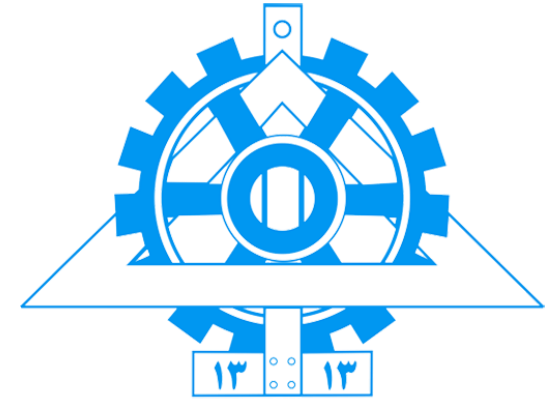


A close-up of a human hand, palm up, reaching towards the top of the frame. The background is a vibrant blue sky filled with soft, white, fluffy clouds. The lighting is bright, suggesting a sunny day. The overall composition is uplifting and spiritual.

# IN THE NAME OF GOD

“His Name Shall Be Revered”



# Data Science Course

Course Instructors:

Dr. Mehdi SamadZad

Hossein Karami

Ali Karami

# Course Syllabuses

-  Installation
-  Introduction to Python
-  Intermediate to Python
-  Data Manipulation with Pandas
-  Data Visualization
-  Cleaning Data
-  Writing Efficient Python code
-  Writing Functions
-  Merging Data Frames

# How can you pass this course and get the final certificate?

- You must to do the final project

☐ Pass A

☐ Pass B

☒ Pass C

# Hello Python

- ❑ **Python** is an [interpreted](#), [high-level](#) and [general-purpose programming language](#). Python was conceived by Guido Van Rossum. What started as a hobby project, soon became a general purpose programming language: **nowadays, you can use Python to build practically any piece of software.**
- ❑ Python was conceived in the late 1980s by **Guido van Rossum** at Centrum Wiskunde & Informatica (CWI) in the Netherlands as a successor to ABC programming language.
  - ✓ General purpose: build anything
  - ✓ Open source! Free!
  - ✓ Python packages, also for data science



# Anaconda

- ❑ what is Anaconda?







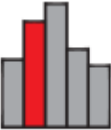

- ❑ Why Anaconda?

- ❑ Anaconda packages?



# Anaconda Application

- Jupyter Lab
- Jupyter Notebook
- QT Consol
- Spyder
- VSCode
- Gluevis
- Orange 3App
- Rodeo
- **Rstudio**

 <p>CMD.exe Prompt 0.1.1 Run a cmd.exe terminal with your current environment from Navigator activated</p> <p>Launch</p>	 <p>JupyterLab 2.1.5 An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.</p> <p>Launch</p>	 <p>Notebook 6.0.3 Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.</p> <p>Launch</p>	 <p>Powershell Prompt 0.0.1 Run a Powershell terminal with your current environment from Navigator activated</p> <p>Launch</p>
 <p>Qt Console 4.7.5 PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.</p>	 <p>Spyder 4.1.4 Scientific PYTHON Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features</p>	 <p>Glueviz 0.15.2 Multidimensional data visualization across files. Explore relationships within and among related datasets.</p>	 <p>Orange 3 3.26.0 Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.</p>

# First things first, download it.

## Anaconda Installers

Windows 

Python 3.8

64-Bit Graphical Installer (457 MB)


32-Bit Graphical Installer (403 MB)

MacOS 

Python 3.8

64-Bit Graphical Installer (435 MB)

64-Bit Command Line Installer (428 MB)

Linux 

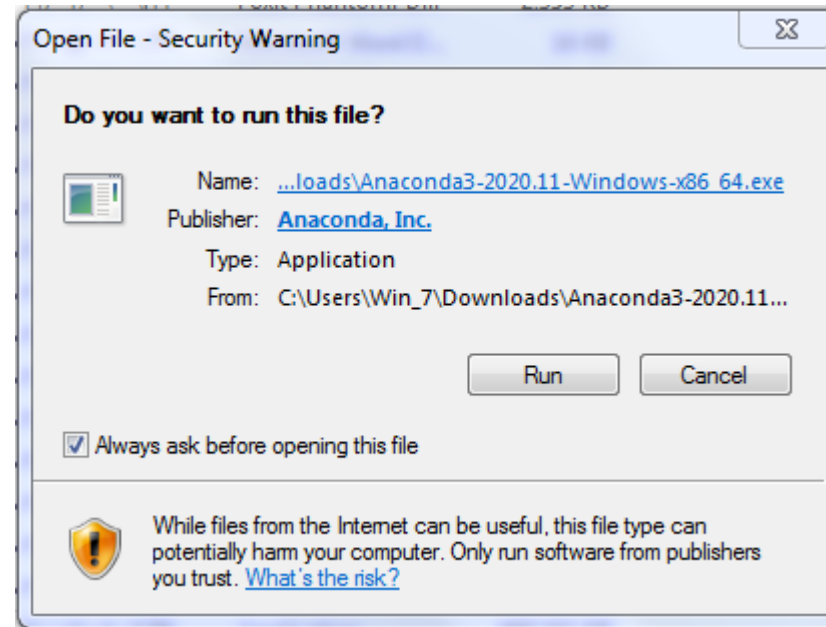
Python 3.8

64-Bit (x86) Installer (529 MB)

