Experiment No.01

Aim: To study platoforms like Anaconda, COLAB, etc.

Machine learning platforms provide a robust and scalable infrastructure that enables organizations to harness the potential of their data and apply advanced algorithms to uncover patterns, trends, and predictions. Various platforms like Anaconda, Google COLAB, AWS SageMaker, etc. are available today for us to use.

Anaconda:

Anaconda Python is a free, open-source platform that allows you to write and execute code in the programming language Python. It is by continuum.io, a company that specializes in Python development.

It is one of the most popular popular for using Python in data science, scientific computing & machine learning applications. It also comes with a large number of libraries/packages that you can use for your projects. Since Anaconda Python is free and open-source, anyone can contribute to its development.

Installing and using Anaconda:

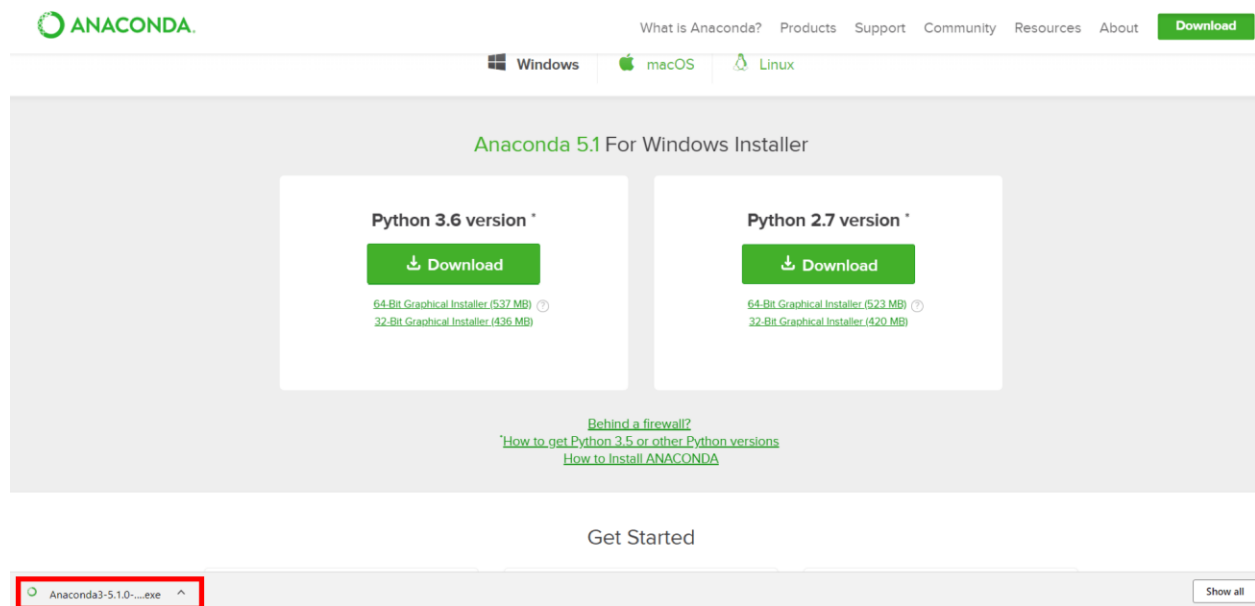1. Go to the Anaconda Website and choose the version suitable for your device and operating system.
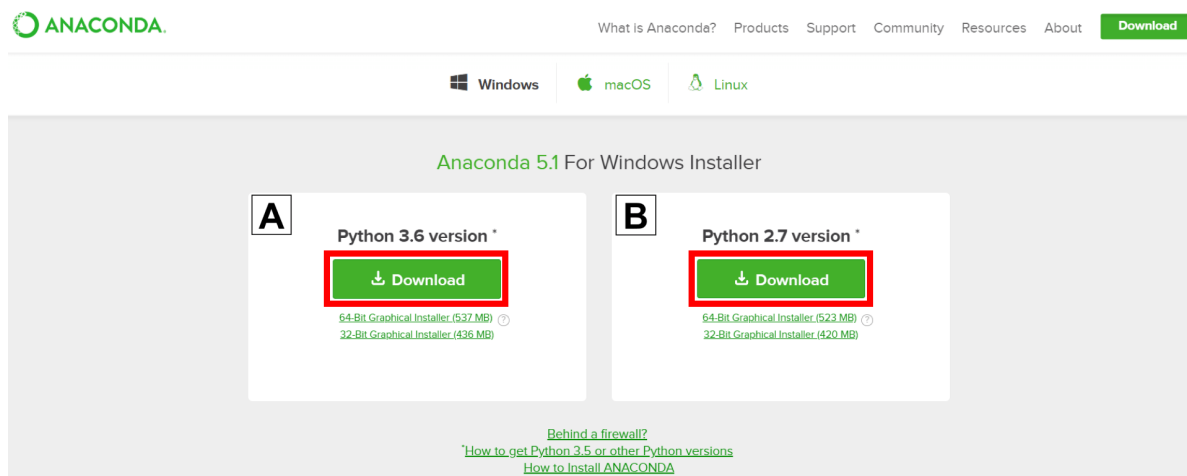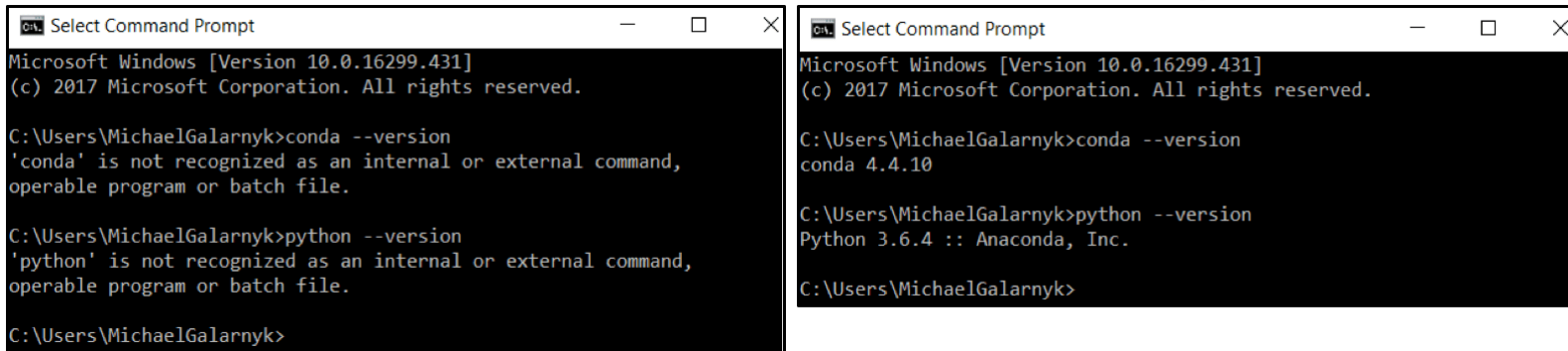
2. Locate your download and double click it to install.

