National College of Ireland

Configuration Manual

MSc Research Project
MSc. in Data Analytics

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MSc Project Submission Sheet

School of Computing

Student Name:	Luis Daniel Medina Salas
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Programme:	MSc. in Data Analytics **Year:** 2024
Module:	MSc. Research Project
Lecturer:	Michael Bradford
Submission Due Date:	27th of May 2024
Project Title:	Forex Rate Forecasting Based on Deep Learning Ensembled Predictions
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I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.
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Configuration Manual

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1 Requirements.

The code to deploy the different models in this research project, was executed in Python 3.0 in Google Colab (Welcome to Colaboratory - Colab (google.com)). This environment was chosen due to the advantages it offers, such as pre-installed libraries and cloud storage. Also, Google Drive was used to store the datasets and the Google Colab ipynb files. So is necessary to have an account in Google to have access to this resources.

2 Required Libraries.

The required libraries to execute the code successfully, are:

- Numpy
- Pandas
- Matplotlib
- Seaborn
- Tensorflow
- Sklearn
- Statsmodels

3 Installing libraries.

All the required libraries listed above, are already installed in Google Colab, indeed there is no need to install them again.

4 Required Files.

To reproduce the models created in the research, we will need 4 .ipynb files, and 3 csv files datasets.

- BASELINE_MODEL.ipynb
- LSTM1.ipynb
- LSTM2.ipynb
- LSTM3.ipynb
- MXN_USD-PRICE.csv
- MXN_MARKET.csv
- CrudeOilWTI.csv

5 Executing the code.

In this section we will explain how to upload the .ipynb files and the 3 datasets to Google Colab.

- The first step is to upload the 3 **.csv files** to Google Drive (Do not keep into any carpet, just keep in 'My Drive'), as shown in Fig 1.

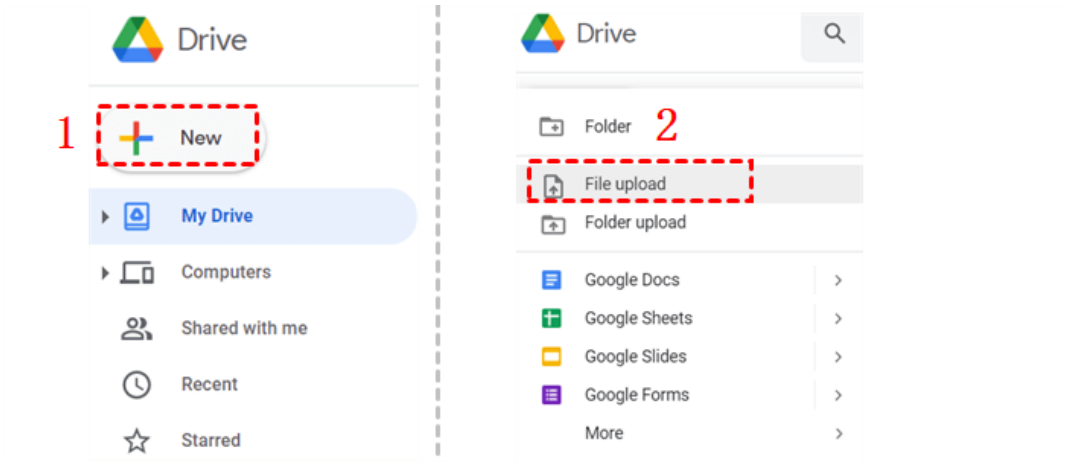

Fig 1. Uploading csv files into Google Drive.

- Then we will open Google Colab to Upload the .ipynb files. <u>It necessary to start uploading and executing 'BASELINE_MODEL.ipynb' firstly</u>, as it's shown in Fig 2.
- **Once 'BASELINE_MODEL.ipynb' is executed, we can continue with 'LSTM 1', 'LSTM 2' and 'LSTM 3'.**