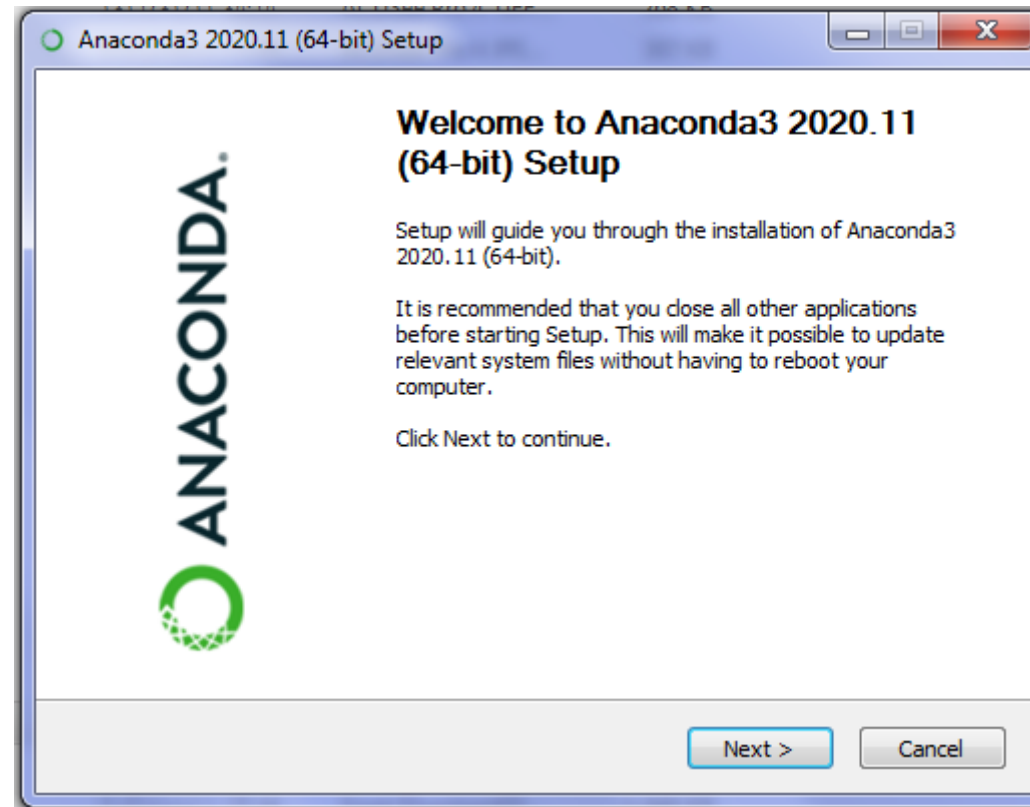
64-Bit (Power8 and Power9) Installer (279 MB)