3. Complete the necessary installation process by providing path, directory and other permissions to the setup wizard.
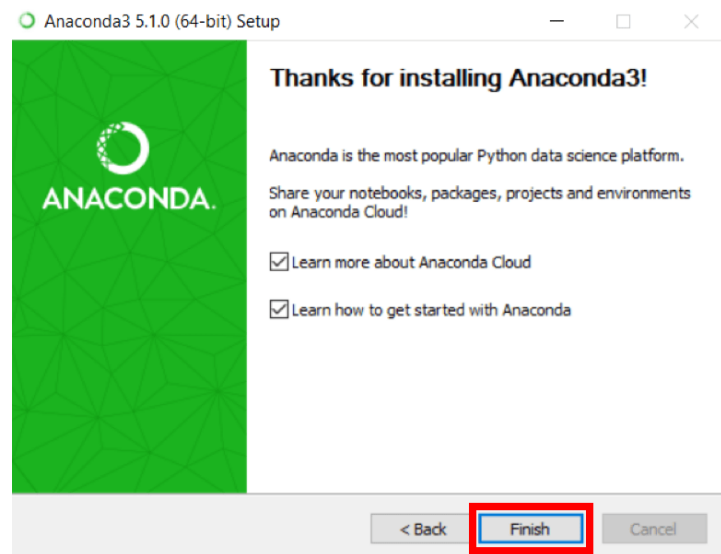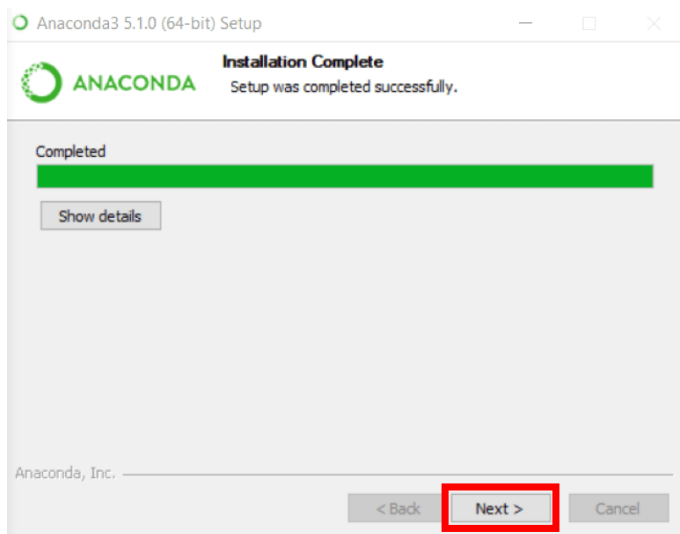
4. Once installed, check if you have already added Anaconda to your path. To check this ,we can use the following commands

