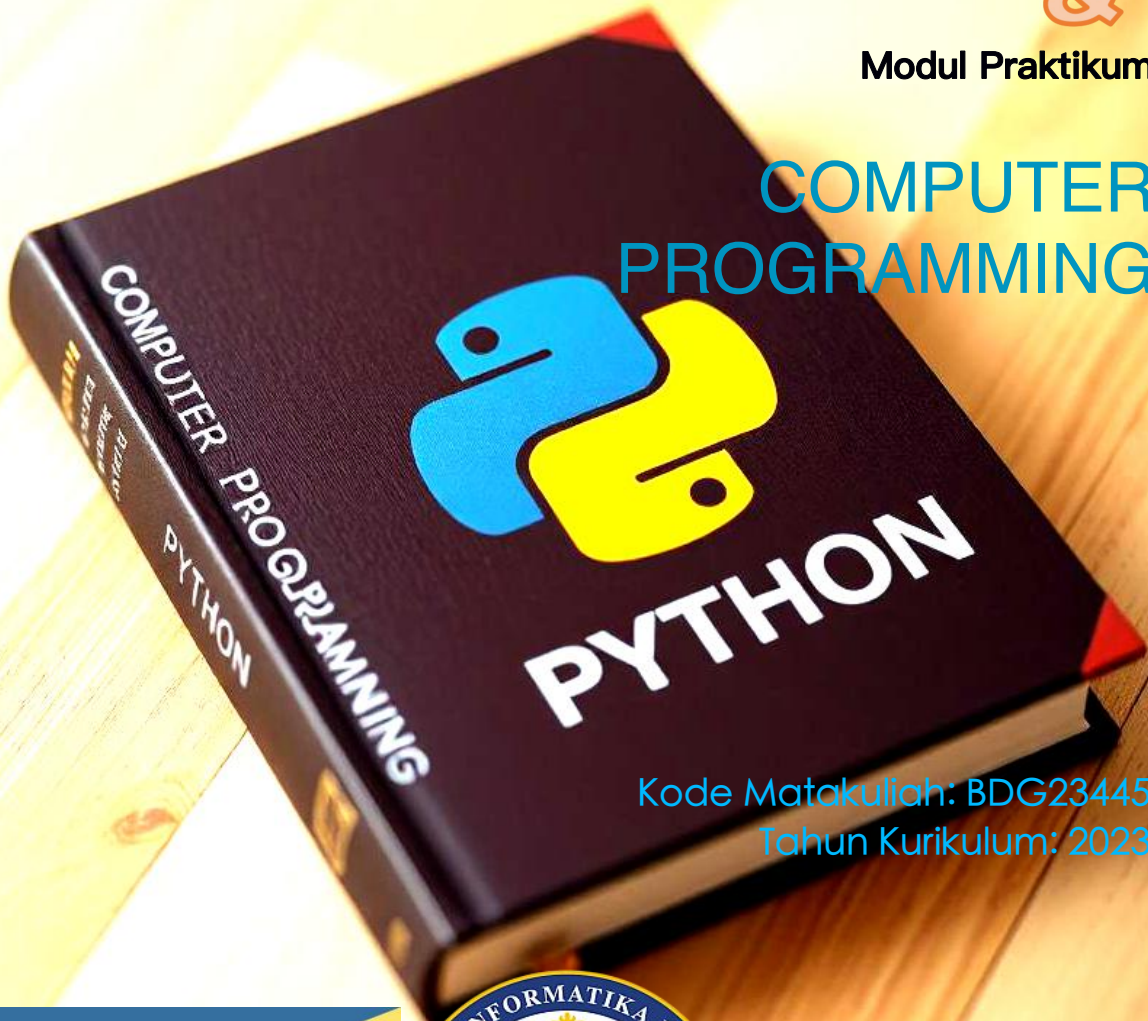




COMPUTER PROGRAMMING



Kode Matakuliah: BDG23445
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Modul 1

Basic concepts of python programming

1. Pengertian pemrograman & pentingnya dalam dunia digital

Bahasa pemrograman merupakan salah satu aspek yang penting dalam perkembangan dunia teknologi dan informasi. Dalam era digital ini, bahasa pemrograman berperan sangat penting karena hampir semua sistem dan aplikasi yang kita gunakan berjalan berdasarkan kode-kode yang ditulis melalui bahasa pemrograman yang dirancang oleh seorang programmer (detik.net).