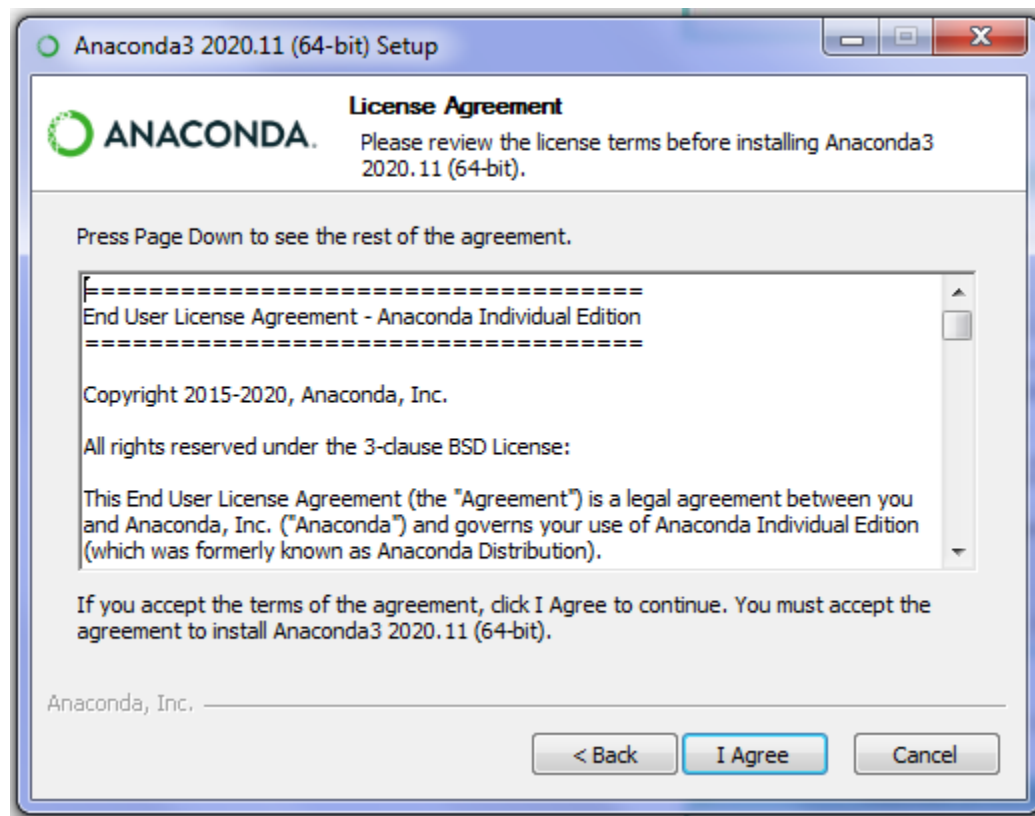
# Installation of software



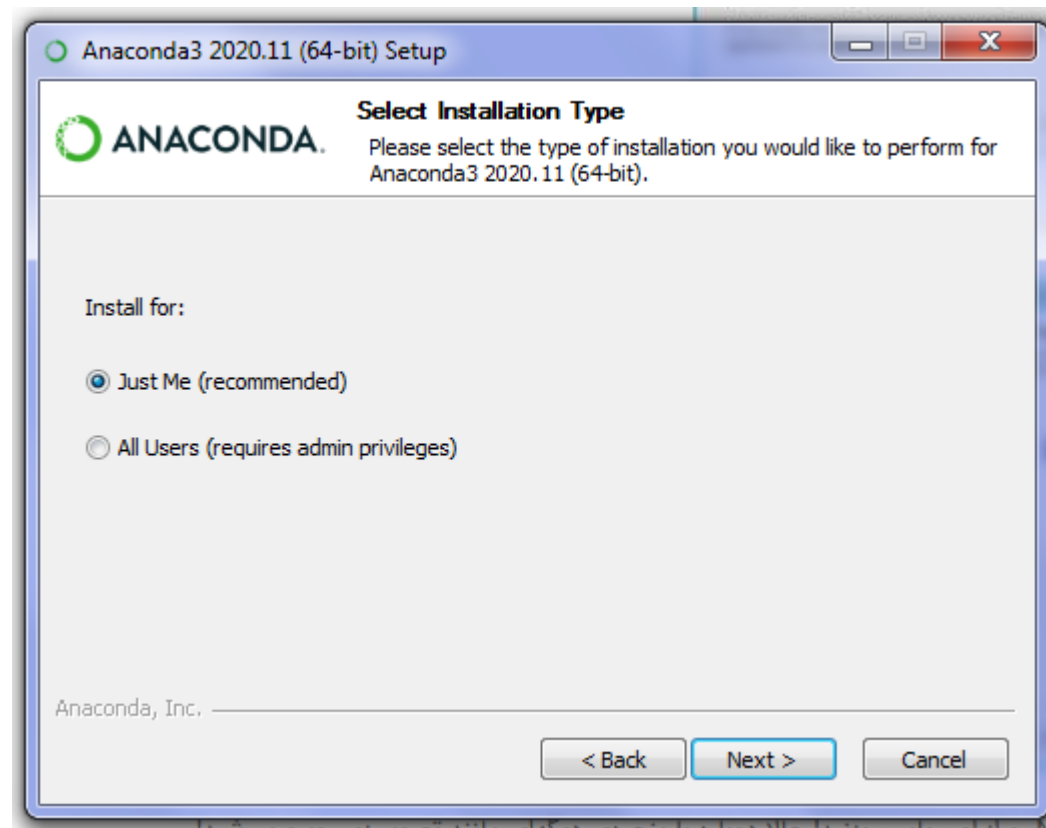