Applications of Anaconda :

Anaconda software helps you create an environment for many different versions of Python and package versions. It is also used to install, remove, and upgrade packages in your project environments.

Anaconda Navigator is a GUI (Graphical User Interface) application that comes with Anaconda distribution. With the help of the Anaconda Navigator application, we can interact with Anaconda. We can launch any type of application using an Anaconda navigator that is required for scientific computing like Jupyter Notebook, JupyterLab, Pycharm, Anaconda Notebook, Spyder, etc.
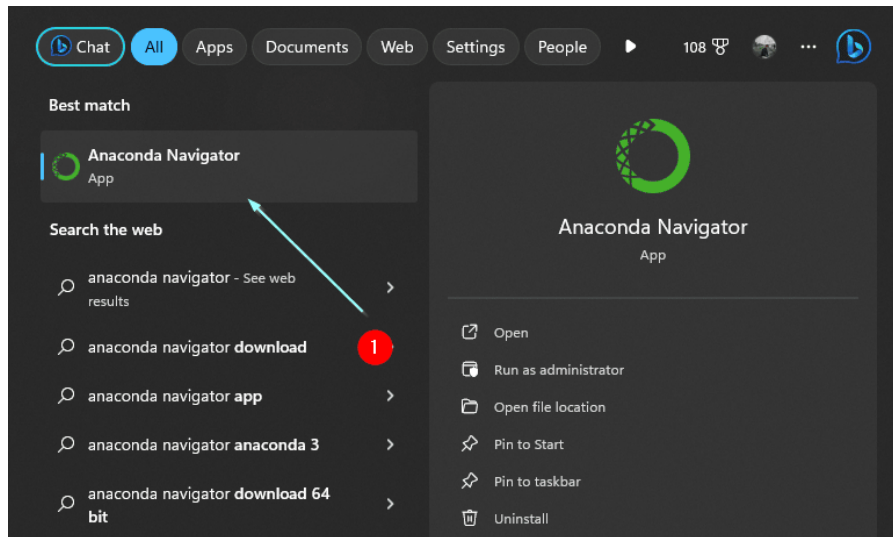
To create a virtual enivronment, following are the steps we need to follow:

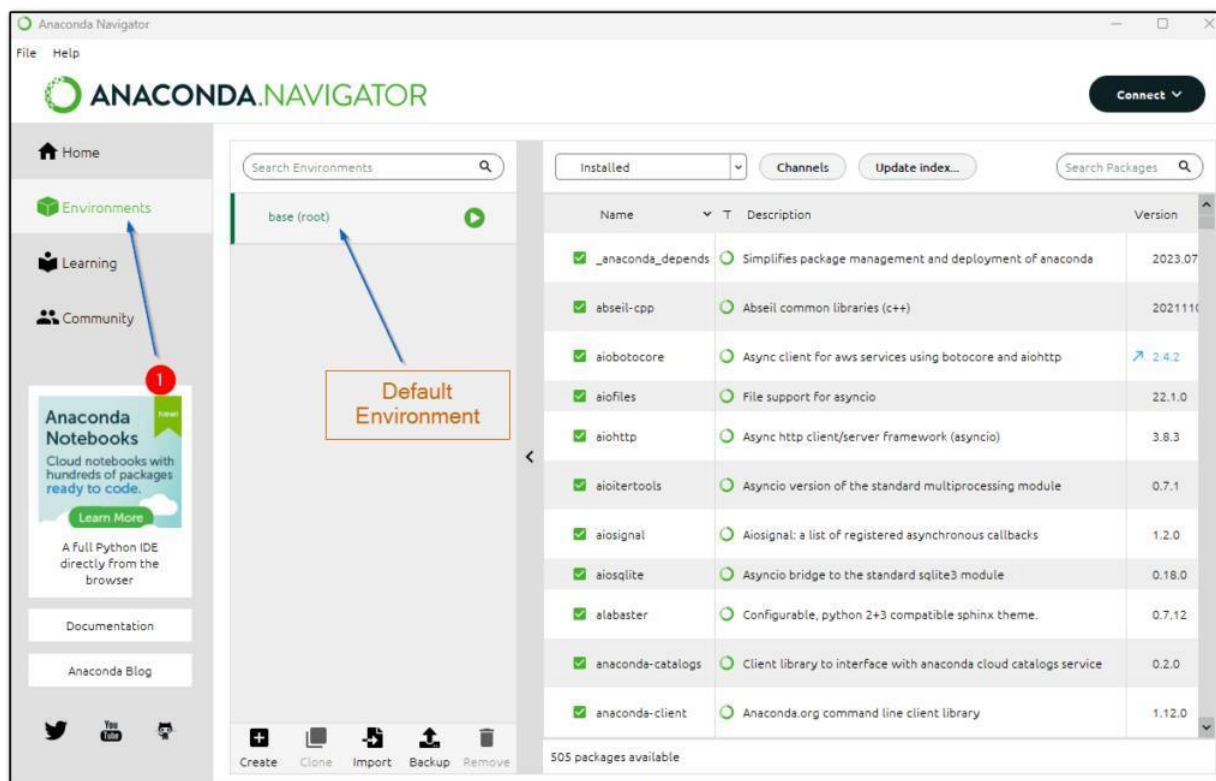1. Search for the Anaconda Navigator app in your window search.

2. Click on the **Environments** tab to see all the Anaconda environments. By default, Anaconda comes with a **base** environment.

3. To create a new environment click on **Create** under the **Environments** tab.
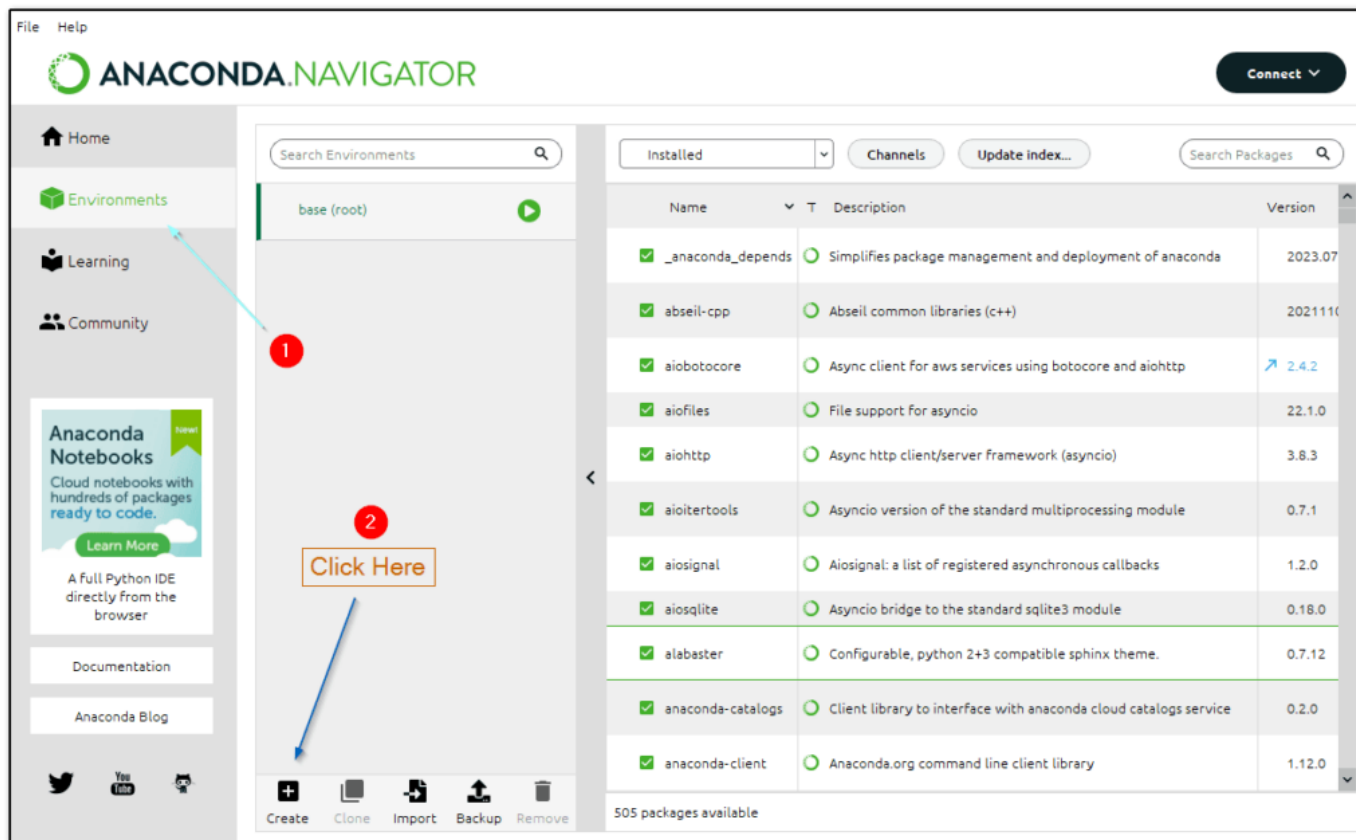
- 4. Now, a dialog box will be opened and you have to provide some information to create a new environment.

