DP Final Report Assignment
6.033 Spring 2020
Due 5/8 at **5:00pm**

Having now had two rounds of feedback on your design, it's time to write your final report. Unlike the proposal document, the report should contain enough detail that it could feasibly be turned over to NASA for implementation. It should also contain an evaluation of your design.

Outline of the Report

Your team's report should be approximately 6000 words[1] and follow the basic outline below:

- **Title page:** Give your report a title that reflects the subject and scope of your project. Include your names, email address, recitation instructor, and the date on the title page.

- **Introduction:** Summarize the problem to be solved and what your design is intended to achieve. When summarizing the problem, you should extrapolate and highlight the technical challenges that make this issue a hard systems problem from the design description. Outline your design and briefly outline why your design meets the requirements.

- **System Overview:** Provide a high-level description of your system's modules, behaviors, and innovating techniques or strategies. This should include a system diagram and serve to introduce definitions for key terms used in the Design section. The system overview also provides an opportunity to prioritize the main system objective(s).

- **Design:** Explain your design. Identify your design's main components and workflows. You should sub-divide the design, with corresponding subsections in the text, so that the reader can focus on and understand one piece at a time. Explain why your design makes sense as well as explaining how it works. Use diagrams, pseudo-code, and worked examples as appropriate.   It should be clear from this section that your design meets the specifications of the assignment (e.g., that it does not exceed the storage available on the servers nor the capacity of the network, etc.). Leave any major calculations to the evaluation section, though it's fine to reference those calculations beforehand (e.g., "Our design results in a communication overhead of fewer than 1Kbit/sec; see Section 3.1 for an analysis.").

- **Evaluation:** Evaluate your design. There are more details about the evaluation section at the end of this document.

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[1] As always, use this word count as a guideline. If you are writing significantly more than 6000 words, you're giving us too much detail. If you are writing significantly fewer than 6000 words, you are giving us too little. We care much more about the content of your paper than the exact word count.

- **Conclusion:** Briefly summarize your design, highlighting the novelty or specific focus of your system, and provide recommendations for further actions and a list of any problems that must be resolved before the design can be implemented.

- **Author contributions:** A brief statement (typically 1-3 sentences long) describing the contributions of each author. These contributions could include designing specific components of the system, research or investigation related to the design problem, qualitative or quantitative evaluation, writing the text of the report, editing the report, creating figures, etc.

- **Acknowledgments and references:** Give credit to individuals whom you consulted in developing your design. Provide a list of references if appropriate.

Evaluation

The [Tutorial 10 materials](#) contain an [overview of DP evaluation](#), and [guidelines](#) to help your team work through your own evaluation.

At a minimum, your evaluation section should address the following questions:

- What is the communication overhead of your system? What does your system gain from any additional communication that you added? That additional communication might be administrative overhead, it might be duplication of bundles, etc.

- How long do various operations take on average? In the worst case? These operations could include the latency of getting a bundle to its destination, the amount of time it takes to locate a piece of data on local storage, etc.

- What parts of your system limit scale, and what are those limits? E.g., could your system handle the addition of more satellites? Of more data? Of adding satellites farther out in space?

- How does your design handle the use cases given? Also speculate about large changes in the use cases that would or wouldn't be accommodated by your design.