How to read and run our codes

Our codes are divided into multiple py files.
The first one is the official file that we used to obtain all the predictions that Unieuro required, while the others are the attempts described in the report, or other economic or technical analyses.

- ***OFFICIAL_FILE.py***
  This is the official and final file used for the predictions of both online and offline sales for all the time series. This is basically the official final file that contain our definitive approach.

  NB: When running it on a Mac, you might encounter the "LU Decomposition Error". In this case, it was sufficient to reduce the number of parameters in the first ARIMA stepwise to (2,2,2). This error occurred for a very small number of time series (around 10), and we manually adjusted it when it happened. When running it on Windows, however, this error should not occur.

- ***EDA.py***
  This file concerns all the analyses conducted during the EDA phase described in the report.

- ***BENCHMARK.py***
  This file relates to how we calculated the benchmark for the "apple smartphone" time series, as described in the report.

- ***ARIMA.py***
  This file contains the three approaches undertaken in the study of the ARIMA model on the "apple smartphone" time series. In the first part, there is the initial model with non-stationary data; in the second part, the model with stationary data; and in the third part, the good model that handles seasonality and the impact of COVID.

- ***PROPHET.py***
  This file contains the Prophet model used in the study of the "apple smartphone" time series.

- ***XGBOOST.PY***
  This file contains the XGBoost model attempted on the "apple smartphone" time series and described in the report.

- ***LSTM.py***
  This file contains the LSTM model attempted on the "apple smartphone" time series and described in the report.

- ***SECTOR_ANALYSIS.py***
  This file contains the Sector Analysis described in the report.

- ***PRODUCT_GROUP_ANALYSIS.py***
  This file contains the Product Group Analysis described in the report.

- ***SALES_ANALYSIS.py***
  This file contains the Sales Analysis described in the report.