# Step 1



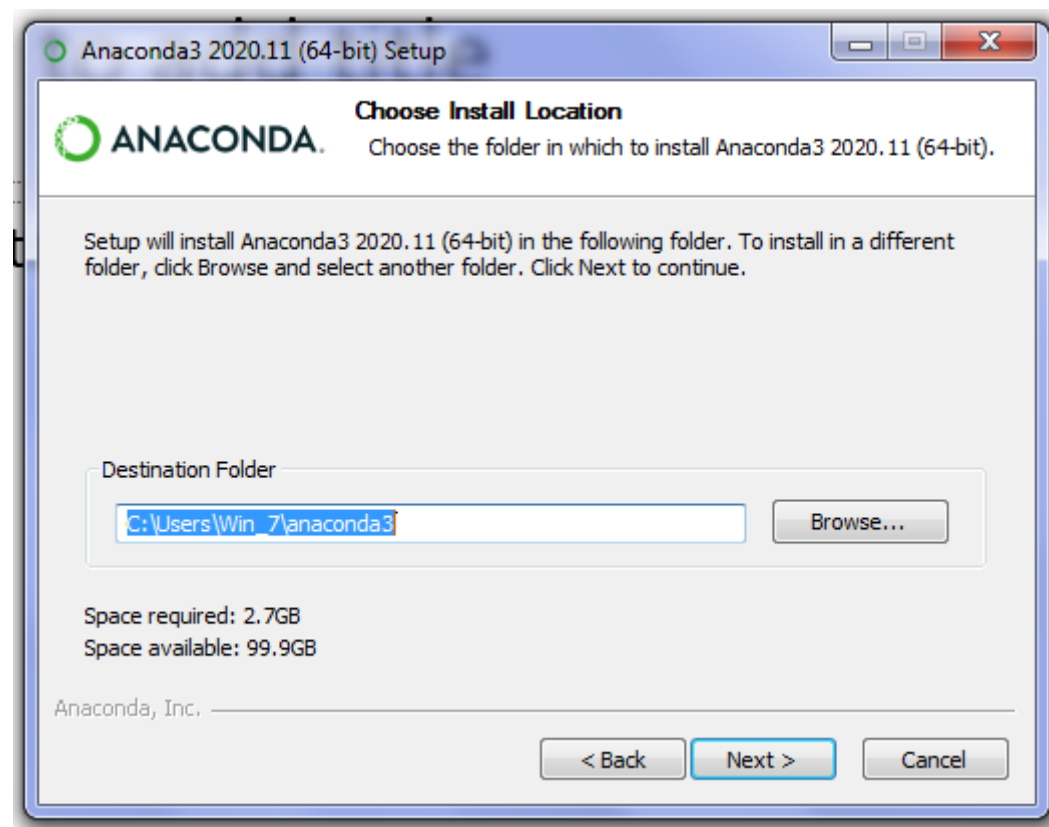
# Step 2



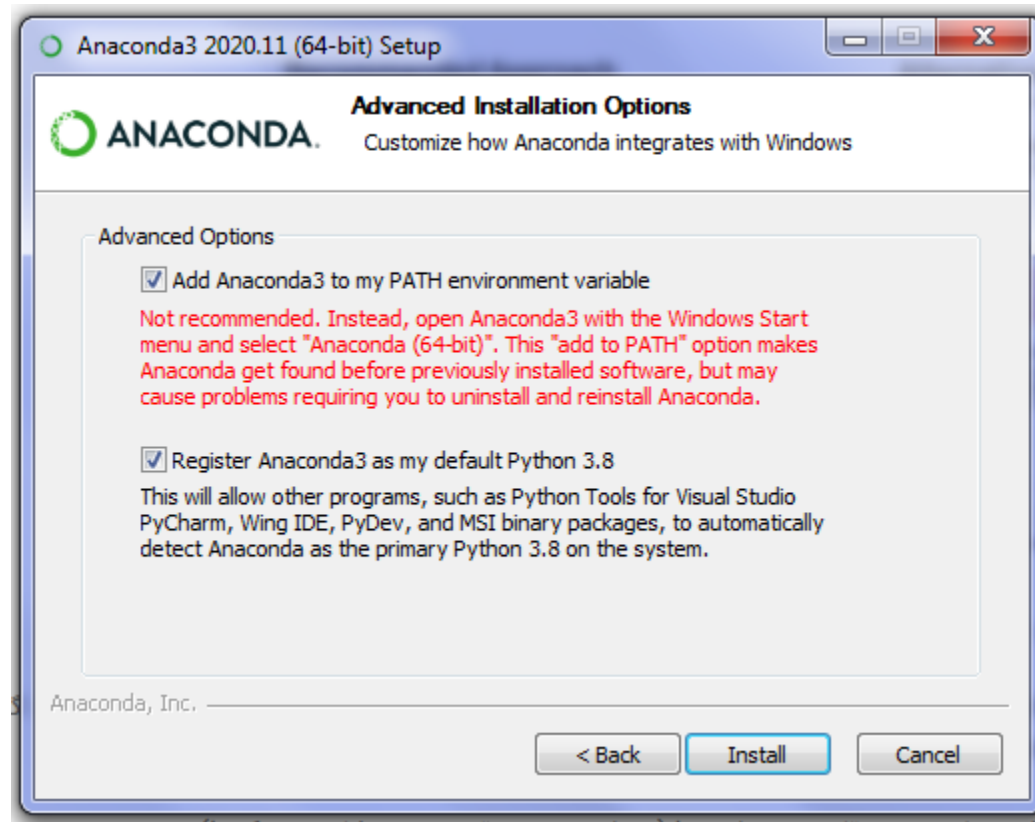