Dikutip dari modul Bahasa Pemrograman untuk Pemula oleh Syarifudin, dkk, bahasa pemrograman adalah instruksi dasar yang disusun programmer agar komputer bisa mengerjakan tugas atau fungsi tertentu. Supaya sebuah komputer bisa memahami perintah dari seorang programmer, maka instruksi dibuat dalam bentuk kata-kata yang terdiri dari banyak baris.

Bahasa pemrograman memungkinkan seorang programmer untuk bisa mengekspresikan algoritma dalam bentuk yang dapat dipahami oleh sebuah komputer. Hingga akhirnya dapat menghasilkan program atau aplikasi yang dapat dijalankan oleh komputer itu sendiri. Dalam perkembangan teknologi dan digitalisasi ini, bahasa pemrograman memainkan peran yang sangat penting karena hampir semua sistem dan aplikasi yang digunakan sekarang berjalan berdasarkan kode-kode yang ditulis menggunakan bahasa pemrograman.

Beberapa manfaat dari kehadiran bahasa pemrograman antara lain:

1. Membuat Program Komputer

Bahasa pemrograman berfungsi sebagai pembuat program komputer yang dapat dijalankan oleh perangkat keras. Dengan menulis kode di dalamnya, programmer dapat membuat aplikasi dan program yang beragam, mulai dari program sederhana hingga program yang sangat kompleks.

2. Membangun Database

Bahasa pemrograman seperti SQL (Structured Query Language) bisa dimanfaatkan untuk membangun database. Dengan bahasa pemrograman ini, seorang programmer bisa membuat tabel, mengatur data, serta melakukan berbagai operasi pada database.

3. Membantu Proses Bisnis

Bahasa pemrograman yang digunakan juga bisa bermanfaat untuk proses bisnis, seperti proses pengolahan data, proses administrasi, dan proses produksi. Dengan menggunakan bahasa pemrograman, programmer dapat menulis kode yang dapat memproses dan mengolah data dengan otomatis.

4. Mengembangkan Perangkat Lunak

Bahasa pemrograman bisa bermanfaat untuk mengembangkan perangkat lunak, seperti sistem operasi, aplikasi perkantoran, aplikasi desain grafis, dan lain sebagainya. Dengan bahasa pemrograman, seorang programmer dapat menulis kode yang dapat membuat sebuah perangkat lunak bekerja dengan efisien dan efektif.

2. Sejarah Python dan alasan pemilihannya dalam aplikasi bisnis digital

Python emphasizes code readability and simplicity, which makes it an excellent language for beginners and experienced developers. In this book, we've covered the basics of Python, from setting up your environment to writing your first program and understanding syntax, control flow, and functions



Python Symbol

The Role of Python in Digital Business

Python improves digital marketing automation and operations. With its features and ability to process data, Python allows businesses to scale. This makes it an excellent tool for professionals today who look to gain a competitive edge in terms of industry skills. There's a case to be made for Python in digital marketing. As marketing automation evolves at a fast

pace, so do the skills required. Digital marketers need to level up skills to be employable and be career-proof.

One of the most useful cases of learning Python in digital marketing is APIs. API means Application Programming Interface. In simple terms, APIs allow different software to connect with each other. All software or any tool has an API. Check any of your favorite software tools. If their website has an API documentation page found on the footer navigation, they have an open API to use. APIs speed up the work of digital marketers and automates many workflows. Examples of APIs are anything in the marketing automation space. Whether getting social media posts or doing text analysis, there's an API for it

Another often scenario for Python in digital marketing is web scraping. In the case of digital marketing and SEO, it's used for uncovering text data. For my projects, I scrape web pages. I want to get the word count or text content from pages to do stuff with them afterward. One of them is to create my own free word counter tool to see the word count of any website content. I see a general view of how long the web pages are since I think they matter for analysis. Scraping the content allows me to do advanced stuff like Natural Language Processing. I scrape the content to do entity recognition and uncover semantic SEO. Eventually, I'd like to do topic modeling if I get to the more advanced stuff.

Text analysis is quite popular in the Python and data science communities. By virtue, it trickles down to digital marketing as well. Anything related to copy or content is a variation of text analysis at some point. These simple projects lead to more advanced stuff like machine learning. Build an algorithm to create your own sentiment analysis algorithms. Uncover the opinions of people about your brand. Or cluster emails and see the patterns through text clustering and topic modeling.

