

MSDS 7346

Term Project Logistics

I. DOCUMENT SUMMARY

This document describes the basic logistics required to successfully complete the term project and term paper for MSDS 7346.

One of the major goals of this course is to introduce the students to research and development centered around cloud. To this end, the term project is a major component of the course and of the course grade. In performing the term project, you will draw upon your knowledge and experience from the course lectures, readings, your knowledge and experience and elsewhere to actually perform the research. This document is intended to guide you in the logistics process required for the term project and paper.

The basic topics covered in this document are: the term paper logistics timeline, the research proposal, background knowledge for the research, the high standards of work expected of us and some example project topics. This course is meant to be fun and informative, so make sure to choose a project topic that you are interested in and teammates (if any) that share your interest. Interesting topics are the ones that will be fun and the most rewarding to you personally.

II. RESEARCH LOGISTICS TIMELINE

The term project is a major work product upon which your grade is based. Be studious and reach project milestones on time, and you will do well in the course. The term project is divided in three parts:

1. Project Proposal
2. Final Paper
3. Presentation

The course weeks in which deliverables are due is given in the syllabus. Actual due date will be in assignment in Canvas.

III. TEAMS

Teams of three or four are encouraged for the term research project (teams of one or two are acceptable). Teams typically accomplish more and learn more than do persons working alone, so start looking for teammates as soon as possible!

IV. PROJECT PROPOSAL

Project proposals of one page providing team member names and one to two paragraphs of explaining what you are planning to accomplish in this project. Turn in a pdf of your proposal in the assignment. You will receive The instructor will read the proposals carefully over the following few days and get back to you by email with any questions or feedback. The instructor will be looking mainly at three aspects of your proposal: 1) Is it topical? This is to say, does it relate in some way to Cloud. 2) Is it sufficiently focused? And, 3) Is it too ambitious (or not ambitious enough)? You have two months. You won't win the Touring Award based upon your class project, but you can take the first step with it. Where do you get a research project idea? That's easy. Work within the team and brainstorm. This can be a problem that you want to solve either for work or just to learn. Choose something that will get you excited. Good class projects can vary dramatically in size, complexity, scope and topic. The only real limitation is that the project must relate in some way to the course. You are strongly encouraged to identify a project related to your work, so that you may have a ready platform on which to apply your knowledge and put your skills to work immediately. Note that purely simple implementation problems, such as instantiating distributed database system in the cloud, while interesting and potentially a source of great learning, are not acceptable projects. Ideally, your project will be targeted towards an open problem with the goal that your results will be novel and publishable in a peer-reviewed academic journal or conference.

More realistically, for small groups, it is more practical that your project will be a defined problem that may have been solved before, but one which you are evaluating or solving in a new way, more specifically in public cloud. Your research proposal must contain the following items:

- Project title. A detailed project title is better than a vague title. A properly formed title will help to focus your energies on the actual problem being addressed in your project.
- Names and email addresses of all investigators for the project. There must be at least one

investigator.

- Clear statement of the problem. A one to two sentence statement of the problem followed by a one paragraph clarification of the problem. The paragraph should identify clearly the research question you are addressing, and proper motivation for the importance of the problem must be provided.
- Clear statement of your methodology. Brief explanation of how you will approach and develop a solution to the research problem under study. Note that you need to identify multiple intermediate milestones. It is not an all or nothing proposition. If you make it all or nothing, you are likely to lose everything. When you strip the problem to its essence, the first step becomes clear. And, that first step is usually a baby step. Identify that baby step, and then the next one and the next one and so on. It is possible to get an 'A' on the project without completing every step you identify, and it is certainly easier to get a good grade when all the steps you've identified are baby steps.

While this is a short document, coming up with a problem is not always done quickly. A quick look at related and previous work on your chosen topic will give you an idea of how novel your project work needs to be and how hard it will be to achieve something new.

V. FINAL PAPER

Your final paper is expected to sufficiently describe the problem being addressed, related work, the solution methodology, any results, an analysis of the results and provide some relevant conclusions. When in doubt about whether to include some material or not, include the material. Your final paper should be as self contained as possible. Your final paper should be at least four pages and no more than five pages using the Word template provided. Please don't wait for me to get back to you before starting your research. Get started as soon as possible! That means today! You have roughly two months to start and complete the project and all the documentation. This is ample time if your proposal is focused and you start early, but not otherwise. Plan on spending at least one week writing the final paper.

I. FINAL PRESENTATION

A final deliverable of this project is final presentation. This is a team presentation where you will be presenting your project to everyone in the class. You

can choose to develop slides or show a demo of your project. This is your project so find a best way to highlight your accomplishments. The following are some of the guidelines for the presentation:

- Introduce what the project is about and how it is connected to the Data Science
- List key goals for project and the ones that were achieved during the project
- Discuss the work you did on this project and include any tools used
- Show a brief demo of the working software, if any development was done
- Presentation between 10-15 minutes (each team member highlighting their work and participate in the presentation)

This presentation will be schedule for the last class of the term.

II. KNOWLEDGE BACKGROUND

In a one term course, one can cover only a fraction of the cloud topics, current or otherwise. There are sure to be term projects where the background material needed for the work is not covered in the course or is not covered in sufficient detail or a timely manner. And, even for topics that we do cover in detail, there will certainly be other relevant related work that you will need to be familiar with to finish your project. A large part of doing this project is figuring out what has already been done and where the knowledge holes exist. So, you should research your problem's related literature and any other available information as extensively as you can.

III. WORK PRODUCT STANDARDS

Aim high in a focused way, and do the best that you can! The best research papers are sure to be publishable in top ACM or IEEE conferences or appear as articles in journals. In fact, the goal of every research project in this class is to produce a body of work that gets published in an ACM or IEEE journal or transactions. If research does not get published and, therefore, publicized, it is of no use to the community at large. I have this high level of expectation even for those papers that are destined to remain unseen due to corporate or other distribution limitations, so expect to perform well regardless of your final target audience. I have great confidence that you will far surpass my already high expectations with wonderful work that will further the state-of-the-art in database technologies.