Introduction to Python

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently whereas the other languages use punctuations. It has fewer syntactical constructions than other languages.

- **Python is Interpreted:** Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.

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

- **Python is Object-Oriented:** Python supports Object-Oriented style or technique of programming that encapsulates code within objects.

- **Python is a Beginner's Language:** Python is a great language for the beginner- level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

History of Python

Python was developed by Guido van Rossum in the late eighties and early nineties at the National Research Institute for Mathematics and Computer Science in the Netherlands.

- Python is derived from many other languages, including ABC, Modula-3, C, C++, Algol-68, SmallTalk, and Unix shell and other scripting languages.

- Python is copyrighted. Like Perl, Python source code is now available under the GNU General Public License (GPL).

- Python is now maintained by a core development team at the institute, although Guido van Rossum still holds a vital role in directing its progress.

- Python 1.0 was released in November 1994. In 2000, Python 2.0 was released. Python 2.7.11 is the latest edition of Python 2.

Easy-to-learn: Python has few keywords, simple structure, and a clearly defined syntax. This allows a student to pick up the language quickly.

Extendable: You can add low-level modules to the Python interpreter. These modules enable programmers to add to or customize their tools to be more efficient.

Databases: Python provides interfaces to all major commercial databases.

GUI Programming: Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems, such as Windows MFC, Macintosh, and the X Window system of Unix.

Scalable: Python provides a better structure and support for large programs than shell scripting.

Apart from the above-mentioned features, Python has a big list of good features. A few are listed below-

- It supports functional and structured programming methods as well as OOP.
- It can be used as a scripting language or can be compiled to byte-code for building large applications.
- It provides very high-level dynamic data types and supports dynamic type checking.
- It supports automatic garbage collection.

Why to learn python:

Below are the major features and applications due to which people choose Python as their first programming language:

- Python's popularity & high salary
- Python is used in Data Science
- Python's scripting & automation
- Python used with Big Data
- Python supports Testing
- Computer Graphics in Python
- Python used in Artificial Intelligence
- Python in Web Development
- Python is portable & extensible
- Python is simple & easy to learn

Companies are using python

Why python is different:

The biggest difference between the two languages is that Java is a statically typed and Python is a dynamically typed. Python is strongly but dynamically typed. This means names in code are bound to strongly typed objects at runtime. ... Static type inference in Python is a known hard problem

So i give you a better comparison why python is best. Python is a more productive language than Java. Python is an interpretive language which is accompanied by elegant syntax, and it makes an excellent choice for scripting and rapid application development in many areas. It is a dynamically typed programming language

Integrated Development Environments (IDE) How to run Python programs?

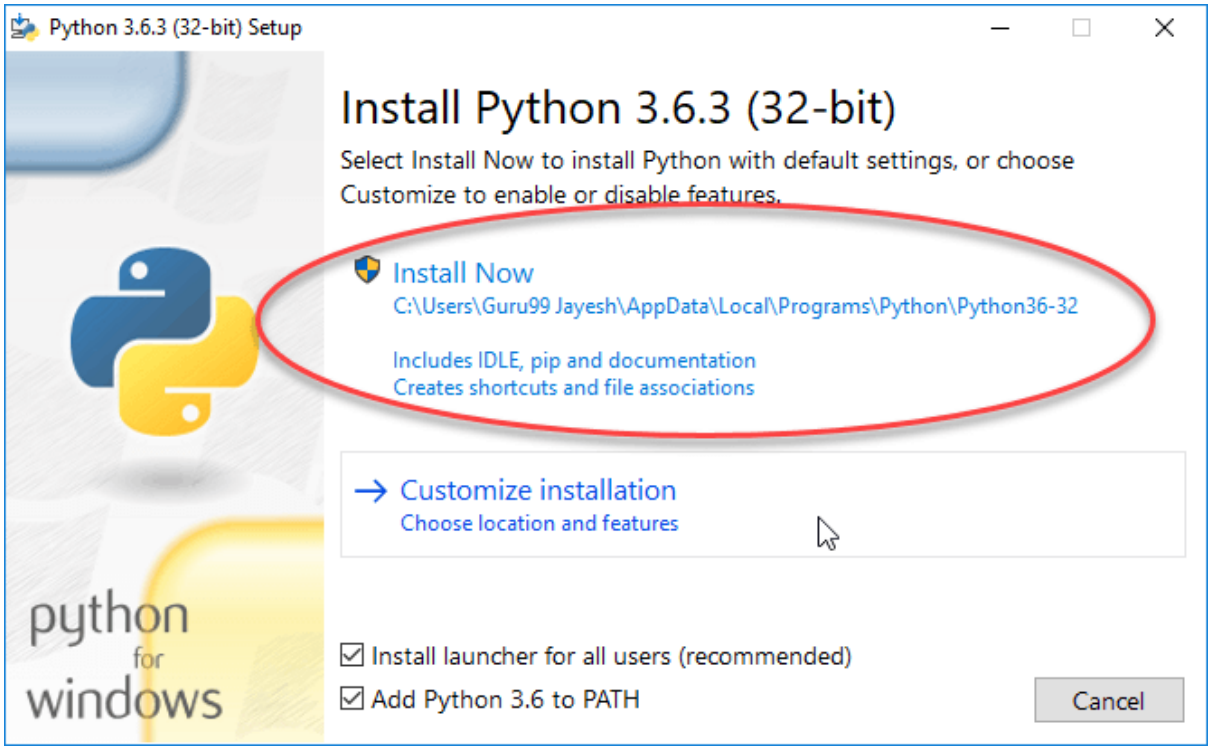
PyCharm is a cross-platform editor developed by JetBrains. Pycharm provides all the tools you need for productive Python development.

