How to use Google Colab

If you want to create a machine learning model but say you don't have a computer that can take the workload, Google Colab is the platform for you. Even if you have a GPU or a good computer creating a local environment with anaconda and installing packages and resolving installation issues are a hassle.

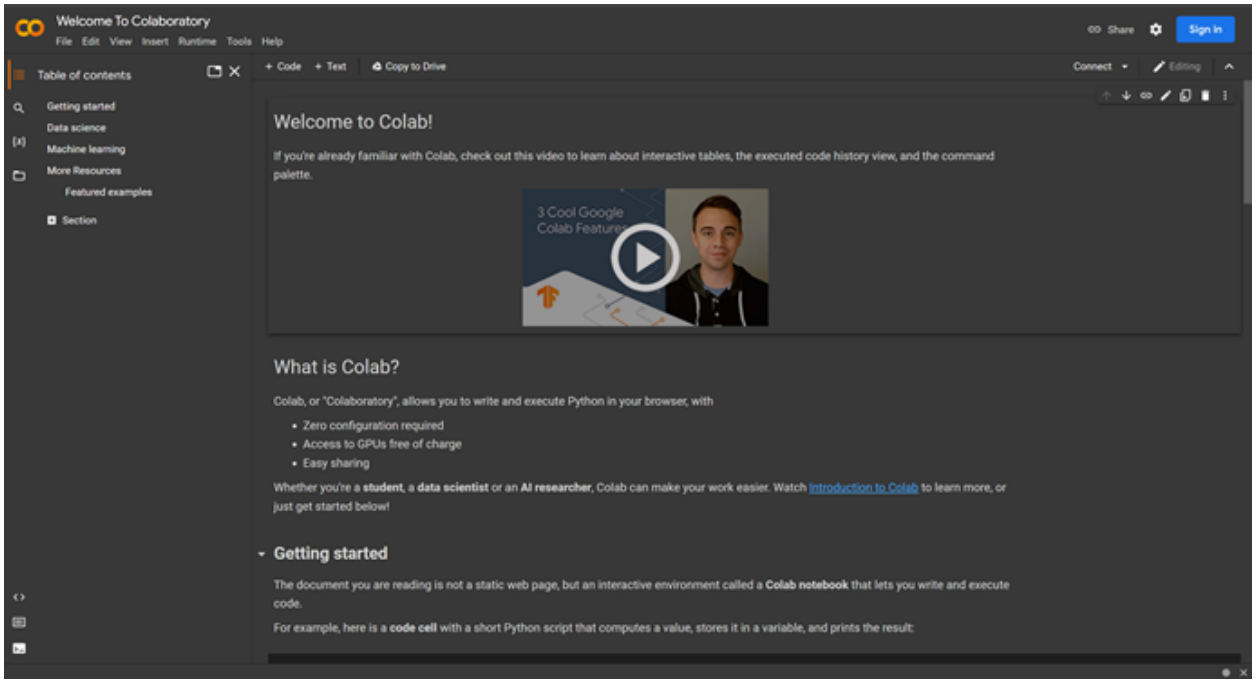
Colaboratory is a free Jupyter notebook environment provided by Google where you can use free GPUs and TPUs which can solve all these issues. Recently Google has changed its thought on "free" resources cutting down on computation power and speed offered.

But for this course, we are going to use Colab :)

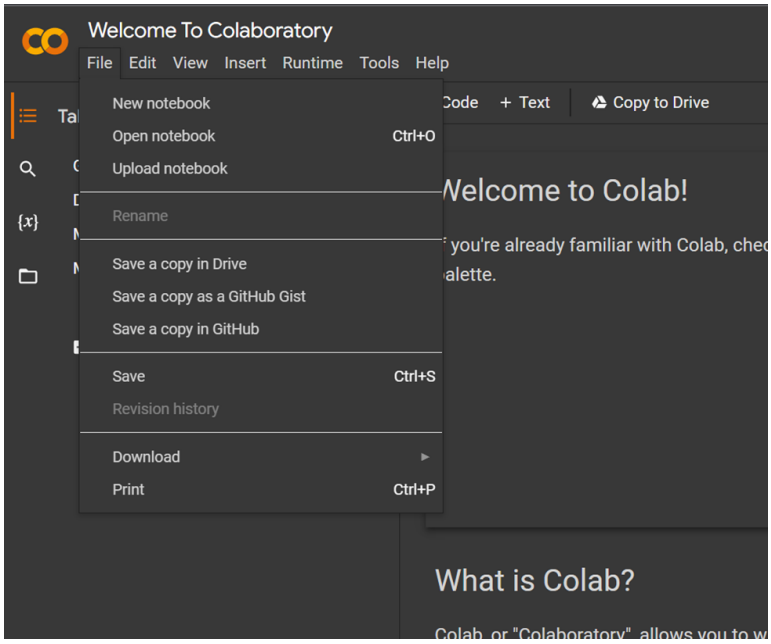
Getting Started

1. To start working with Colab you first need to log in to your Google account, then go to this link https://colab.research.google.com
2. Whenever possible use USC email for the assignments. If not, using your personal account is also fine.