# Step 3



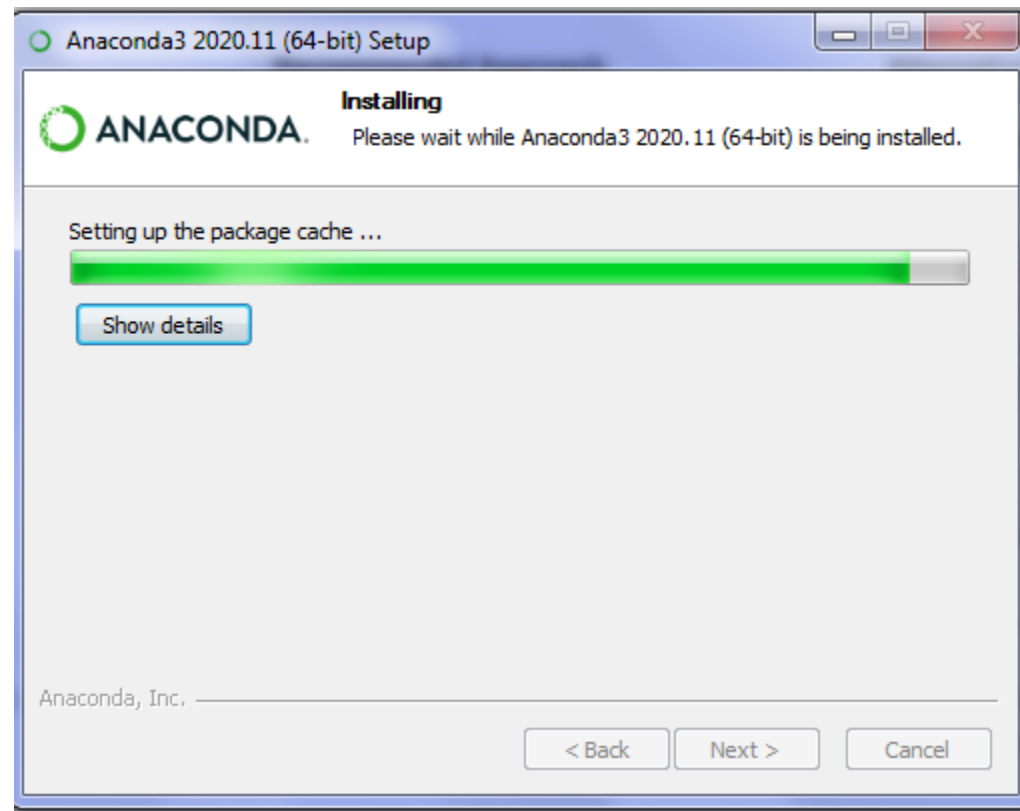
# Step 4



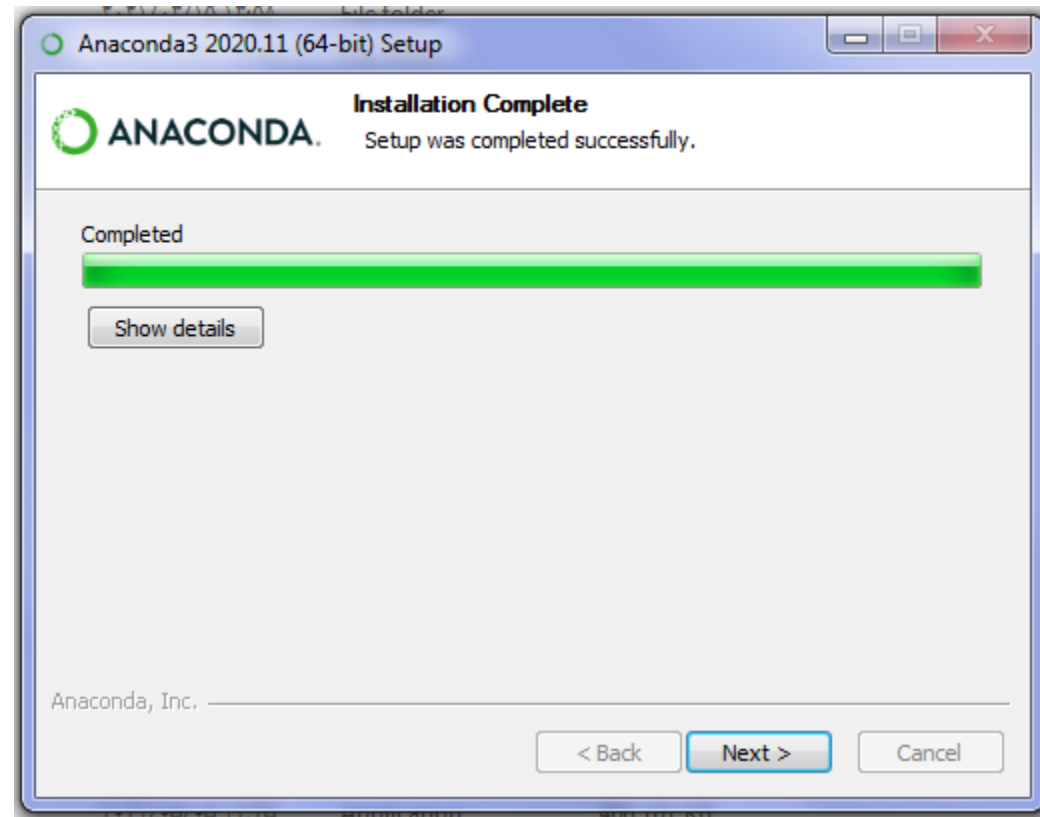