Below are the detailed steps for installing Python and PyCharm

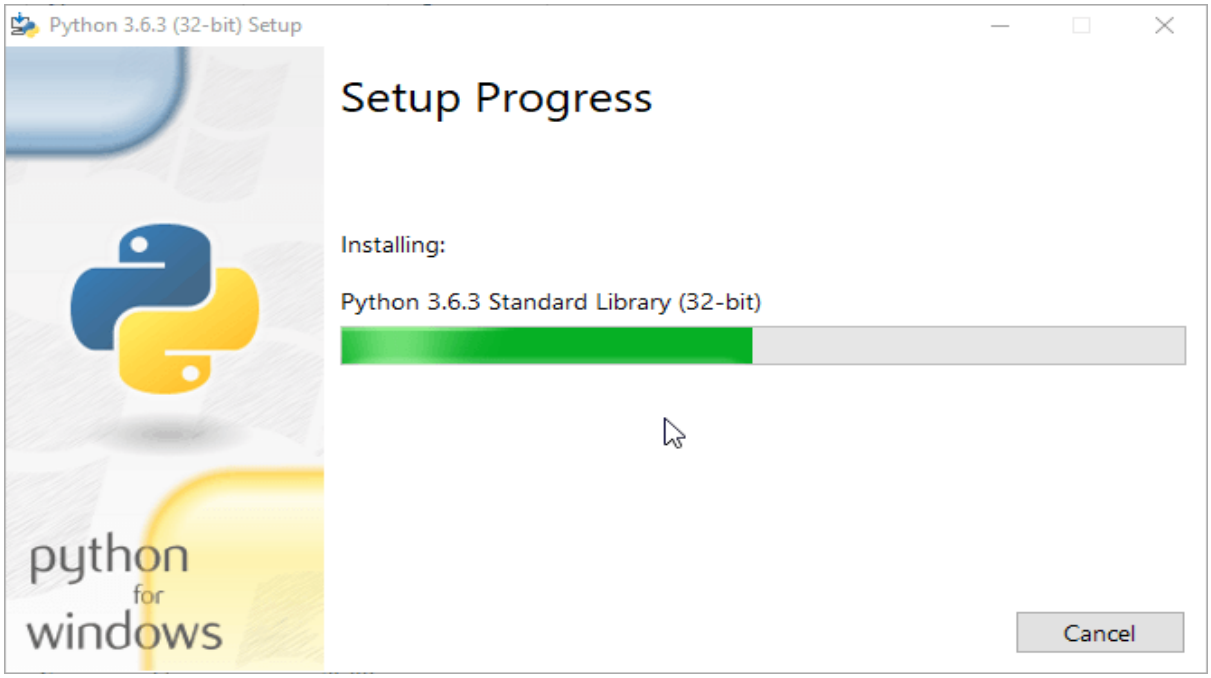
Installing Python

Step 1) To download and install Python visit the official website of Python http://www.python.org/downloads/ and choose your version. We have chosen Python version 3.6.3