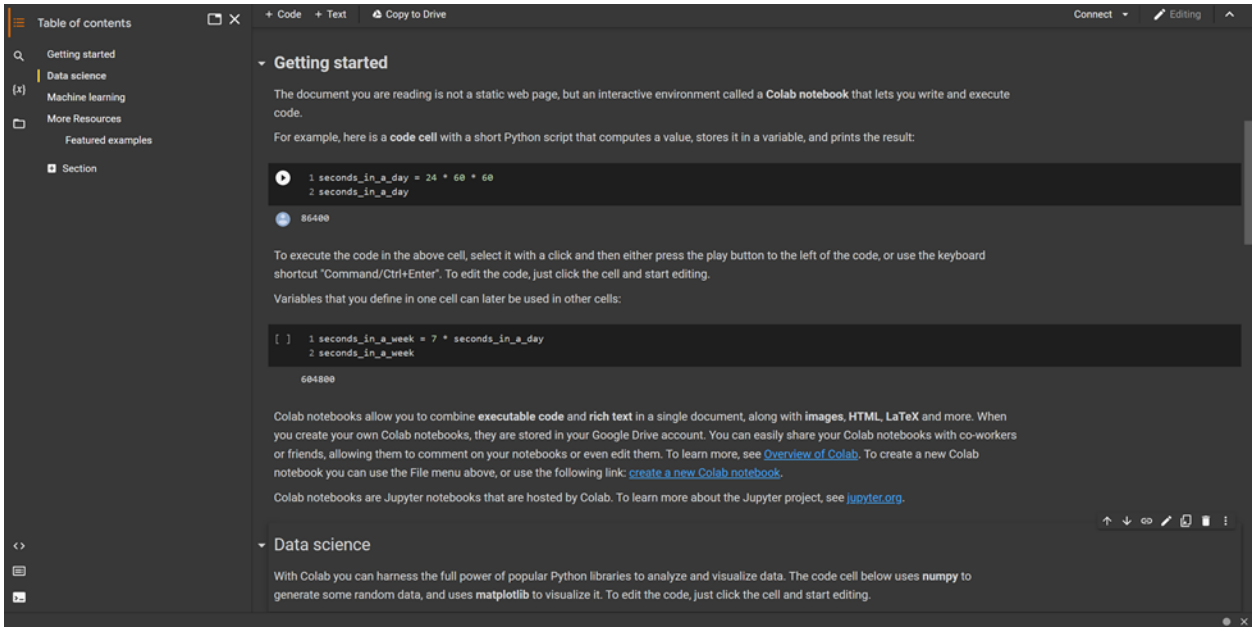
You get to see the view below



3. Now go to File and Click on "Upload Notebook"

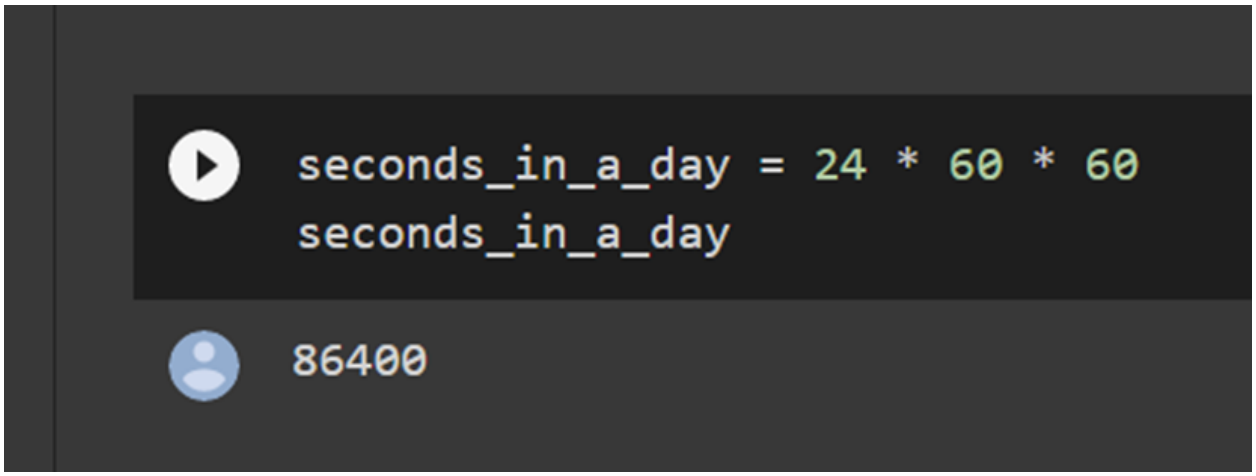


4. Now upload the assignment .ipynb file. Now you get to see the Jupyter notebook in all its glory.
5. Now those who aren't familiar with Jupyter, it's an awesome way to interact with the parts of code, modifying code, and then rerun the new code (only the part that's changed). It's simply the best way to code to analyze data.

