Instruction Guide for Project Report

Your report should be at least three pages. If you are working as a group, for each member of the group there should be at least two pages of the project report. For example a group with two students will submit 4 pages of report, or a group of 3 students will submit 6 pages of report. I consider you as sophomore or junior student who knows how to write a good report. Therefore you have to write a comprehensive report about your case study using your previous experiences in report writing. You may choose your preferred style for the format of the text; however I will provide you IEEE template on Canvas as a standard model of a report. So this instruction is just some guidelines not rules. Consider that by writing your report you are showing me, your knowledge of Probability and Statistics and the time you have put for your study.

Write a Self Contained Report

A key thing to keep in mind right through your report writing process is that a report is written to be read, by someone else. This is the central goal of report-writing. A report which is written for the sake of being written has very little value. The report should be comprehensive and self-contained to the extent practical.

Organization of the report

- **Title and abstract:** It can contain the following in varying amounts of detail as is appropriate: main motivation, main design point, essential difference from previous work, methodology, and some eye-catching results if any.
- **Table(s) of Contents:** It is particularly necessary for long reports. It provides a good way of finding the relevant sections of the report and gives an overview of the work.
- **Introduction:** Most reports start with an introduction section. This section should contain the following parts:
    - A good background of the work including all previous works.
    - Define your problem clear with all details.
    - Tell us about the motivation of this work, in other word the importance of this problem. You may show this using the background of study or by your own statement.
    - Explain if it is a new problem or a new approach to solve an already answered problem. Why did you choose this and tell us about the challenges of this study.
    - Define the method you want to use for the current project. Explain the conditions you may assume for this work.
    - A summary of the results can be covered.
    - Discuss the organization of the report and show to the readers that you have a clear flow of your ideas.

You may consider the introduction part as a brief coverage of the whole study with enough reasons to show the importance of this topic and attract the readers to study it.

- **Technical sections:** The main body of the report should start with a theory of the study. You need to develop the mathematical model for using in your report. You may also have a separate section for statement of design methodology. Use enough references and provide clear definition about the changes you have made to the available formulas to answer the problem. If you need a block diagram or flow chart add them here.
- **Discussion of the work**: Discuss all numerical results you found. For example, what you have as the data and sampling and the interpretation of that. Consider that the current study and numbers will be evaluated by your instructor, so every missing detail would result a decrease in your grade. Talk about your certain design and its alternatives and the reasons that you found your own method to be preferable, or why your theory failed at some point to describe some experimental observations. To the extent possible, make comparisons between theoretical predictions and experimental results (best on the same plot). If you are not sure about certain findings, but have good reasons to believe that they are likely to be correct, you may still include your ideas, but you should use words like "these findings suggest that" or "it is conjectured that," or "we are (fairly) confident that" etc. to indicate the lack of full evidence. When you are not sure about the reasons of certain discrepancies (what was missing in the analysis and/or the experiments that could have produced the discrepancies) again, use words like "these findings suggest that."
  Use as many figures as possible to explain your work, architecture, data, sampling results, and the real application related to your project. You are not allowed to copy or use any figures from another published document unless you have totally changed it and you have completely referenced it. Any curve drawing should be originally made by you. Matlab and Excel are the preferred software for this purpose. If you are using other software please explain about in the technical section. Consider the following parameters in your text:

  - Define the performance metrics in the input and output
  - Explain all parameters under study and their range
  - Define the method you choose to finish the project
  - What are the results?
  - Explain about the results and tell us about the application of your project and future work.

  The results are usually presented as tables and graphs. In explaining tables and graphs, you have to explain them as completely as possible. Identify trends in the data. While describing a table, you have to describe every row/column. And similarly while describing a graph; you have to describe the details. If necessary, you have to consider the use of snap shot pictures.

- **Conclusions:** This is generally a rather short section summarizing the main findings of the work and, as applicable, their implications. Recommendations for future work may be made here. The conclusions should, in principle, not contain statements *not* supported from material included in the main body of the report. Describe the reasons you think the world become a better place because of your work.

General notes

Among several preferred methods for report writing I would like to recommend to following approach:

1. First write the section-level outline,
2. Then the subsection-level outline, and
3. Then a paragraph-level outline. The paragraph-level outline would more-or-less be like a presentation with bulleted points. It incorporates the flow of ideas.

Once you have the paragraph-level flow of ideas, you can easily convert that into a full report, by writing out the flow of ideas in full sentences.

While doing the paragraph-level outline, think also about (a) figures, (b) tables, and (c) graphs you will include as part of the report at various stages. You will find that many things can be better explained by using simple figures at appropriate places.

The overall approach also includes multiple stages of refinement.

Grading

1- Technical writing and format of the report 20%
2- Proper use of computer architecture and assembly language 20%
3- Technical contents including use of instructions, equations, figures, tables, and etc. 20%
4- Difficulty of project 20%
5- Discussion and final results 20%