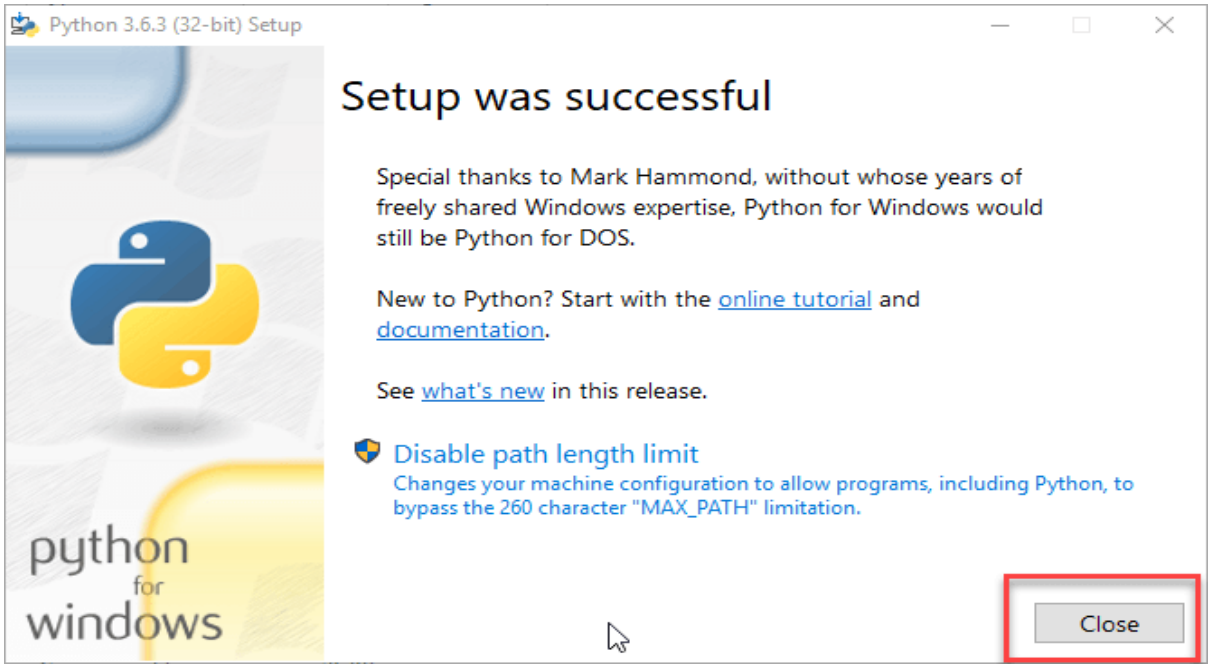
Step 2) Once the download is complete, run the exe for install Python. Now click on Install Now.



Step 3) You can see Python installing at this point.



Step 4) When it finishes, you can see a screen that says the Setup was successful. Now click on "Close".



Installing Anaconda on Windows

Anaconda comes bundled with about 600 packages pre-installed including **NumPy**, **Matplotlib** and **SymPy**.

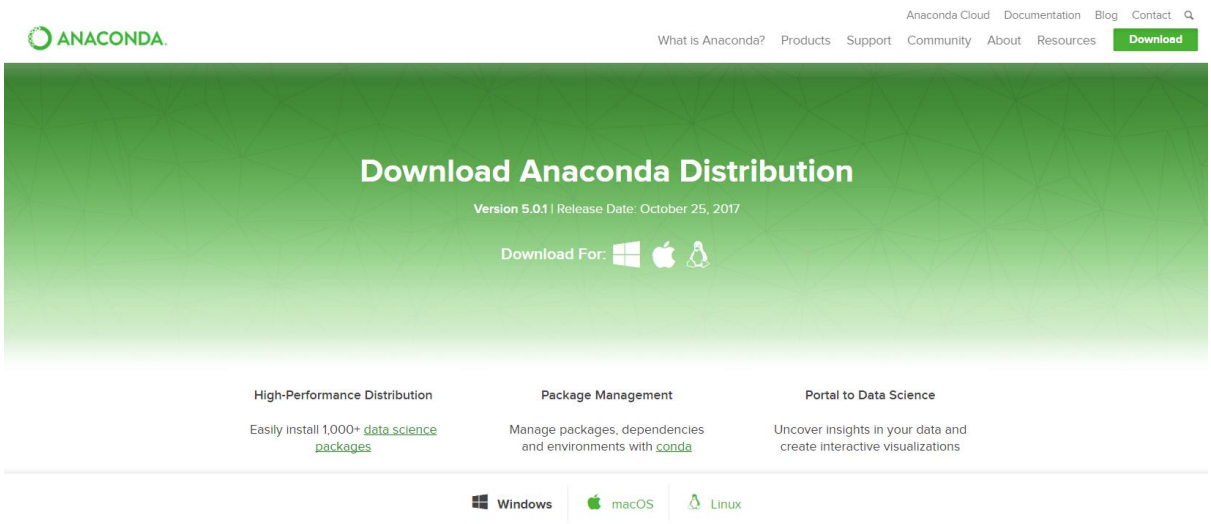
Steps:

1. Visit Anaconda.com/downloads
2. Select Windows
3. Download the ***.exe*** installer
4. Open and run the ***.exe*** installer
5. Open the **Anaconda Prompt** and run some Python code

1. Visit the Anaconda downloads page

Go to the following link: Anaconda.com/downloads

The Anaconda Downloads Page will look something like this:



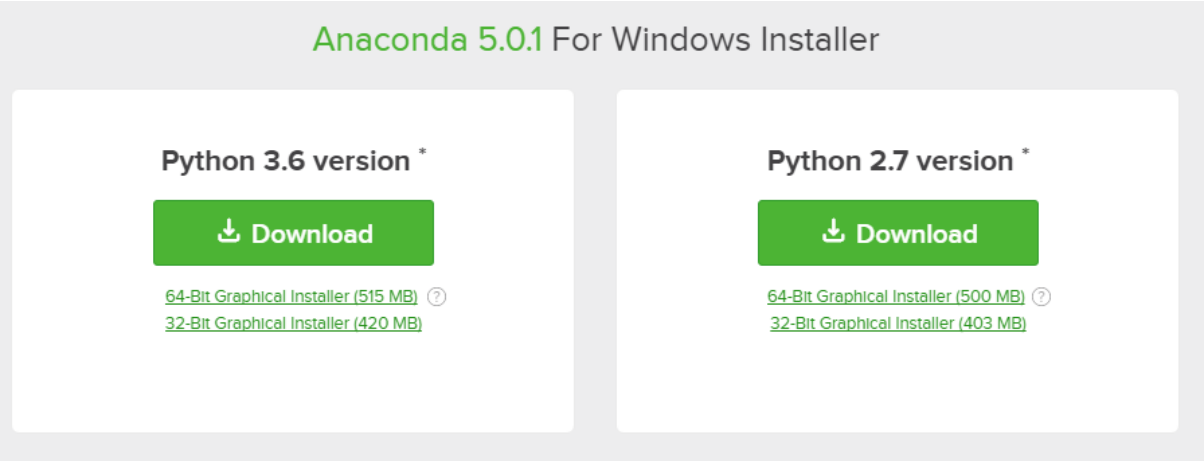
2. Select Windows

Select Windows where the three operating systems are listed.