Give the   name of

the new
environment, In my case environment name is **python_env** as you can see below. Select

the **Python** checkbox and select the version on which you want to create a new environment.And finally, click on **Create**.

This process take some time and aftercompletion your Virtual Environment is now created.

COLAB:

Google Colab is a free, cloud-based platform provided by Google that allows users to write and execute Python code in a collaborative environment. It provides access to GPU and TPU resources, facilitating machine learning and data analysis. Colab notebooks are stored in Google Drive and can be easily shared with others for real-time collaboration.

Google developed Google Colab to provide free access to GPU's and TPU's to anyone who needs them to build a machine learning or deep learning model. Google Colab can be defined as an improved version of Jupyter Notebook.

Benefits of using Colab:

1. Pre-installed libraries

2. Saved on the cloud

3. Collaborative Environment

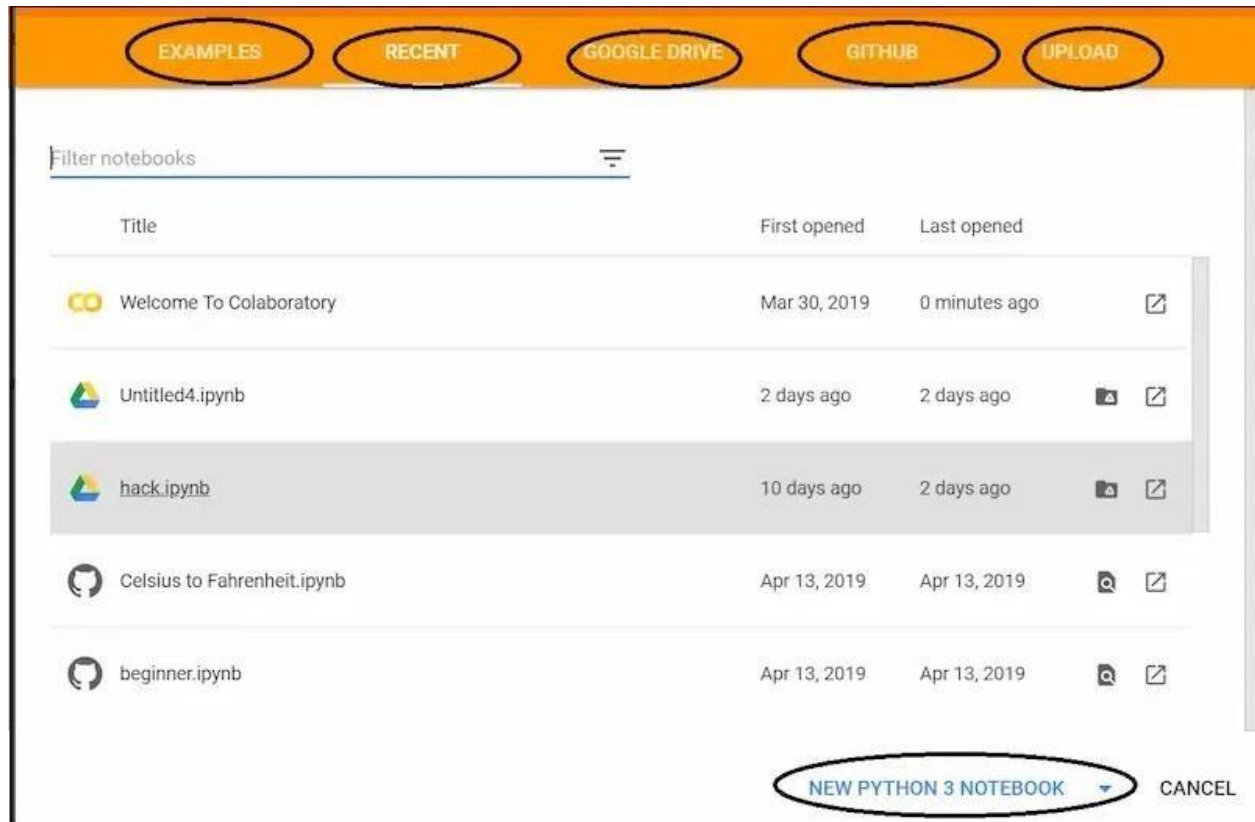4. Free GPU and TPU use

Working with Colab:

To start working with Google Collaboratory Notebook you first need to log in to your Google account, then go to this website https://colab.research.google.com.

1. Open Collaboratory Notebook

You will see the following –

- **EXAMPLES:** Contain a number of Jupyter notebooks of various examples.

- **RECENT:** Jupyter notebook you have recently worked with.

- **GOOGLE DRIVE:** Jupyter notebook in your google drive.

- **GITHUB:** You can add Jupyter notebook from your GitHub but you first need to connect Colab with GitHub.
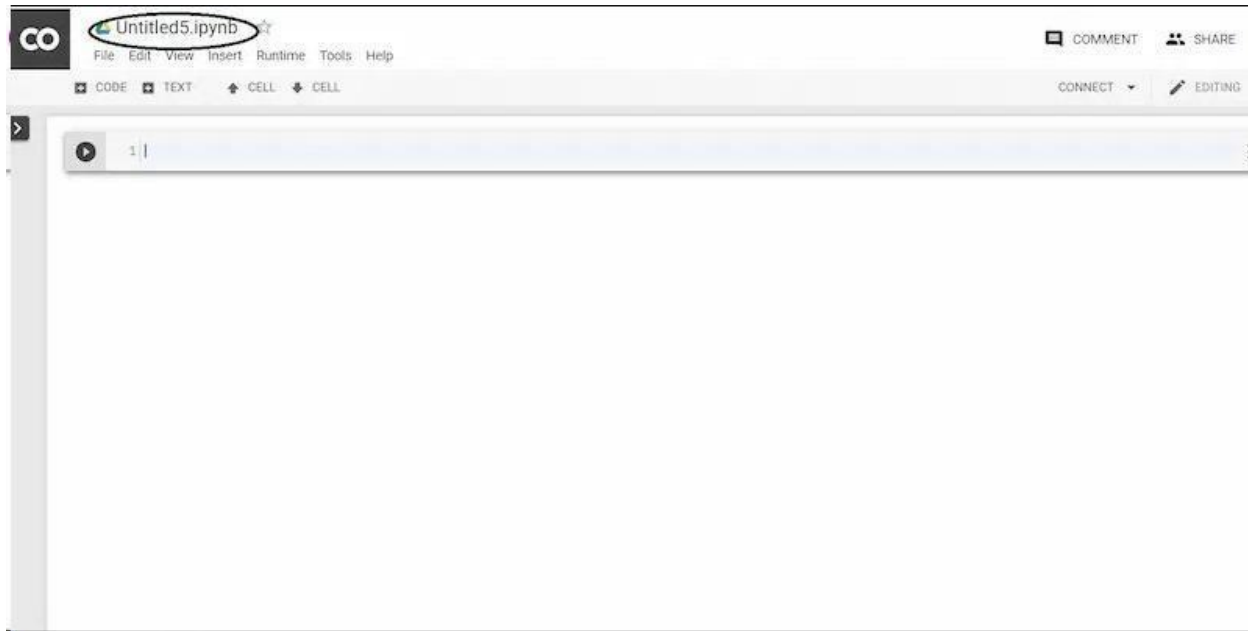
- **UPLOAD:** Upload from your local directory.

