

ME6543: Final Project Report Instructions

Adel Alaeddini, Syed Hasib Akhter Faruqui

University of Texas at San Antonio, TX, USA

All groups will submit a project report, which is worth, 60% of the project (25% of the course) of your grade. The purpose of this document is to inform you of what should be included in the final report.

Contents of the Report

Your final report should be written in the same style as a machine learning research paper, and in a way that your classmates can easily understand. Make sure to use the Taylor & Francis journal template for your final submission. The templates can be found here: [Word Template](#), [LaTeX Template](#). A sample report in similar template (not of similar project type!) can be found [here](#).

Your report should be no more than **6 pages** (including figures and tables but not including references). The report should contain the following sections. If you want you can use a different structure but please, include all the necessary sections that reflect the merit of your project.

Running header on the top left corner of the report will be “**ME 6543: Machine Learning & Data Analytics**”.

1. **Title:** The title of your project
2. **Team Members:** Provide the names, affiliation and email addresses (one provided to you by UTSA) of all of your team members.
3. **Group Number:** Mention the group number assigned.
4. **Course Instructor:** Dr. Adel Alaeddini
5. **Abstract:** An abstract should concisely (250 words) motivate the problem, describe your aims, describe your contribution/work, and highlight your finding(s).
6. **Introduction:** The introduction explains the problem, why its an interesting or important problem, how and why current methods fail at explaining the problem. Explain the key ideas of your approach and results. You can consider this as an extension of the abstract that will help you to explain the reasoning behind your work (motivation), it's importance, and the structure of your work and results.
7. **Literature Review:** You can use this section to help readers understand the research context of your work, by providing an overview of the existing work in the area. You would like to discuss the research papers that inspired your approach, methods that you used as your baselines, papers that helped you develop your proposed models. Here, you would only connect the previous research work and how they relate to yours. Please, don't go into details of those papers as in including equations and figures.
8. **Approach:** This section details your approach(es) to the problem. This is where you describe-
 - Describe your problem in detail, how you plan to approach the problem. What were the factors that influenced your modeling decisions? You probably want to include figures and equations to support your approach. In addition, an initial exploration of the problem can be of importance.
 - Describe your baseline model. Depending on your baseline mode, your space constraint and approach you might want to briefly describe your baseline model.
 - Describe your proposed approach, why this approach was selected, how it can improve upon the baseline model etc.
9. **Experimentation:** This section should contain the following sub-section-
 - **Data:** Describe the dataset/s you are using for the project. Don't forget to cite the location where you collected the data from.
 - **Evaluation Method:** You have to mention the evaluation metric/s you have used and other details necessary to understand the evaluation criteria.
 - **Experiment Details:** How you set-up your experiments, model configurations, learning rate, training time, model structure, etc.

- **Results:** Report the *qualitative* and *quantitative* results that you evaluated based on your model. If necessary use tables/plots to compare your results with competitive methods and baseline models. You should also provide comments on your results in this section. Are the results obtained align with your initial hypothesis? Are they better or worse than what you expected? Why do you think that is? Does this give you an insight into your approach?
10. **Discussion / Analysis:** Your report should include a detailed evaluation of the model evaluation i.e. you need to explain how the model is working for the given system/data when the model fails or succeeds etc. by measuring or inspecting the key characteristics or outputs of your model. For example, You can select a subset of test data and discuss the following-
 - Error analysis
 - Performance measurements
 - Ablation studies
 - Visualizing the distributions/heatmaps
 - If this model can be used for some policymaking, if so how?
 11. **Study Limitations:** Your report should include what were the study limitations. How they affected your model? Do you think there might be any possible solution to overcome these limitations? etc.
 12. **Conclusion:** Summarize the main findings of your project, and lessons learned. You can also include any future plausible research to improve your work.

Team Contributions:

This section will appear at the end of your main report but before reference. Include only if you are a multi-person team. This section should contain a summary of the contribution by each team member towards the completion of the project. We might ask you to demonstrate your knowledge

Reference:

The students are advised to use the *MLA 8 (Modern Language Association, 8th edition)* format to cite in-text literature and to create the reference list. A detailed guide on how to use the MLA citation format can be found [here](#).

Appendix:

If you want, you can include an appendix as supplementary material. This won't count towards the 6-page limit. It can be useful to supply additional details on your data, examples, figures, tables, results that you were unable to include in the main figure. However, remember this won't count towards your final grades. *You will only be graded based on your main report.*

Code

You need to provide us all your codes. The code should be in ready to use format and should run without any alteration. We might run your models to check if the results reported on your report complies with the provided code. Also, if necessary, we will use the code to investigate honor code issues.

Submission Instructions:

You will be submitting your final report through **Blackboard**. *One member from each group will submit the final project package!!*

Please, create a separate folder on your local drive where all your submission materials will be stored. Name the folder as **FinalProject_GroupNumber**. Once you have all the necessary materials on that folder, zip the folder and submit it through Blackboard. Follow the instructions below to prepare your final submission-

1. Final Report and Appendix (if applicable) should be submitted in pdf format.
2. The name of your report file should be in the following format: **Final_Report_GroupNumber.pdf** and **Appendix_GroupNumber.pdf**.
3. Put your codes in a sub-folder under your main folder. The sub-folder should be named, **Final_Code_GroupNumber**.
4. Put your data in a sub-folder under your main folder. The sub-folder should be named, **Data**.