Guidelines for Proposal, Presentations, and Final Report

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Students enrolled in CAP 5638 are invited to submit proposals for their course projects. This is a group project, and the group size should be 1 to 2. You may use the discussion board in Canvas to look for project partners and advertise your project to attract others to join the project and attend your presentation.

Your *proposal*, *proposal presentation*, *final report & supplementary materials including code*, and *final presentation* will take **20%**, **10%**, **20%**, and **30%** of your final grades, respectively. Here, *final report & supplementary materials including code* and *final presentation* sum up to **50%**.

1 Proposal Writing (20% of Your Final Grades)

Introduction. The project must stay within the theme and spirit of the course and must be in the general area of data mining. Projects that do not adhere to this spirit might not be accepted. The goal of the project is to work on a real-world data mining problem. The implementation must be done in Matlab or Python. The project proposal must contain the following components:

(1) Project title and the names of the team members
(2) A smooth and straightforward story telling
(3) A clear formulation of the research question
(4) A thorough literature survey with a decent number of references
(5) Details of the algorithm(s) to be implemented
(6) Expected experiments and analysis to be performed, including a list of datasets
(7) A timeline of milestones for the project

How to Get SUPER High Grades with your proposal? Please note that containing the aforementioned components does not lead to perfect scores. To obtain ultra-high scores (well, perfect scores cannot be guaranteed either), you are encouraged to outline (1) the unique novelty and necessity compared with all related works that can be found on Google Scholar; and (2) preliminary results in both quantitative and qualitative manner.

Where to Look to Formulate a Project? You may consider reading papers in data mining (IEEE International Conference on Data Mining, SIAM Data Mining Conference, ACM Conference on Knowledge Discovery and Data Mining) or computer vision (IEEE Conference on Computer vision and Pattern Recognition, IEEE International Conference on Computer Vision) conferences to come up with project ideas. Another useful resource to find a well-formulated project is *Kaggle* at `https://www.kaggle.com`.

Material Reusing. If the material from this course project is expected to be used currently or was used in previous terms in other courses, or as part of a thesis or dissertation, the student must mention details about the same in the proposal. The instructor will discuss this with the students to judge the acceptance in these on a case-by-case basis. On most cases, such joint material will be allowed, but not informing the instructor of this could lead to a case of this being identified as self-plagiarism.

Proposal Principles. The instructor holds the right to reject any project proposal in situations where the material is not related to the course, or if the project is not worth the grade or is too ambitious to be completed within the project deadline. The instructor might schedule one-on-one interviews with the students in these circumstances to further discuss the proposals. Students are strongly encouraged to discuss their project ideas with the instructor before starting to write the proposal.

Proposal Formatting. The proposal should be no more than 2 pages (single space with font size 10, 11 or 12) excluding references. Submit your proposal as a PDF file (or a zip file if you have supplementary materials under 50 MB) through Canvas. Only one submission is required from each project team.

2 Proposal Presentation (10% of Your Final Grades)

Each presentation is given 15 mins for presentation and 3 mins for Q&A (subject to change, see here for the most up-to-date time slot length). We will use 2 to 4 of our lectures for the proposal presentations — the number of lectures we will be spending on presentations depends on the final number of groups.

How to Get SUPER High Grades in The Proposal Presentations? You shall get significantly higher grades if you spend efforts in the following perspectives for the final presentation:

(1) Properly marketing on Canvas discussion board to attract more audience to your final presentation;
(2) Performing code running as demos in your final presentation with nice visualization works;
(3) Finally gain more than half of enrolled students as the audience for your presentation;
(4) Proper timing;
(5) Having Fun.

3 Final Report Writing (20% of Your Final Grades)

Introduction. A final report should be prepared for the course project. The report should contain the following components:

(1) An introduction to the problem in question including potential applications
(2) A thorough literature survey with appropriate references
(3) Description of the methodology used
(4) Description of implementations, e.g., assumptions and reasons for such assumptions
(5) Experimental results containing figures and tables with appropriate discussions
(6) Conclusion and future research directions

How to Get SUPER High Grades with your final report? Please note that containing the aforementioned components does not lead to perfect scores. To obtain ultra-high scores (well, perfect scores cannot be guaranteed either), you are encouraged to outline (1) the unique novelty and necessity compared with all related works that can be found on Google Scholar; and (2) results that show both practical and academic significance in both quantitative and qualitative manner.

Implementations. You must submit all the Matlab / Python code files used and developed during and for this project. The codes are expected to run in sequential fashion, that is, one trigger must make the whole code run in sequence without any disruption, until results (visual and metric) are produced. Please include an estimated time for completion and display real-time progress on the code (such as "Training Completed" etc.). Please also provide adequate comments in the code files. Include a README file of detailed instructions on how to run the code. Also include any libraries that are used in your implementation. The instructor should be able to compile and run the code in his machine and generate the results produced in the report.

Code Borrowing. In any cases of borrowed code, be it from forums or external sources, appropriate citation must be provided. Borrowing code without appropriate citation will be considered a violation of academic integrity.

Code Submission. Submit the code files and the project report (in PDF format) as a single zip file through Canvas. The whole zip file should be less than 50 MB or there will be a penalty.

Final Report Formatting. No more than 8 pages (single space with font size 10, 11 or 12) excluding references. Submit your proposal as a PDF file (or a zip file if you have supplementary materials under 50 MB) through Canvas. Only one submission is required from each project team.

4 Final Presentation (30% of Your Final Grades)

Each presentation is given 20 mins for presentation and 3 mins for Q&A (subject to change, see here for the most up-to-date time slot length). Each lecture will have 3 presentations in total. We will use our last 3 to 6 of our lectures for the final presentations — the number of lectures we will be spending on presentations depends on the final number of groups.

How to Get SUPER High Grades in Final Presentations? You shall get significantly higher grades if you spend efforts in the following perspectives for the final presentation:

(1) Properly marketing on Canvas discussion board to attract more audience to your final presentation;
(2) Performing code running as demos in your final presentation with nice visualization works;
(3) Finally gain more than half of enrolled students as the audience for your presentation;
(4) Proper timing;
(5) Having Fun.