

6.033 DP Preliminary Report Assignment, Spring 2022

Due: March 18th 2022, 5:00pm

Length: 2750 words

Submit: On Canvas, as a team; also submit your Change Matrix as a separate assignment

The preliminary report in 6.033 has several purposes: to provide a framework within which you can articulate your preliminary design and justifications for design choices; to get feedback from technical instructors which will guide the remainder of the design and/or modifications to the design; and to gain mastery of many of the skills needed to write a systems design paper. Like the final design report, the preliminary report explains how your design works to solve the assigned problem. It further demonstrates that the design meets all the requirements and justifies design decisions. The preliminary report is jointly written.

Your description should be written for a broad range of systems experts from different fields, and the paper should build on key reasoning patterns and concepts (defining behaviors and properties in relevant use cases; naming techniques used to produce desired outcomes), using specific technical language as appropriate. It should build on our framework of key concepts such as modularity, simplicity, scalability, etc., using specific technical language as appropriate.

Writing Guidelines

Your preliminary report should:

- Briefly introduce your system by identifying the purposes and goals, then summarize your system's modules, behaviors, and innovative techniques or strategies. Describe who is *most* impacted by your system, and how that impact influenced your design decisions. Give your system a name for ease of reference.
- Include a system diagram (titled, labeled, captioned, and referenced in the text) and include figures if appropriate to illustrate complex or challenging concepts.
- Define your system completely, clearly linking design choices, techniques, or strategies to the behaviors and properties they produce. Justify your choices with use cases, scenarios, design principles, and impact on stakeholders; identify major design decisions, tradeoffs, and choices.
- Conclude by summarizing how your design will meet the requirements, highlighting the novelty or specific focus of your system, and note problems which remain to be resolved. (May be a separate section or may be the final paragraph.)

Technical Guidelines

Your preliminary report should contain enough information to convince the staff that your design is reasonable, but it does not need to describe every single detail of the system. That means your report should:

- Clearly lay out the problem and explain the challenges your system needs to overcome.
- Characterize the design of your system at a high level and describe how it will meet the requirements. Doing so will require you to explain some of the implementation details. You should be describing *your* system and *your* design decisions; you do not need to repeat the description(s) given in the DP spec.
- State any assumptions that you made in your design.
- Address the use cases given in the design project description, since those use cases should inform how you design your system. Explain the impact of your system on the people/groups who are most impacted by it.

You do not need to evaluate your design; an evaluation section will be part of your final report, but not the preliminary report.

Length

The preliminary report should be approximately 2750 words. We care more about the content of your report than the exact word-count. However, if you're writing significantly more than 2750 words, you're giving too much detail; if you're writing significantly less, there is not enough detail.

Because this is our first semester using the Impact Framework, we would also like you to upload your Change Matrix along with your preliminary report (there will be a separate assignment on Canvas for this). **We will not grade your Change Matrix.** You do not need to worry about formatting it nicely or editing it. We are interested in understanding how you used the Change Matrix so that we can understand if it's an effective tool.