# Step 5



# Step 6

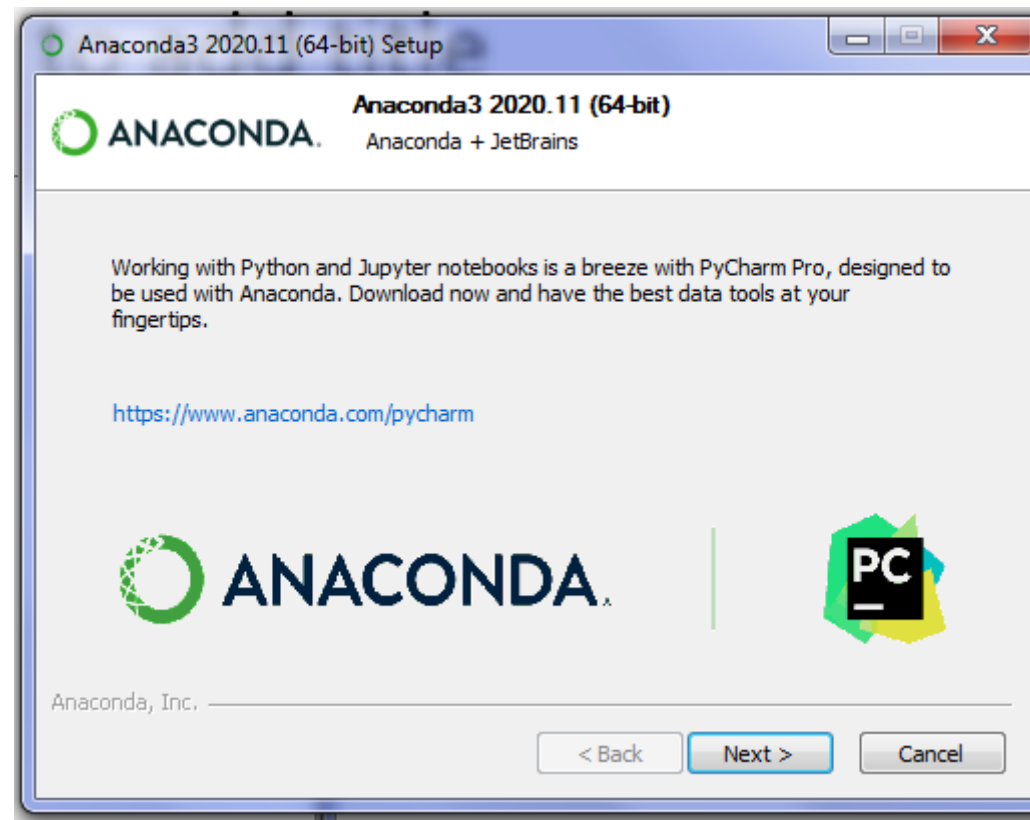


# Step 8

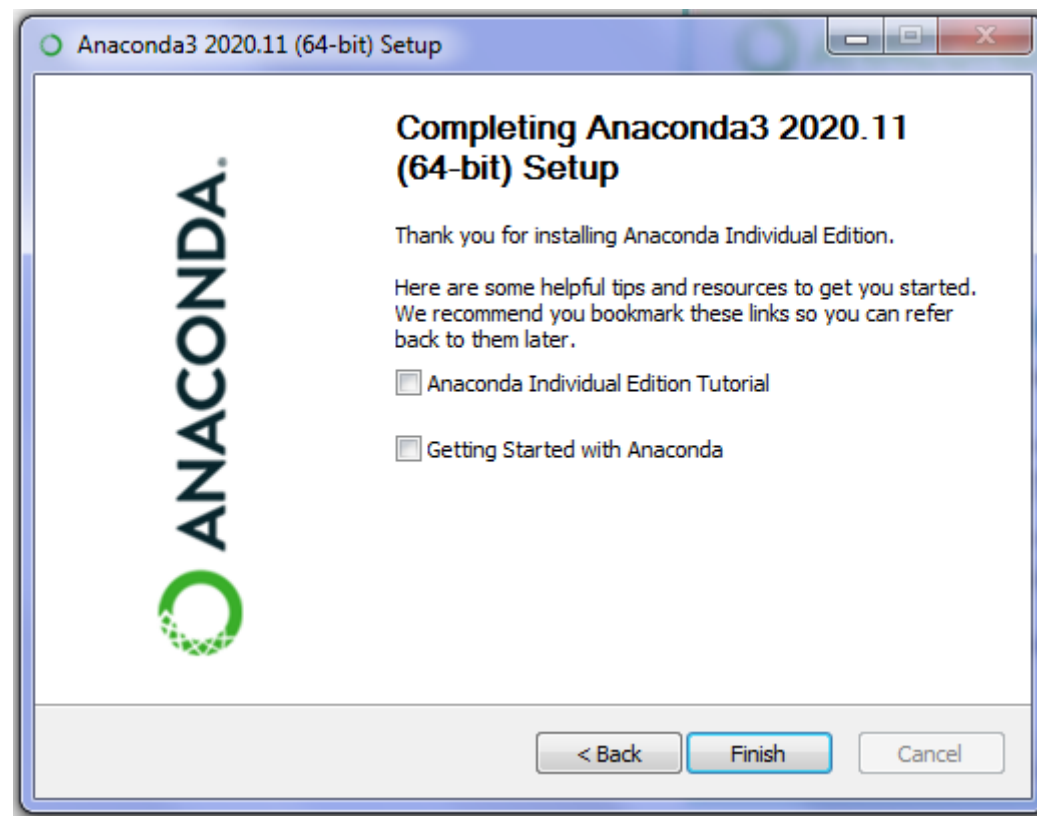