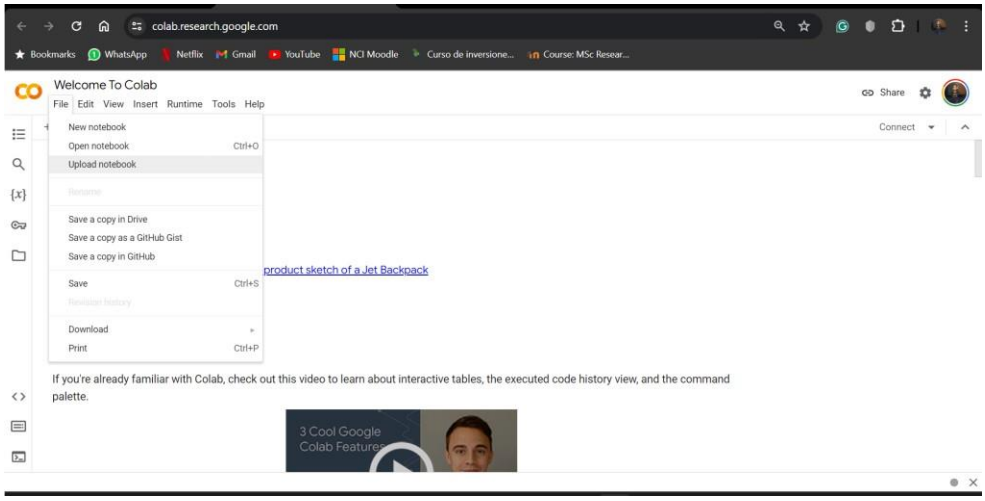

Fig 2. Uploading file in Google Colab.

- Once the ipynb. file is uploaded, it will open automatically, son then we can change the hardware accelerator by opening the menu as shown in Figure 3 and selecting the hardware accelerator as shown in Figure 4.

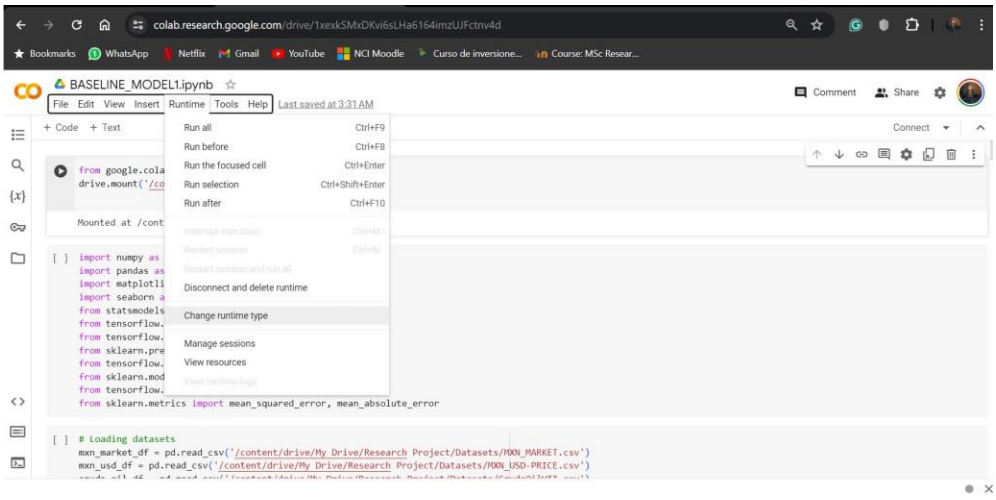

Fig 3. Open configuration to change the runtime type.

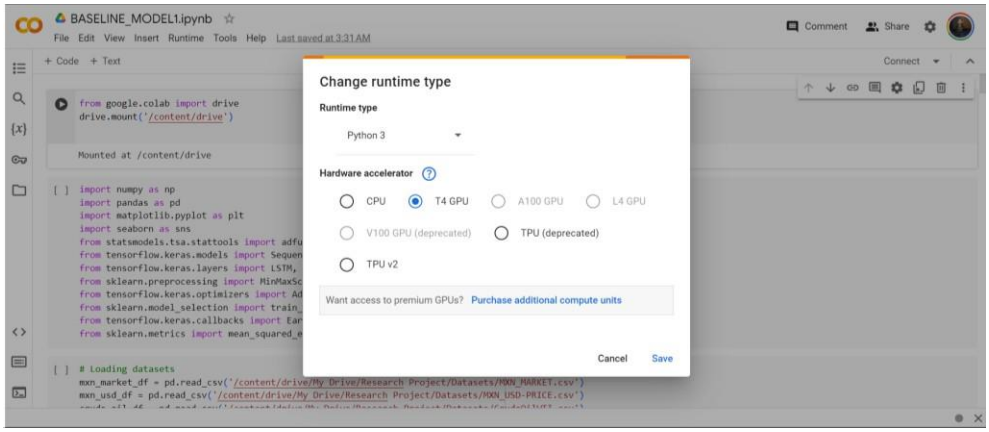

Fig 4. Changing the hardware accelerator to GPU

- Then we will connect, as shown in Figure 5 to be able to use the Google Colab resources.