2. Create Collaboratory Notebook. On creating a new notebook, it will create a Jupyter notebook with Untitled0.ipynb and save it to your google drive in a folder named Colab Notebooks.

3. Change Runtime Environment: Click the "Runtime" dropdown menu. Select "Change runtime type". Select python2 or 3 from the "Runtime type" dropdown menu.
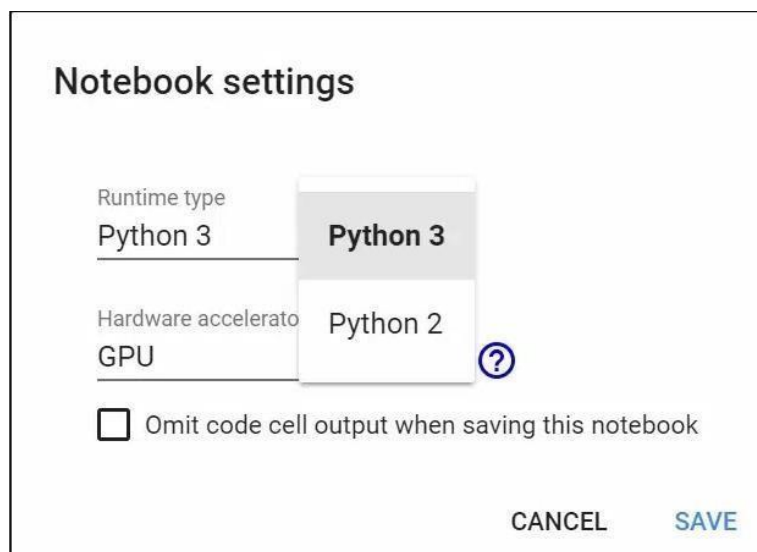
4. To use GPU and TPU, click the "Runtime" dropdown menu. Select "Change runtime type". Now select anything(GPU, CPU, None) you want in the "Hardware accelerator" dropdown menu.
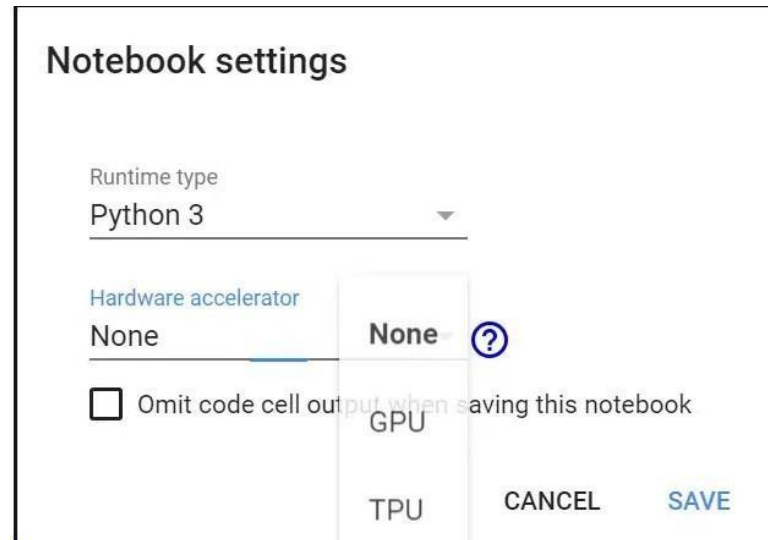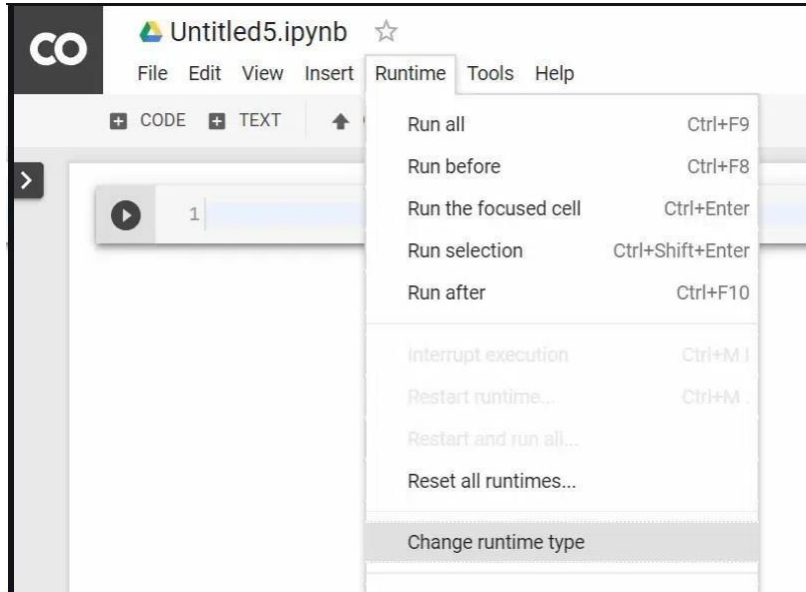
5. Install Python packages

