Final Project Description and Rubric

The final project should be developed in teams of five people. The team should choose a problem/topic of interest and try to solve it using data mining and machine learning methods similar or related to the ones described in class. The problem/topic of interest should represent a scientific challenge or an application. Ideally, the problem/topic of the project will align with the research interests of the Team. The final project corresponds to 50% of the course final grade. There are two components to the final project:

- Project report (70% of project grade)
- Project presentation (30% of project grade)

Project Report

Report Format

The project should be written using either the Overleaf or Microsoft Word templates below:

- Overleaf - please make a copy for your team.
- Microsoft word

The report is limited to up to eight pages of technical content including figures and tables with one additional nineth page that may contain only references.

Elements that need to be in the report:

The report should contain the following information:

- Detail the motivation and significance of the problem being approached.
- Include relevant references (well cited, high impact factor journals and conferences, etc.).
- Describe and discuss the final methodology employed by the team to solve the problem.
- Present and discuss the results achieved by the team.
- Discuss strengths and limitations of the proposed methodology or application.

The final report should have the link to a GitHub repository with the code developed by the team during the project. The recommended sections' structure of the project report is:

- Abstract
- Introduction
- Related Work
- Materials and Methods
- Results and Discussion
- Conclusions
- References

The project report should be delivered on the team's D2L dropbox by **April 4th, 2022 at 9 am**, Calgary time. The reports are graded by team and not by team member. Separate to the report, the team should also include a one-page description of what each team member did in the project. On that page, the team should also include a consensus score to each team member. This score ranges between 0 and 3 and it will be used to adjust the final grade of each student according to the table below.

Score	Meaning	Grade Adjustment
0	No contribution to the project	Automatic 0
1	Little contribution to the project	20% reduction to the final grade
2	Moderate contribution to the project	10% reduction to the final grade
3	Significant contribution to the project	No grade reduction

Project Presentation

The final presentation is a comprehensive eight-minute presentation with two minutes for questions. The presentation should touch on all points that are described in the final report. All team members should speak during the presentation preferably in a balanced manner. The presentation can be done in person or through Zoom. The final presentations will be split between the April 4th, 6th, 8th and 11th classes. The final presentations will be graded per student.

Final Project Rubric

Each of the components of the final project (report and presentation) will be given a score between 0 and 100 and will be weighted accordingly to obtain the final grade, which corresponds to 50% of the final grade.

	Bin A (85-100)	Bin B (70-84)	Bin C (55-69)	Bin D (0-54)
Formatting Rules (10 points)	- The written document fully adheres to the formatting rules (i.e., the Overleaf template). - All references are formatted consistently across the document	- The written document adheres to most of the formatting rules - Most references are formatted consistently across the document	- The written document adheres to some of the formatting rules - Some references are formatted consistently across the document	- The written document does not follow most or any of the formatting rules - Very few or no references are formatted properly across the document
Writing quality (25 points)	- Extensive details and relevant examples. - All information was accurate and delivered effectively. - Terminology made the ideas in the report clear.	- Subject knowledge was evident. - Included details and examples to answer the essential question. - Used proper terminology and vocabulary.	- Information related to the topic, but report needed more details and examples to fully support ideas. - Work showed little student interpretation.	- Information did not include details or examples from reliable sources. - Information was not sufficient to make successful argument.

			- Used the wrong terminology to describe the topic	– Used inappropriate terminology or vocabulary.
Methods (25 points)	- Proposes to use appropriate methods for the problem at hand - Proposes a sound experimental setup	- Proposes to use methods that could be appropriate for the problem at hand -Proposes an experimental setup that seems correct	- Proposes to use methods that do not seem to be appropriate for the problem at hand -Proposes an experimental setup that is not the most appropriate to assess the methods	- Proposes to use methods that are not appropriate for the problem at hand -Proposes an experimental setup that is inconsistent
Results and Discussion (20 Points)	- The results are presented in a clear and effective manner - The discussion is detailed and covers the methods strengths and limitations	- The results are presented mostly in a clear and effective manner - The discussion is reasonably detailed and covers most of the methods strengths and limitations	- The results are presented somewhat in a clear and effective manner - The discussion is somewhat detailed and covers most of the methods strengths and limitations	- The results are presented in a manner that is not clear nor effective manner - The discussion is shallow or inexistent and covers little or no strengths and limitations of the methods
Quality of Figures and Tables (10 points)	- The report makes use of tables and/or figures to clearly transmit ideas, concepts and results - The figures have outstanding quality	- The report makes use of tables and/or figures to transmit ideas, concepts and results - The figures have good quality	- The report makes use of tables and/or figures to transmit ideas, concepts and results, but these tables and/or figures can confuse the reader - The figures have low quality	- The report does not make use of tables and/or figures
References (10 points)	- All references are relevant to the work - At least 12 references	- Most references are relevant to the work - At least 10 references	- Some references are relevant to the work - At least 8 references	- Very few or no references are relevant to the work - Less than 8 references

Oral Presentation Assessment

	Bin A **(85-100)**	**Bin B** **(70-84)**	**Bin C** **(55-69)**	**Bin D** **(0-54)**
Quality of slides (20 points)	- The slides are succinct and clear - The slides make use of tables and/or figures to clearly transmit ideas, concepts and results - The figures have outstanding quality	- The slides are mostly succinct and clear - The slides make use of tables and/or figures to transmit ideas, concepts and results - The figures have good quality	- The slides are somewhat succinct and clear - The slides make use of tables and/or figures to transmit ideas, concepts and results, but these tables and/or figures can confuse the reader - The figures have poor quality - The figures have low quality	- The slides have too much text and are confusing - The slides do not make use of tables and/or figures
Stays on Topic Relevant to the topic (20 points)	- Entire presentation focused on the topic. - Able to answer audience questions without straying from subject.	- Majority of presentation was on-topic. - Made effort to return to topic when presentation or audience questions strayed.	- Some material was unrelated to the topic, or presenter used unrelated material to pad the presentation.	- More than half of the presentation did not directly address the topic.
Relates to topic, detailed, and accurate (20 points)	- All content directly related to the topic. - Content was thoroughly developed and demonstrated detailed knowledge of the topic. - Opinions were supported by fact wherever possible.	- Content directly related to the topic. - Included many details that demonstrated knowledge of the topic. - Most opinions were supported by facts.	- Had difficulty explaining how the content and topic relate. - Many opinions were not factually supported.	- Presentation did not relate to topic. - Included few details and relied heavily upon unsupported opinion.
Vocabulary	- Vocabulary was	- Consistently used a	- Vocabulary was too	- Did not speak in a

Appropriate word choice (20 points)	outstanding. - Word choice was professional but not artificial. - Smoothly incorporated topic-specific vocabulary.	scholarly vocabulary. - Successfully used topic-specific vocabulary. - Did not use any Inappropriate language.	casual. - Attempted to use topic-specific vocabulary. - May have used inappropriate language on one occasion. - Misused words in an effort to seem scholarly.	scholarly or professional manner. - Used little or no topic-specific vocabulary. - Used inappropriate language two or more times.
Knowledge Demonstrate knowledge of subject (20 points)	- Demonstrated a thorough knowledge of the subject matter. - Able to use audience questions to further demonstrate understanding of the topic. - Appeared to be an expert on the subject being presented.	- Demonstrated a working knowledge of the subject matter. - Able to satisfactorily answer audience questions and provided additional information upon request.	- Demonstrated a basic knowledge of the subject matter. - Able to address audience questions by repeating parts of the presentation - did not provide any additional information.	- Demonstrated little or no knowledge of the subject. - Unable to answer audience questions or comment further on any part of the presentation.