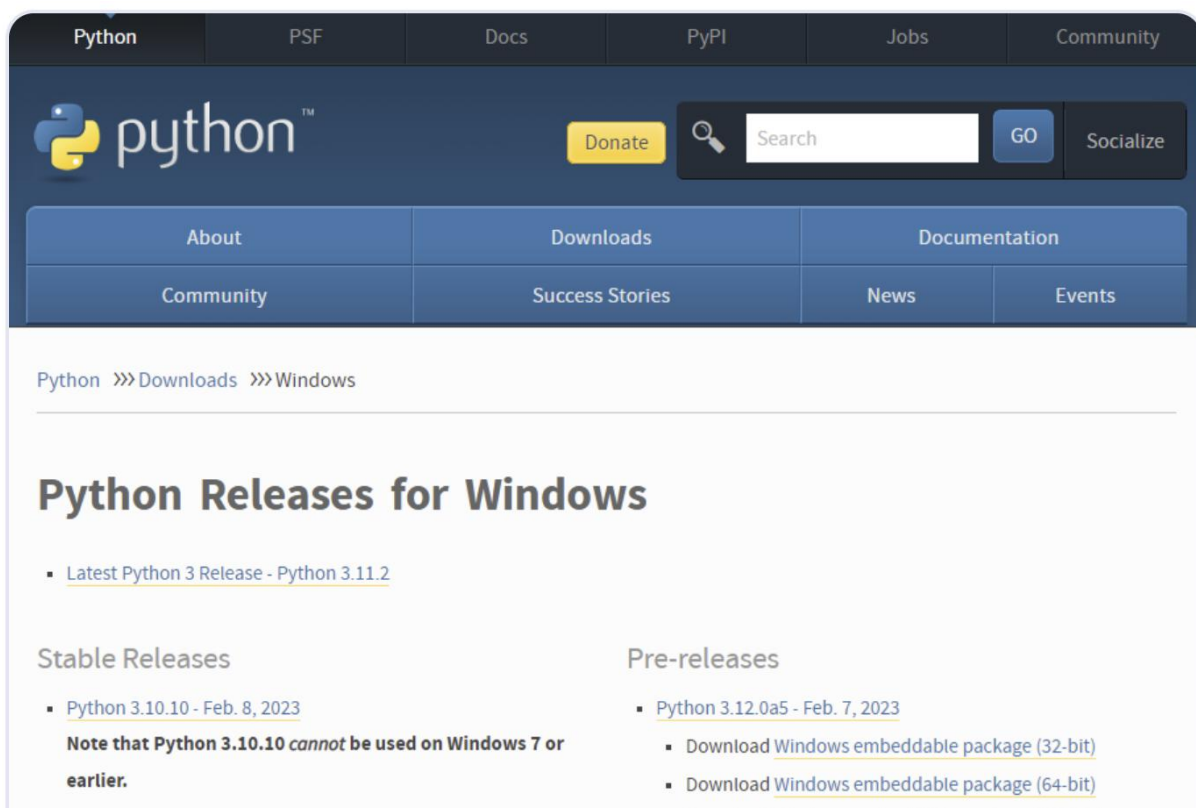
Python has a place in digital marketing, particularly in SEO (Search Engine Optimization). SEO is the discipline I come from, and learning Python expanded my toolbox and repertoire. Technical SEO is where I get inspiration to build Python projects, and there are a lot of projects to work on. SEO Pythonistas is an amazing resource for this. There's growing popularity within SEO professionals who want to dive into Python and expand their expertise.