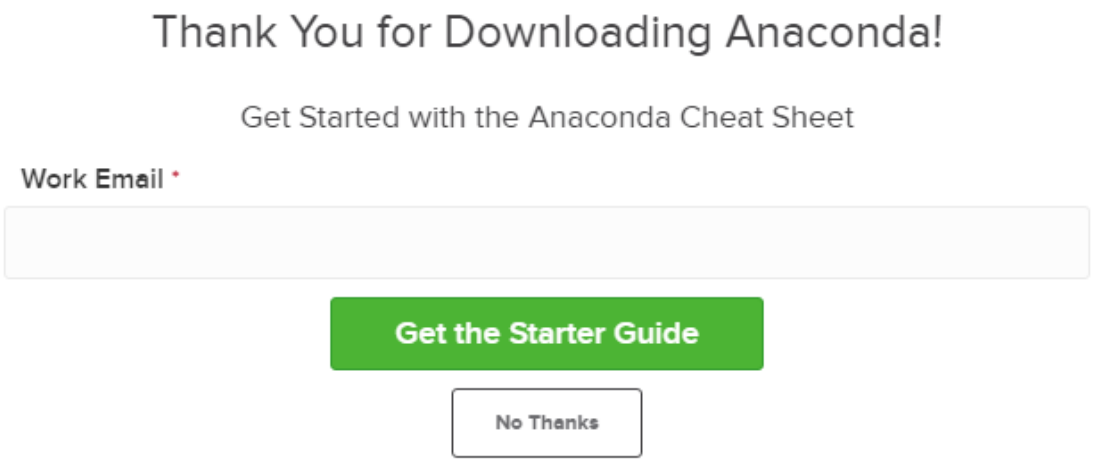
3. Download

Download the most recent Python 3 release. At the time of writing, the most recent release was the Python 3.6 Version. Python 2.7 is legacy Python. For problem solvers, select the

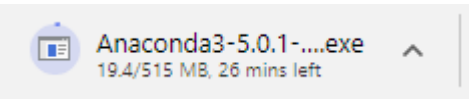
Python 3.6 version. If you are unsure if your computer is running a 64-bit or 32-bit version of Windows, select 64-bit as 64-bit Windows is most common.



You may be prompted to enter your email. You can still download Anaconda if you click `[No Thanks]` and don't enter your Work Email address.

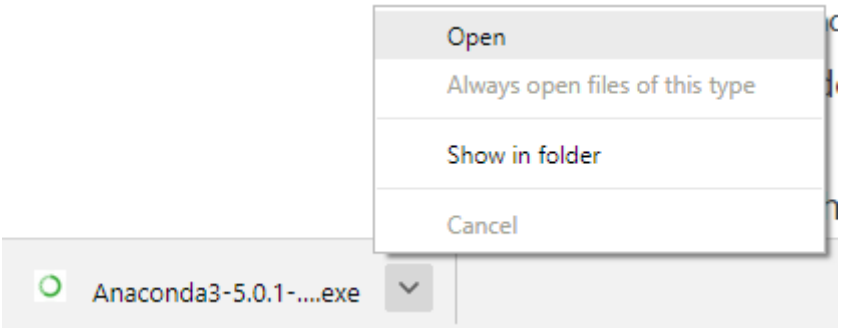


The download is quite large (over 500 MB) so it may take a while to for Anaconda to download.