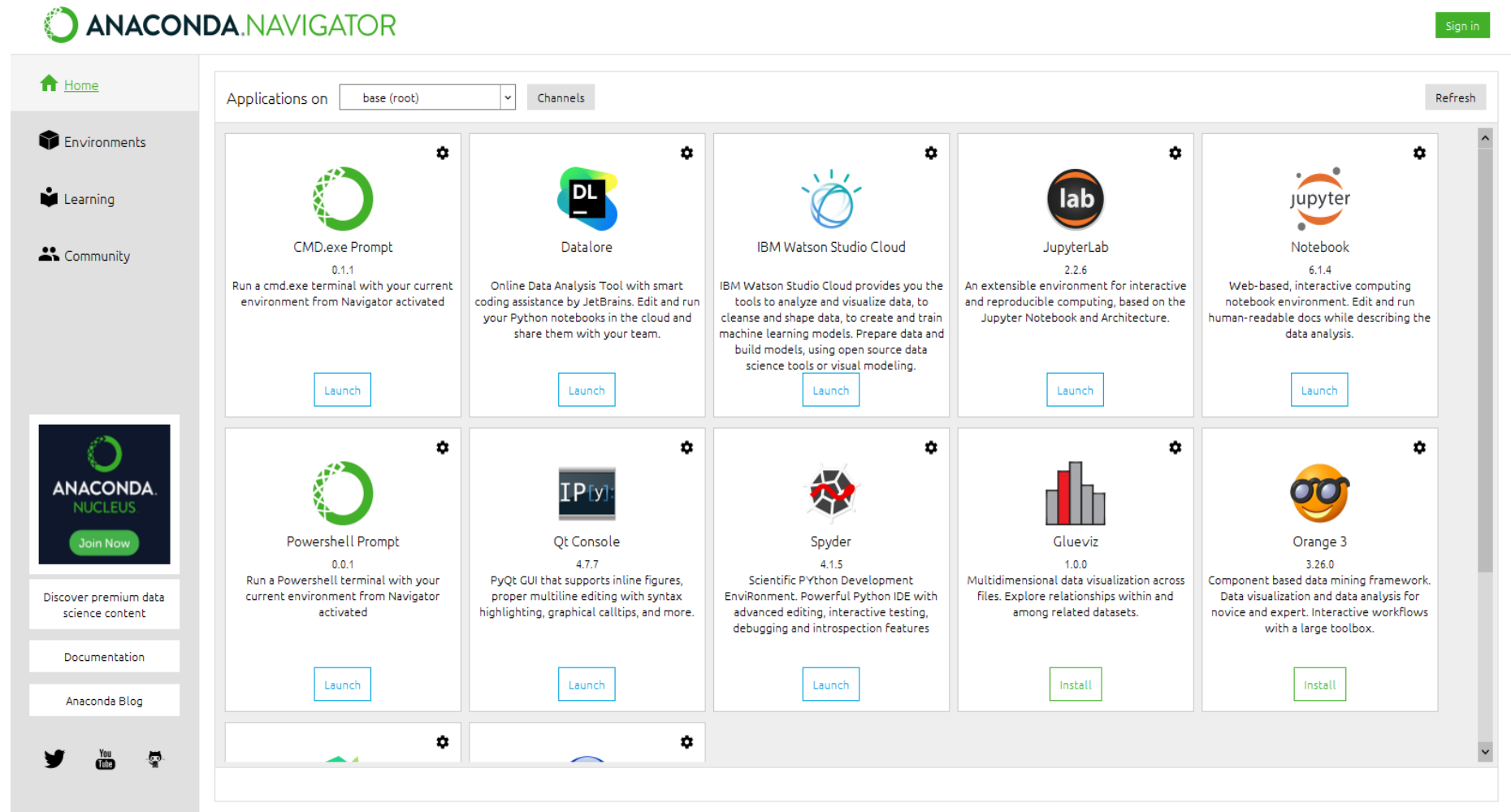
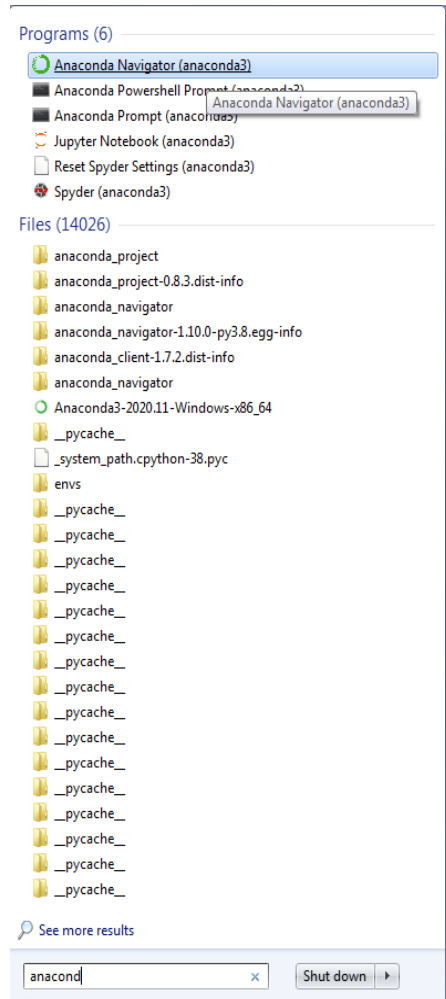
# Step 9



