# NSDC Data Science Projects Introduction - Using Google Colab

## What is Google Colaboratory?

According to the *"Welcome to Colaboratory"* directory, Google Colab is a cloud-based platform that allows a user to write and execute Python code in their browser with zero configuration, free access to powerful hardware, such as Graphical Processing Units (GPUs) and Tensor Processing Units (TPUs), and enables users to share the code online to collaborate with others.

Working on Colab is similar to writing code on a Jupyter Notebook. You can, in fact, import a Jupyter Notebook on Colab.

## Getting Started and Navigating the Colab Notebook!

There are multiple ways of creating a Colab folder. You can directly navigate to the following link: https://colab.research.google.com/ and then click on "New Notebook," or you can go to your Google Drive folder and click on New →More → Google Colaboratory.

Once you've created a new Notebook, you can start writing and executing code. Google Colab provides a familiar Jupyter Notebook interface. You will see multiple tabs on the top and left side of the Notebook, each performing a specific function.

There are two types of cells in a Colab Notebook: Code and Text Cells. With a Code Cell, you can write and run Python code. You can add new cells using the "+" button in the top left corner of the screen. To execute a cell, click on the "Play" button to the left of that cell, or press "Shift + Enter."

A Text Cell allows us to add sections in the Colab Notebook. To create a Text Cell you can click on the "+ Text" button on the top left of the screen. There are many editing and formatting options available that you can use to add text and comments between python codes.

Code Cells and Text Cells can also be shifted up and down depending on the chronology you want to execute and create in your Colab Notebook. You can find this option by clicking on the cell and pressing on the down or up arrow. There are other options available as well, such as copying the cell, and adding comments as a collaborator.

One additional point you need to keep in mind is that you must run the cells in chronological order. It might be possible that two separate cells are related to each other. In that case, the code in the first cell must be executed before the second one. For example, you need to load a library first before using a function specific to that library.

## Libraries:

One of the advantages of Google Colab is that it comes with many popular pre-installed Python libraries such as NumPy and Pandas that can be used in the Notebook. You can also install new libraries using the regular python "!pip" command.

## Accessing Files:

Uploading files and data is an important step in any Data Analytics and Science project. You can upload data from your local computer and from your Google Drive by clicking on the file icon on the left bar and then browsing over the folders on your local system/Drive.

Colab has an additional feature that automatically generates the list of contents based on the markdown content. On the top of the left bar, "Table of Contents" can be used to navigate over the Colab Notebook and add sections to the Notebook. You can also hide parts of the code based on their headings.

## Collaborating with Others:

One powerful feature in Google Colab is that it enables sharing the Notebook online. You can work on Data Science Projects simultaneously with your friends and co-workers. To do so, click on the "Share" button on the top right corner of the Notebook. You can either invite collaborators via email or by copying a link to the Notebook.

## Keyboard Shortcuts:

Using Keyboard shortcuts while working on a project proves to be handy and reduces time. There are many keyboard shortcuts you can learn to use while writing codes online. The most effective way to learn these shortcuts is through practice. You do not need to learn all at once.

Keyboard shortcuts on Google Colab and Jupyter Notebook are similar. For example, "CTRL + ENTER", "CMD + RETURN" and "SHIFT + ENTER" run the code in the cell. If you want to run a specific part of the code, then you can just select the part of the code and press "CTRL + SHIFT + ENTER".

You can find a list of all keyboard shortcuts under the “Tools” tab or by pressing “CTRL+M +H”.

In conclusion, Google Colab is a powerful, convenient and user-friendly platform for running Python code in a Notebook environment. With its access to powerful hardware and pre-installed libraries, it’s an excellent choice for data analysis and machine learning tasks.