Use can use **pip** to install any package. For example:

- Python

```
! pip install pandas
```

6. Clone GitHub repos in Google Colab

Use the **git clone** command. For example:

- Python

```
! git clone https://github.com/souvik3333/Testing-and-Debugging-Tools
```
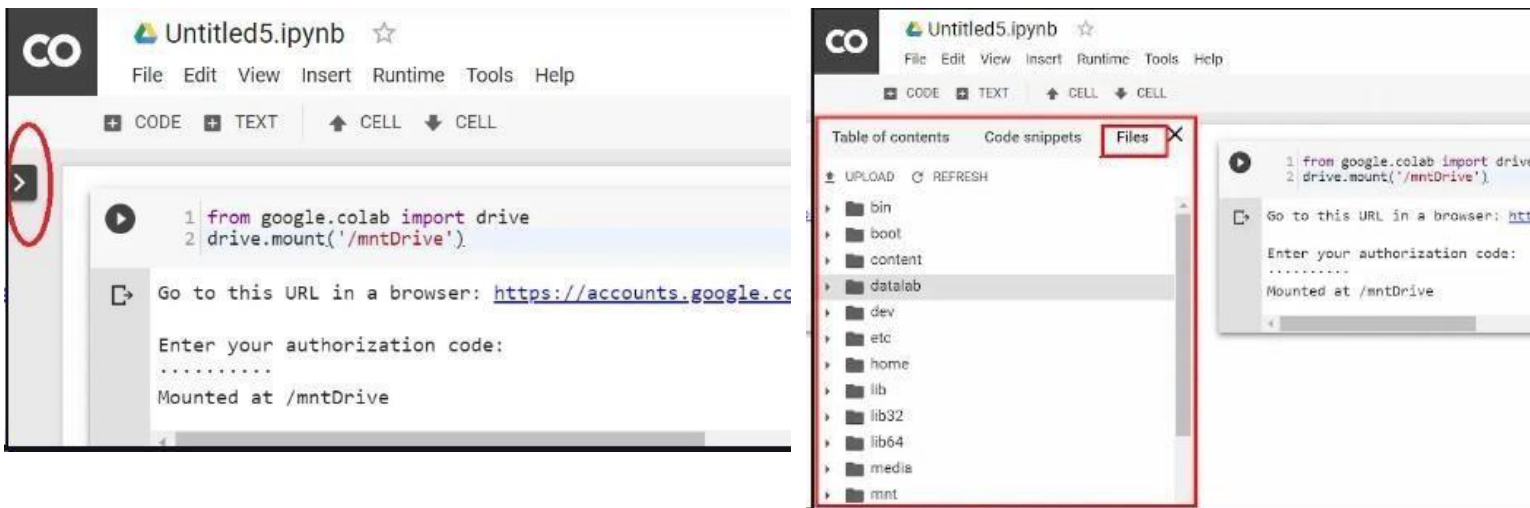
7. File Hierarchy In Google Colab

You can also see the file hierarchy by clicking ">" at the top left below the control buttons (CODE, TEXT, CELL).

We can also share & download files, upload files by mounting Google Drive etc.

Conclusion:

Thus ,we have successfully explored and studied about various platforms like Google COLAB & Anaconda.