Evaluation for FAML

In order to successfully approve the course of FAML you will need to conclude an application project. To this end you will need to select a dataset, raise several analysis questions and apply the concepts introduced in the classes. You are **strongly encouraged to propose** a **project** (or choose a dataset) that would be **useful for your PhD thesis** or interests.

You will have to:

i) write a report following the structure of a research paper.
ii) elaborate and defend a presentation with the results of your analysis based on the previous report.

EVALUATION CRITERIA

The following criteria will be considered to grade your work:

* **Novelty of the dataset** - select a dataset that is of your interest and has not been largely explored;
* **Relevance of the analysis questions** - pose interesting questions that take advantage of the dataset.
* **Explored techniques** - depth of the application of the techniques and methods presented in the classes.
* **Communication and presentation of the results** - present the models and analysis in a clear and concise way.
* **Final presentation and discussion** - quality of the presentation and discussion.

For the analysis section, it is recommended that you:

1) <u>describe</u> the dataset (main statistics and correlations within features);
2) <u>explore patterns</u> within the data (application of unsupervised techniques);
3) generate <u>prediction models</u> based on <u>at least two different algorithms</u> (based on one or multiple target variables);
4) <u>compare</u> the results of the different methods based on the different appropriate evaluation measures.
5) <u>summarize</u> the results.

STRUCTURE OF THE PRESENTATION

Prepare a **presentation** for **15 minutes**. A presentation must have the following sections:

1) Motivation and general description of the dataset;
2) Goals of the analysis and analysis questions;
3) Methods and techniques applied;
4) Results;
5) Discussion and conclusion

STRUCTURE OF THE PAPER

The **paper** should be no longer than **5 pages** with **letter size 12**. It should include the following elements:

- Title, Author, Abstract, Introduction, Dataset, Materials and methods, Results, Conclusion, References

Guidelines for above sections:

Abstract
The Abstract comes after the title page in the manuscript file. It should:
- Describe the main objective(s) of the study
- Explain how the study was done
- Summarize the most important results and their significance
- Not exceed 300 words

Introduction/Motivation
The introduction should:
- Provide background that puts the manuscript into context and allows readers outside the field to understand the purpose and significance of the study
- Define the problem addressed and why it is important
- Include a brief review of the key literature
- Conclude with a brief statement of the overall aim of the work and a comment about whether that aim was achieved

Materials and Methods
The Materials and Methods section should provide enough detail to allow suitably skilled investigators to fully replicate your study. Should include sufficient information to be understood. Can include a scheme to describe the methods.

Results
This section should describe the results of the experiments, the interpretation of these results, and the conclusions that can be drawn. Should include figures and tables that describe and summarize the results.

References
Any and all available works can be cited in the reference list

You should send an email to Pedro Ferreira with **a proposal of dataset**, by no later than **15th of November**. In this proposal, you should indicate your name and title of your project. Briefly describe the dataset (1 or 2 sentences), the source of the dataset and two or three paragraphs describing the type of analysis your planning to perform, including at least three research questions and the methods that you will apply. Submit a <u>word or text document</u> that can be easily copied and no <u>longer than 1 page</u>.

The presentation and the deadline date for paper submission will be announced later but will occur between 12/1/2021 and 2/2/2021.