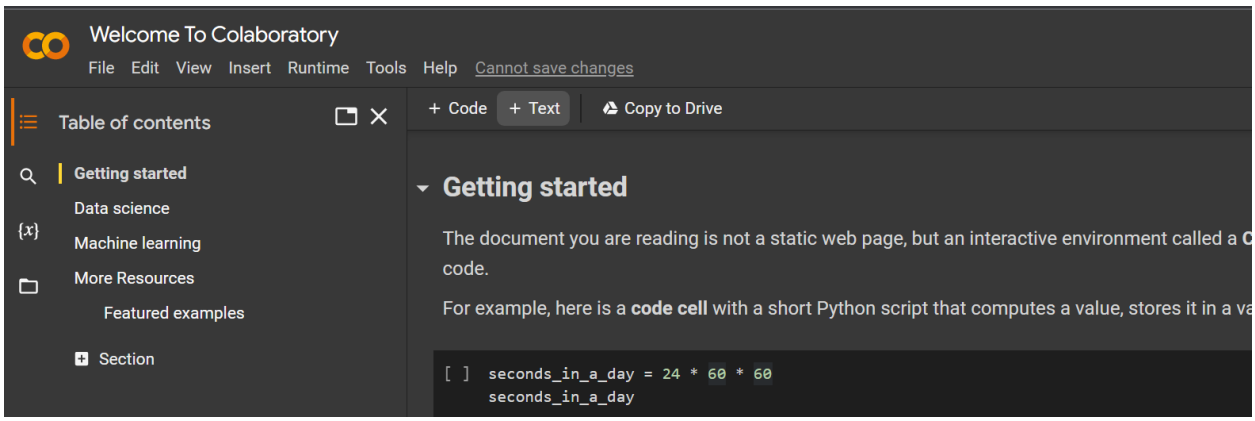


6. In the above image, the dark cells are "Code" cells and the grey ones are "Markdown" cells.
7. "Code" cells are used to write code while "Markdown" to write Text even using HTML.

8. Beside every “Code” cell, there is a Play button. On clicking it, the code in that particular cell executes.



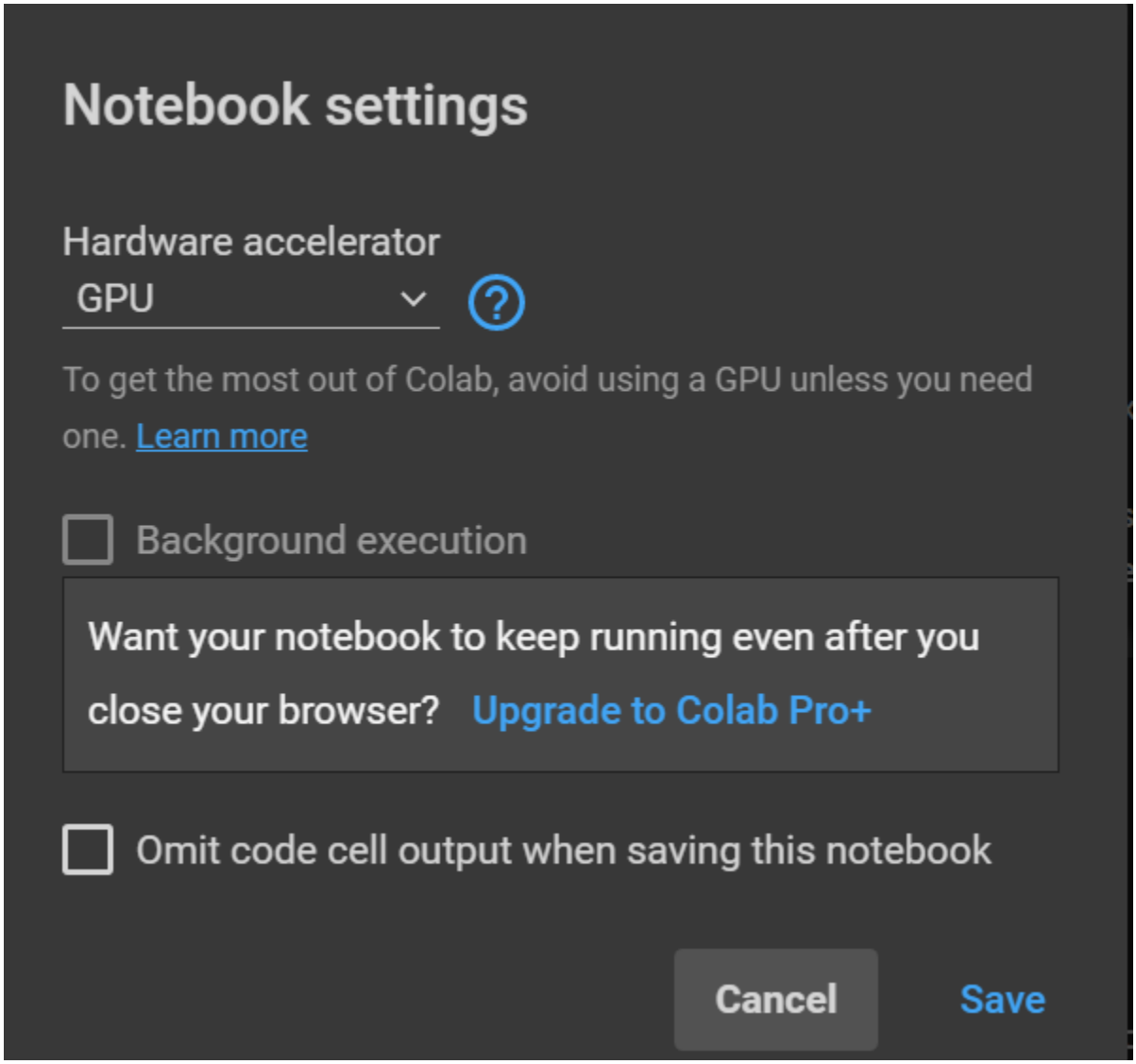
9. If you want to add a new cell, Select a cell and click on the **+ Code** or **+ Text** button, to add a new cell below the selected cell. You can also add a cell above by hovering on top of the selected cell and then clicking on the **+ Code** button that will pop up.