Exercise

Installation of Python

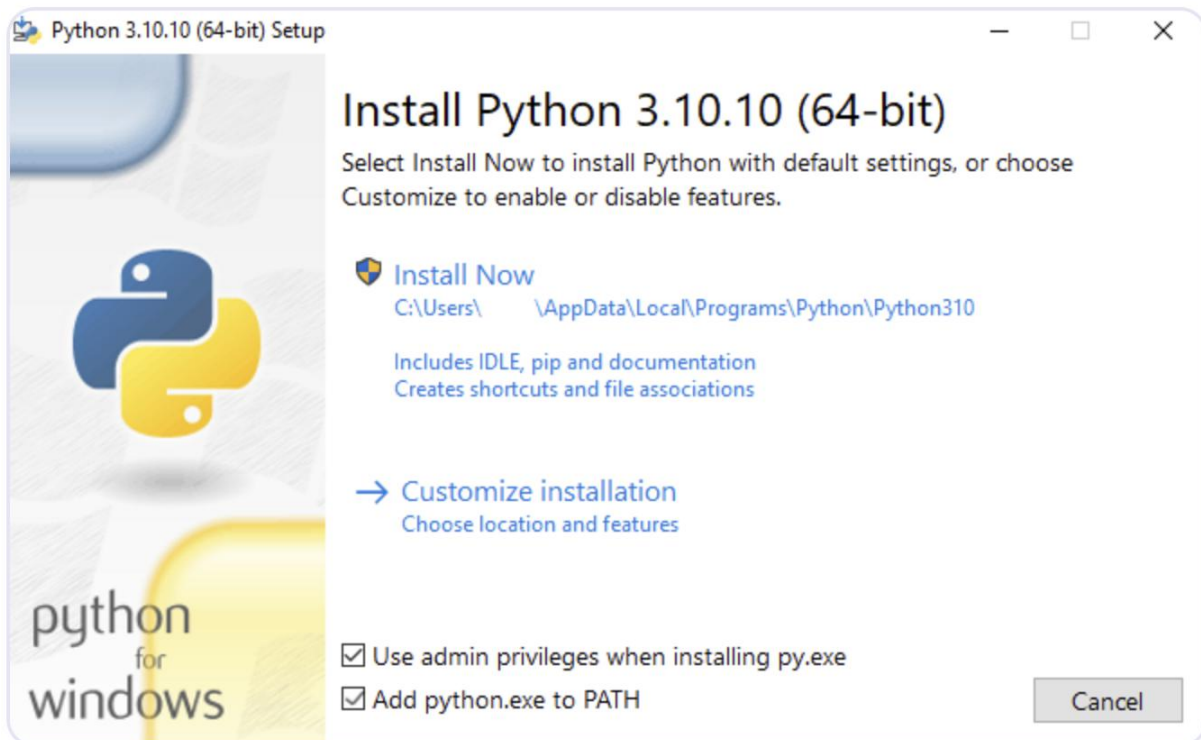
Step 1 — Downloading the Python Installer

1. Go to the official Python download page for Windows.
2. Find a stable Python 3 release. This tutorial was tested with Python version 3.10.10.
3. Click the appropriate link for your system to download the executable file: Windows installer (64-bit) or Windows installer (32-bit).