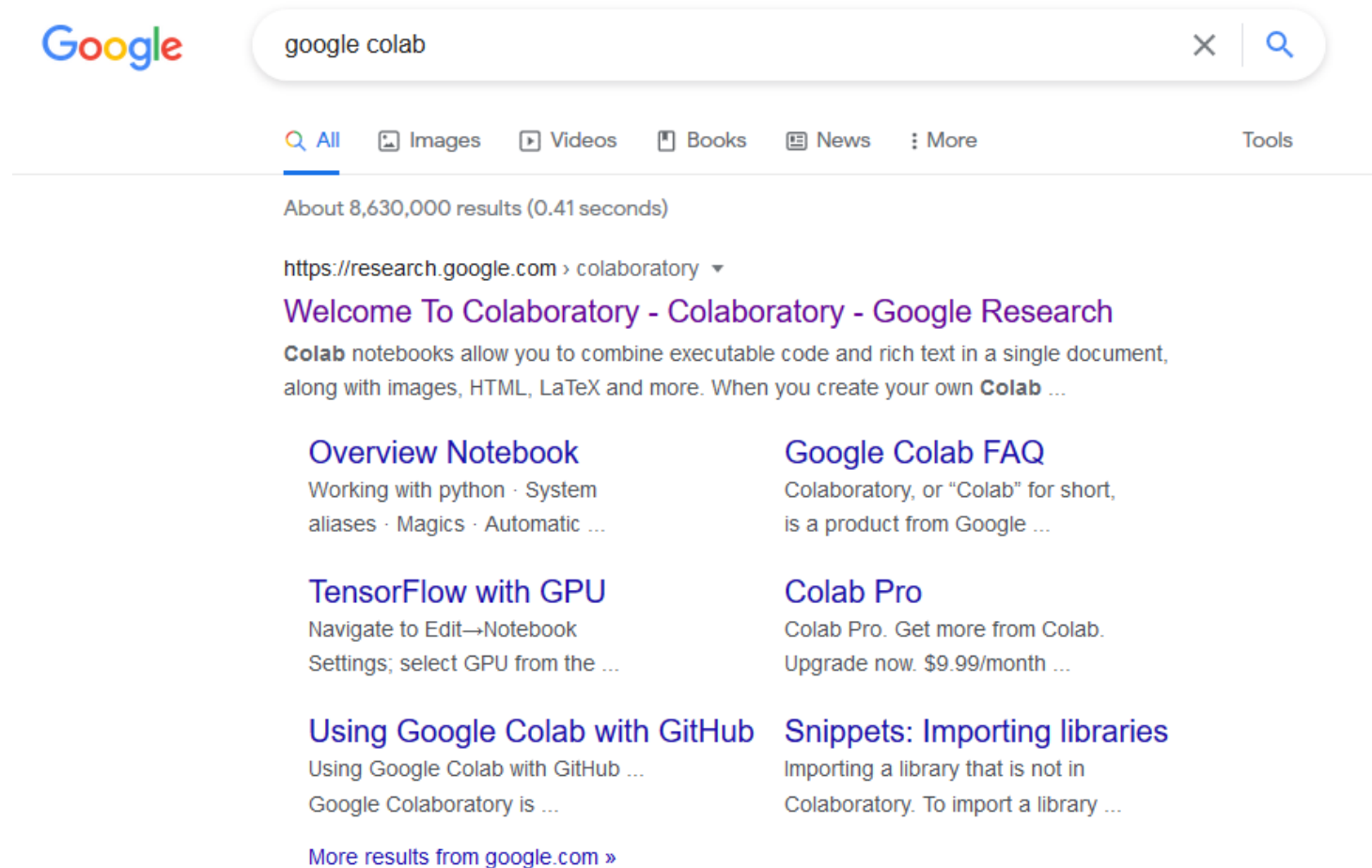
# Step 10



# Anaconda Navigator



# Colaboratory



The image is a screenshot of a Google search results page for the query "google colab". At the top left is the Google logo. The search bar contains the text "google colab" and has a clear button (X) and a search button (magnifying glass). Below the search bar are navigation links: "All" (selected), "Images", "Videos", "Books", "News", "More", and "Tools". The search results show "About 8,630,000 results (0.41 seconds)". The first result is from "https://research.google.com > colaboratory" with the title "Welcome To Colaboratory - Colaboratory - Google Research". The description states: "Colab notebooks allow you to combine executable code and rich text in a single document, along with images, HTML, LaTeX and more. When you create your own Colab ...". Below this are several links in a grid:

- Overview Notebook**  
Working with python · System aliases · Magics · Automatic ...
- Google Colab FAQ**  
Colaboratory, or "Colab" for short, is a product from Google ...
- TensorFlow with GPU**  
Navigate to Edit→Notebook Settings; select GPU from the ...
- Colab Pro**  
Colab Pro. Get more from Colab. Upgrade now. \$9.99/month ...
- Using Google Colab with GitHub**  
Using Google Colab with GitHub ... Google Colaboratory is ...
- Snippets: Importing libraries**  
Importing a library that is not in Colaboratory. To import a library ...

At the bottom, there is a link: "More results from google.com »".

# Colaboratory

The screenshot displays the Google Colaboratory web interface. At the top, the 'Welcome To Colaboratory' header includes a menu with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help', along with a status message 'Cannot save changes'. On the right of the header are 'Share' and 'Settings' icons. A left sidebar contains a 'Table of contents' with links to 'Getting started', 'Data science', 'Machine learning', 'More Resources', and 'Machine Learning Examples' (which is highlighted). The main workspace area shows a section titled 'Machine Learning Examples' with a description: 'To see end-to-end examples of the interactive machine learning analyses that Colaboratory makes possible, check out these tutorials using models from [TensorFlow Hub](#).' Below this, it lists 'A few featured examples:' followed by five bullet points, each with a link and a brief description of the task. At the bottom of the workspace, there is a text prompt 'Double-click (or enter) to edit' and a footer bar with navigation icons and a page indicator '1 |'.

Welcome To Colaboratory

File Edit View Insert Runtime Tools Help [Cannot save changes](#)

Share Settings

Table of contents

- Getting started
- Data science
- Machine learning
- More Resources
- Machine Learning Examples**
- Section

+ Code + Text Copy to Drive

Connect Editing

## Machine Learning Examples

To see end-to-end examples of the interactive machine learning analyses that Colaboratory makes possible, check out these tutorials using models from [TensorFlow Hub](#).

A few featured examples:

- [Retraining an Image Classifier](#): Build a Keras model on top of a pre-trained image classifier to distinguish flowers.
- [Text Classification](#): Classify IMDB movie reviews as either *positive* or *negative*.
- [Style Transfer](#): Use deep learning to transfer style between images.
- [Multilingual Universal Sentence Encoder Q&A](#): Use a machine learning model to answer questions from the SQuAD dataset.
- [Video Interpolation](#): Predict what happened in a video between the first and the last frame.

Double-click (or enter) to edit

1 |

Let's start introduction to python!