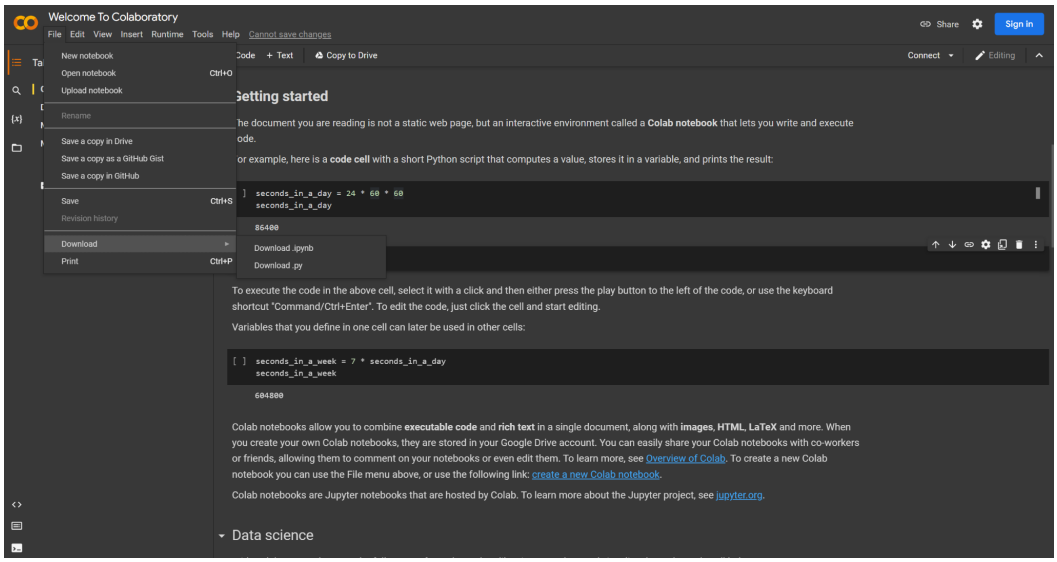
10. Here in Jupyter/Colab, each cell uses data or functions from the previously used cells. If a previously executed cell is updated and run again, whenever a subsequent cell uses the data/functions from the updated cell, it now uses the new updated data and functions.

11. Colab has support for inline Matplotlib charts (or plots as they are called) and OpenCV viewer, making it a useful look for a quick understanding of different sections of code.

A word of Caution, Go to Edit -> Notebook settings and **Make sure "Omit code cell output when saving this notebook" is unchecked.**



12. If you want to download the Notebook, Go to File -> Download -> choose the .ipynb format. Now you have a Notebook (.ipynb) file in your local PC.



Sweet! Now you know how Colab works. Let me know if you have any questions on Piazza

And Welcome to this awesome Machine Learning course :)