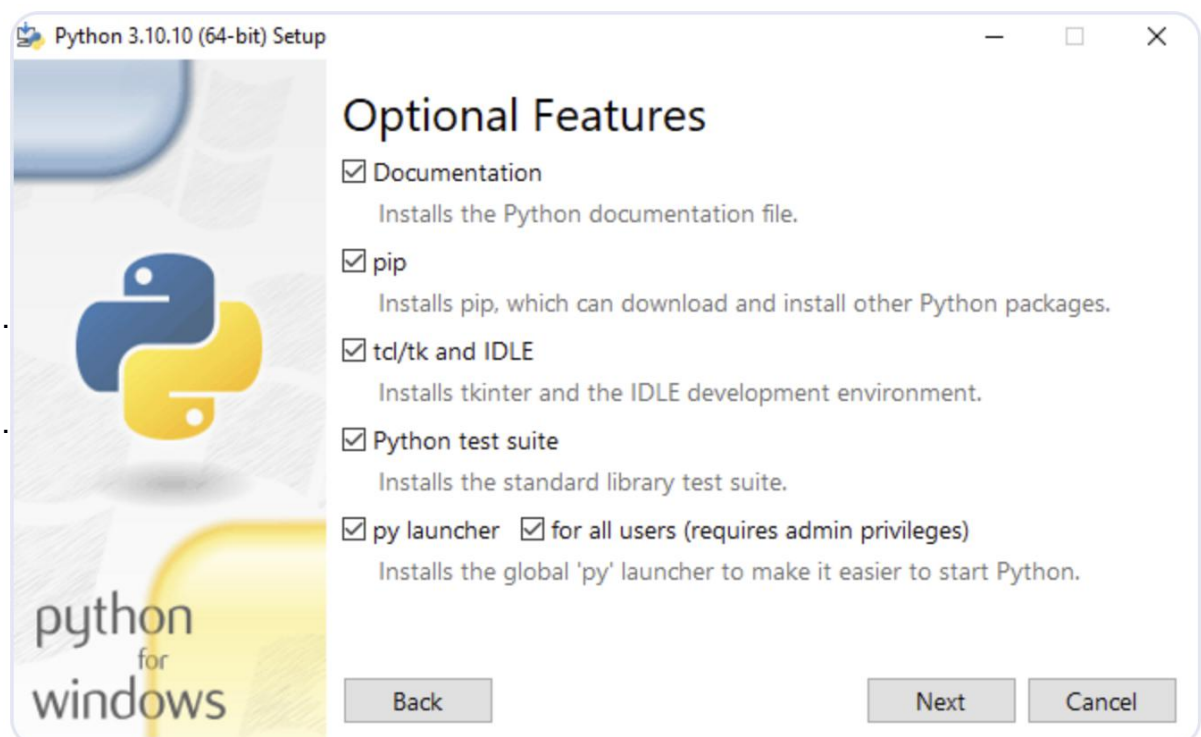


Step 2 — Running the Executable Installer

1. After the installer is downloaded, double-click the .exe file, for example python-3.10.10-amd64.exe, to run the Python installer.
2. Select the Install launcher for all users checkbox, which enables all users of the computer to access the Python launcher application.
3. Select the Add python.exe to PATH checkbox, which enables users to launch Python from the command line.



4. If you're just getting started with Python and you want to install it with default features as described in the dialog, then click Install Now and go to Step 4 - Verify the Python Installation. To install other optional and advanced features, click Customize installation and continue.
5. The Optional Features include common tools and resources for Python and you can install all of them, even if you don't plan to use them.

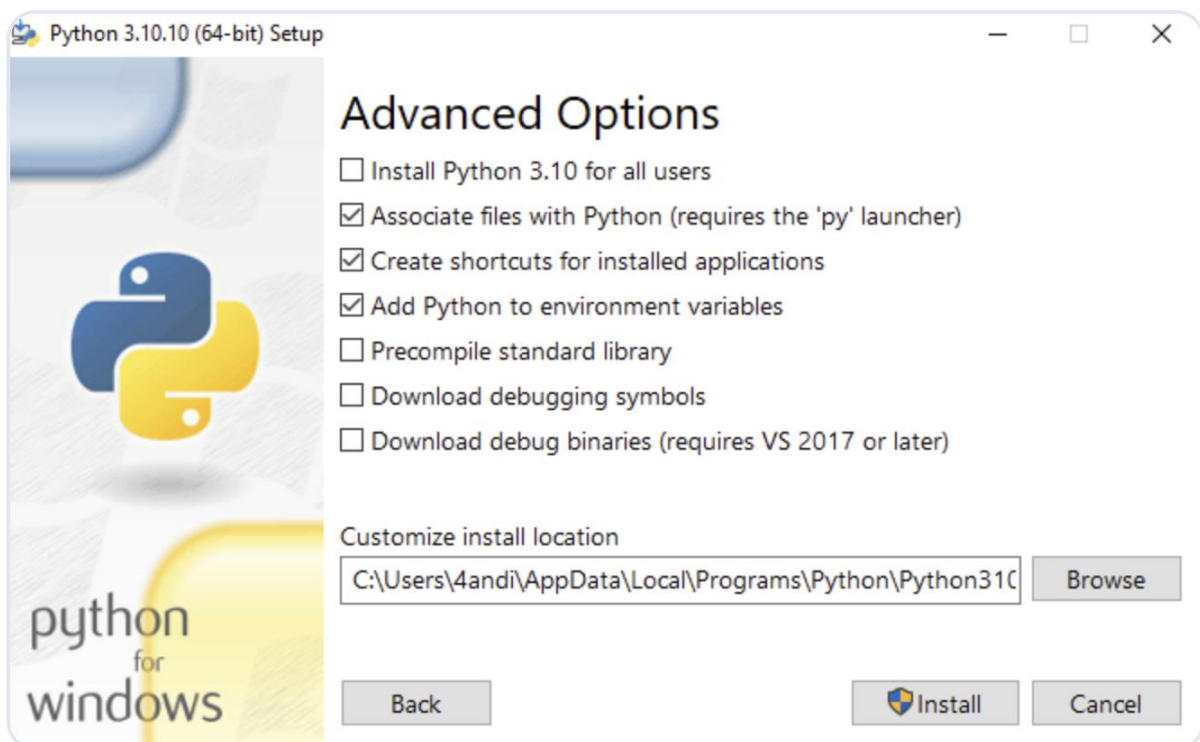


Select some or all of the following options:

- Documentation: recommended
- pip: recommended if you want to install other Python packages, such as NumPy or pandas.
- tcl/tk and IDLE: recommended if you plan to use IDLE or follow tutorials that use it
- Python test suite: recommended for testing and learning
- py launcher and for all users: recommended to enable users to launch Python from the command line.

