ENSF 444 Project

Project proposal due date: March 21 at 11:59pm

Project demo date: April 9 (L02) or April 11 (L01)

Project due date: April 11 at 11:59pm

Total marks: 50 marks

Tasks:

Complete tasks 1-4 in a group of 1-3 students. Task 5 will be completed individually.

You will need to enroll your group members into a group on D2L. If you need to unenroll, please contact your instructor.

1. Write a project proposal (pdf format)

Propose a problem that you are going to solve for a made-up client using machine learning techniques. You will need to propose at least three machine learning models (at least two of the models must be non-linear) that you will compare as a potential solution for this problem. You will need to find your own dataset for this project. You cannot use a dataset that has already been used in this course (either for assignments, examples or labs).

2. Create your code file(s) (.ipynb or .py for modules). You can include all your code in one file, or you can create multiple files (modules)

Please include comments in your code that explain how to run your code, import the dataset, etc. so the TAs can properly run you code for grading.

3. Create a 7–10-minute video presentation explaining your final project. The video should be designed to be a summary of your project that you are presenting to your made-up client. It should include:
   a. A brief explanation of the problem you are trying to solve
   b. Description of your dataset
   c. What models you used to solve the problem
   d. Your results
   e. Interpretation of your results – were the results "good enough" for the context of your dataset?
   f. Were there any deviations from your proposal? Explain why (or why not).
4. You will have the opportunity to showcase your project during the last lab session of the semester (December 5).
5. Write an individual reflection (pdf format) answering the following questions. Should be 1-2 pages long.
   a. Why did you select this problem to solve?
   b. How did you contribute to this project?

c. What did you find difficult about this project? What did you find easy? What did you learn?
d. Reflect on your experience during the demo session. Describe what it was like to both present your project and check out the projects of your classmates.
e. How can you apply what you learned in this course to your desired career?

Submission Notes:

1. The format of the presentation is up to you, but all group members must contribute and show their faces during the video. An easy way to create a video presentation is to set up a meeting in Zoom and record your presentation.
2. A reminder about **academic misconduct** – any code, data, etc. that you take from another source **must be cited**.

Rubric:

1. Proposal (8 marks)
   a. Who: Proposed client for the project (can be made-up or based on a real company) (1 mark)
   b. Why: Question/Topic being investigated (1 mark)
   c. How: Plan of attack (2 marks)
   d. What: Dataset, models, framework, components (4 marks)
      i. Link to dataset must be included (-1 mark if not included)
2. Code (12 marks)
   a. Code runs (2 marks)
   b. Code demonstrates course knowledge and fulfills the requirements of comparing at least three different models (3 marks)
   c. Code is well organized and follows the machine learning workflow (3 marks)
   d. Code is well documented (comments, docstrings, etc.) (3 marks)
   e. Dataset is included in submission (1 mark)
3. Video Presentation (18 marks)
   a. Problem is explained, including any deviations from proposal (3 marks)
   b. Dataset is described (2 marks)
   c. Model comparison is well explained (3 marks)
   d. Results are summarized and visualized effectively (3 marks)
   e. Interpretation and impact of results is discussed (3 marks)
   f. Presentation is professional, clear and easy to follow (2 marks)
   g. Presentation material is well designed and easy to read (2 marks)
4. Project Demo (2 marks)
   a. Participated in demo lab session or made alternate arrangements with instructor
5. Reflection (10 marks)
   a. Sufficient answers to the five questions mentioned above are provided (2 marks for each question)
6. ***Bonus: An extra 1% added to their final grade can be awarded at the instructor's discretion to groups that go above and beyond the project requirements.***