

L^AT_EX Template for STAT451 Project Report (replace with your project title)

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Abstract

The abstract for your project goes here. The length of the abstract should be between 200-250 words. Tips for writing a good abstract can be found at https://writing.wisc.edu/Handbook/presentations_abstracts.html.

1. Introduction

Recommended length: 1/2 to 1 pages.

For the report, the same rules and guidelines apply as for the proposal. This is an example of a citation [1]; if you use the "cite" function in LaTeX, the References section will be created automatically at the end of the document. Please read through the "proposal-latex/proposal.pdf" for a refresher on how to use citations and figures properly.

Note that the sections for this report are different, and some additional information is contained in this template document, so please read it carefully before you start writing.

This is an example of a mathematical equation:

$$f(\mathbf{x}; \mathbf{w}) = \sum_{i=1}^n w_i x_i.$$

This is a mathematical expression, $h(\mathbf{x}) = \hat{y}$ formatted in text.

The project report should be 6-8 pages long (not counting references) and should contain the sections that are already provided in this paper. Please check out the text in these sections for further information.

1.1. Subsection

You can use paragraphs or subsections to further structure your main sections. This is an example of a subsection.

This is a paragraph title. This is an example of a paragraph.

Ideally, your report should contain all the major sections provided in this report template. Please also consult the "report-template/project-report-assessment.md" for further information on these sections and grading.

2. Related Work

Recommended length: 1/2 to 1 pages.

Related work should be discussed here. This should be a short (1/2 to 1 page) discussion of work (from research papers and articles) that explored similar questions. For example, if you plan to predict COVID-19 from chest X-ray images, discuss previous work that was about a similar project. If the focus of your project is on analyzing the behavior of certain machine learning on a variety of different datasets, and the comparison itself (rather application) is the focus of your paper, discuss other papers that analyzed different algorithms.

3. Proposed Method

Recommended length: 1 to 2 pages.

Describe the method(s) you are proposing, developing, or using. Most students will not propose new or modified machine learning methods or algorithms. In this case, describe how the main algorithms you are using work. This may include mathematical details.

4. Experiments

Recommended length: 1/2 to 1 pages.

Describe the experiments you performed to address specific questions. This includes information about the dataset and software, which are listed as subsections below. Please do not remove these subsections.

Method	Accuracy
Method 1	$70 \pm 3 \%$
Method 2	$76 \pm 3 \%$

Table 1. This is an example of a table.

4.1. Dataset

Briefly describe your dataset in a separate subsection. Table 4.1 shows an example for formatting a table.

4.2. Software

Briefly list (and cite) software software you used.

4.3. Hardware

If relevant, list hardware resources you used.

5. Results and Discussion

Recommended length: 2 to 3 pages.

Describe the results you obtained from the experiments and interpret them. Optionally, you could split "Results and Discussion" into two separate sections, but it is often easier to present the results and discuss them at the same time. In this section, you will likely want to create several subsections that address your specific research questions. As an example for structuring the Results and Discussion section, you can take a look at the following paper: <https://www.mdpi.com/2078-2489/11/7/345>.

6. Conclusions

Recommended length: 1/3 to 1/2 page.

Describe your conclusions here. If there are any future directions, you can describe them here, or you can create a new section for future directions.

7. Acknowledgements

Recommended length: 2-4 sentences.

List acknowledgements if any. For example, if someone provided you a dataset, or you used someone else's resources, this is a good place to acknowledge the help or support you received.

8. Contributions

Recommended length: 1/3 to 1/2 page.

Describe the contributions of each team member who worked on this project.

References

- [1] S. Raschka, J. Patterson, and C. Nolet. Machine learning in python: Main developments and technology trends in data science, machine learning, and artificial intelligence. *Information*, 11(7):345, 2020.