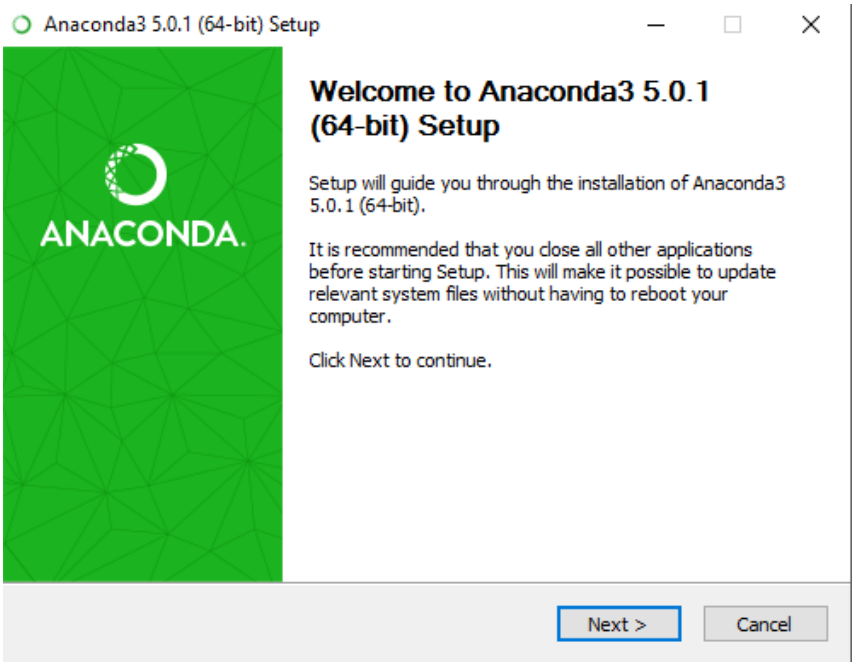


4. Open and run the installer

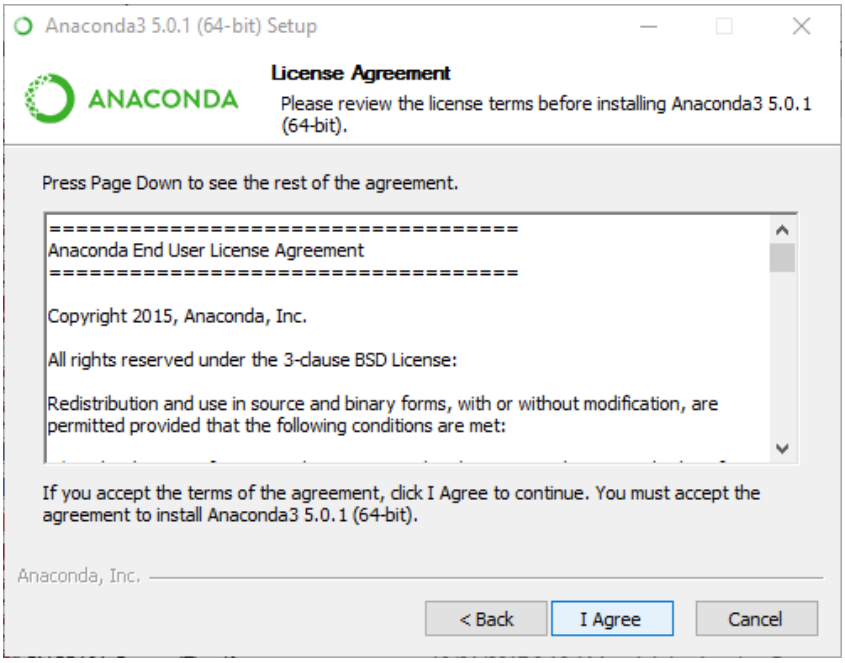
Once the download completes, open and run the ***.exe*** installer



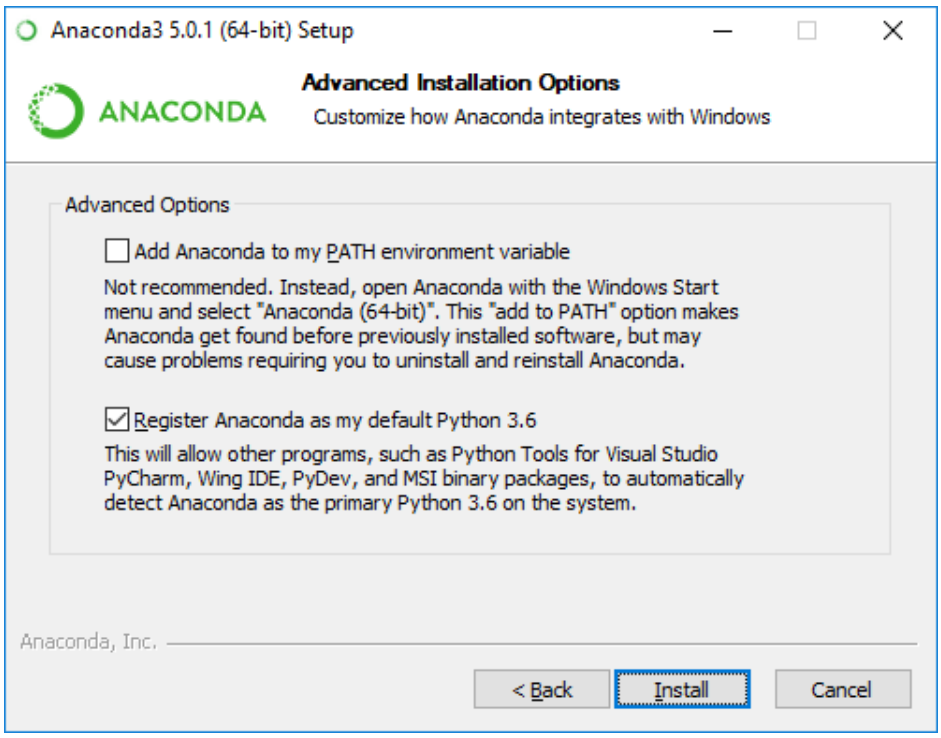
At the beginning of the install, you need to click **Next** to confirm the installation.



Then agree to the license.



At the Advanced Installation Options screen, I recommend that you **do not check** "Add Anaconda to my PATH environment variable"



5. Open the Anaconda Prompt from the Windows start menu

After the installation of Anaconda is complete, you can go to the Windows start menu and select the Anaconda Prompt.