6. Click Next

7. The Advanced Options dialog displays



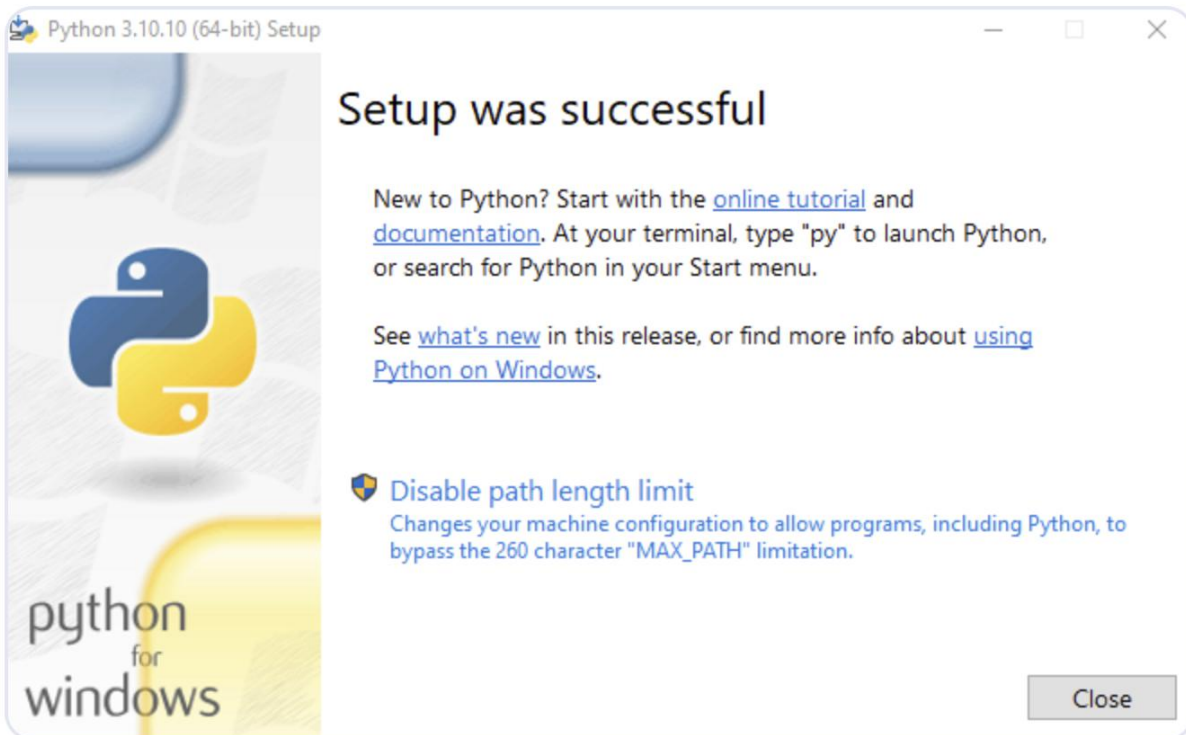
Select the options that suit your requirements:

- Install for all users: recommended if you're not the only user on this computer
- Associate files with Python: recommended, because this option associates all the Python file types with the launcher or editor
- Create shortcuts for installed applications: recommended to enable shortcuts for Python applications
- Add Python to environment variables: recommended to enable launching Python
- Precompile standard library: not required, it might down the installation

- Download debugging symbols and Download debug binaries: recommended only if you plan to create C or C++ extensions

Make note of the Python installation directory in case you need to reference it later.

8. Click Install to start the installation
9. After the installation is complete, a Setup was successful message displays



Step 3 — Adding Python to the Environment Variables (optional)

Pengaturan lingkungan pengembangan Python (IDE, editor)

Skip this step if you selected Add Python to environment variables during installation. If you want to access Python through the command line but you didn't add Python to your environment variables during installation, then you can still do it manually.