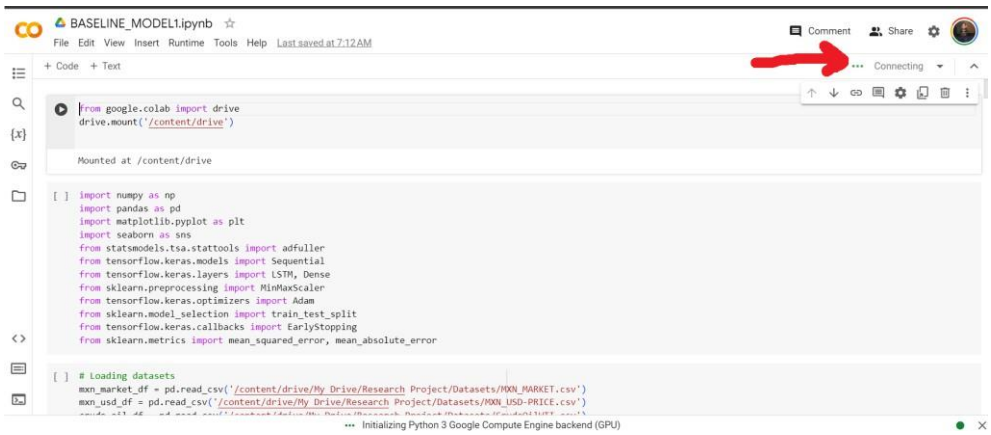

Fig 5. Connecting to GPU

- Finally, we will run the code as shown in Figure 6 and wait for all the cells to finish running to evaluate the results. Note: Every time we run a code for first time or after the GPU is reconnected, Google Colab will ask our permission to access to our files in Google Drive, as shown in Fig 7. Then we just have to accept and confirm our google account.

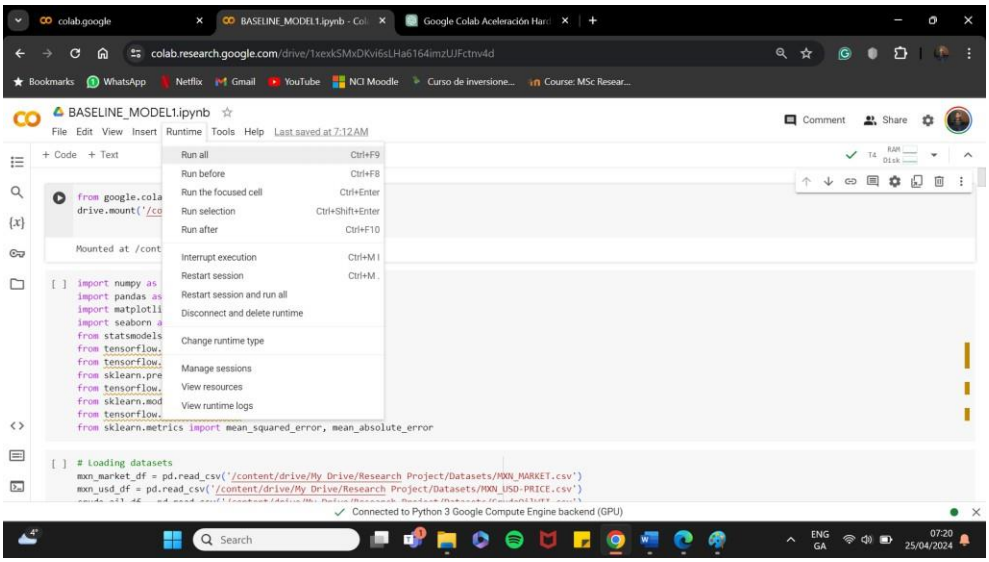

Fig 6. Running the code.

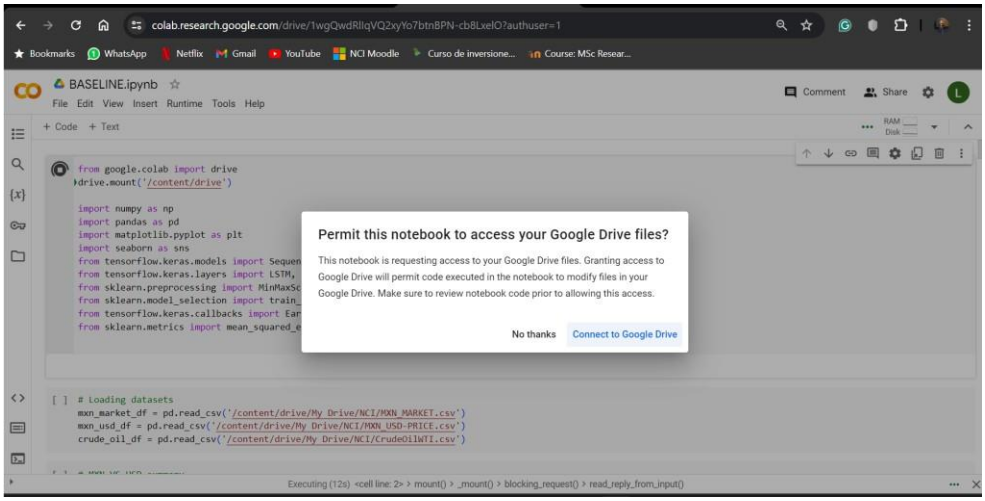

Fig 7. Google Drive authorization access.