Before you start, locate the Python installation directory on your system. The following directories are examples of the default directory paths:

- C:\Program Files\Python310: if you selected Install for all users during installation, then the directory will be system wide.

- C:\Users\Sammy\AppData\Local\Programs\Python\Python310: if you didn't select Install for all users during installation, then the directory will be in the Windows user path

Note that the folder name will be different if you installed a different version, but will still start with Python.

1. Go to Start and enter advanced system settings in the search bar.
2. Click View advanced system settings.
3. In the System Properties dialog, click the Advanced tab and then click Environment Variables.
4. Depending on your installation:
 - a) If you selected Install for all users during installation, select Path from the list of System Variables and click Edit.
 - b) If you didn't select Install for all users during installation, select Path from the list of User Variables and click Edit
5. Click New and enter the Python directory path, then click OK until all the dialogs are closed.

Step 4 – Verify the Python Installation

You can verify whether the Python installation is successful either through the command line or through the Integrated Development Environment (IDLE) application, if you chose to install it.

Go to Start and enter cmd in the search bar. Click Command Prompt.

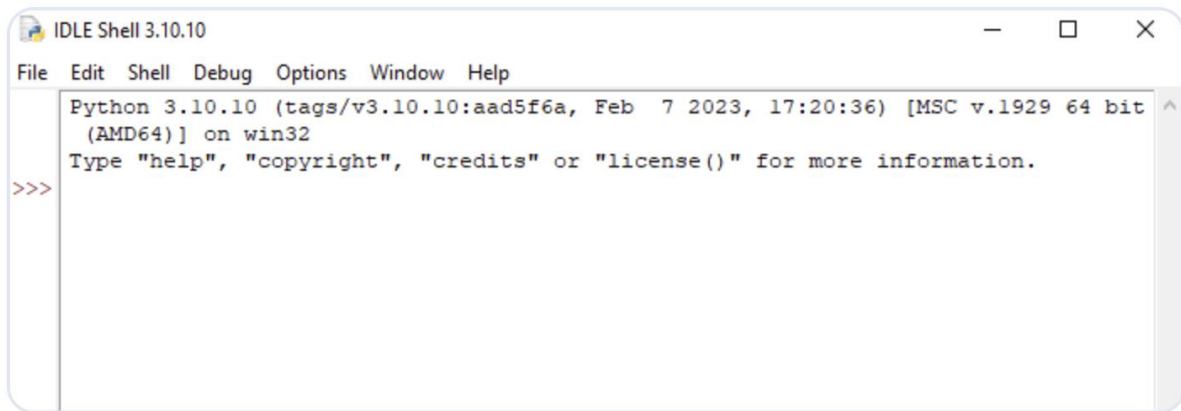
Enter the following command in the command prompt:

```
python --version
```

An example of the output is:

```
Output  
Python 3.10.10
```

You can also check the version of Python by opening the IDLE application. Go to Start and enter python in the search bar and then click the IDLE app, for example IDLE (Python 3.10 64-bit).

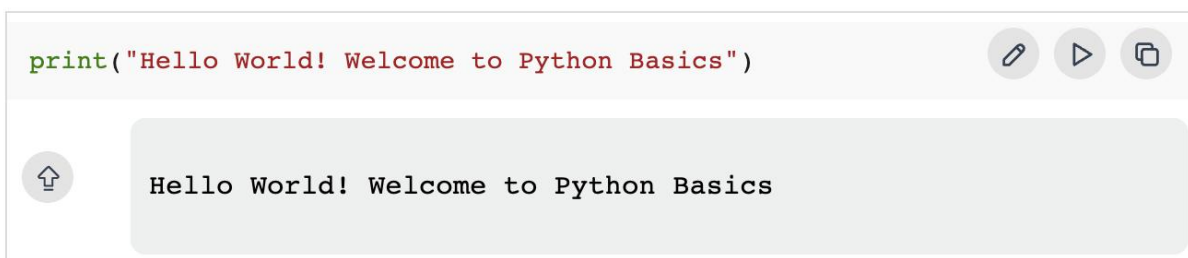


You can start coding in Python using IDLE or your preferred code editor.

Writing your first Python Program

Menjalankan program Python pertama menggunakan print() dan input()

Here we provided the latest Python 3 version compiler where you can edit and compile your written code directly with just one click of the RUN Button. So test yourself with Python's first exercises



Writing a "Hello, World!" program is a tradition in the developer community. Most developers start learning how to code by writing this program.