

Project description

The goal of this project is for students to explore a topic related to the course material. The project consists of three components:

- **Proposal:** Your proposal should consist of two pages (not including any references) which focus on clearly and succinctly describing the topic you wish to explore. You are strongly encouraged to discuss your topics with me well in advance of submitting your proposal. You should also explain how you plan to evaluate your work. This should include specific elements you plan to measure and how you will compare to existing work.

(Note: You are not expected to produce groundbreaking new results. If your project does not produce the results you expected, this is a very reasonable outcome. But be prepared to explain your results! For survey papers as described below, there will typically not be an evaluation component.)

- **Progress report:** Partway through the semester, your group will submit a progress report of at least two pages. This report should include a completed literature review (see exception for survey projects below) and detail what you have accomplished so far.
- **Presentation:** Your presentation should summarize the topic you explored, what your team produced, and discuss the final outcomes of your project. The presentation format should be similar to those done for papers discussed throughout the term. As with any presentation, you should make sure to clearly cite any sources you use, especially if you copy content from an external source. Presentations should be submitted in PDF format.
- **Report:** Your final report should be a minimum of four pages of written content (six for survey papers) *not including any references or figures* in the double-column ACM format described below. You should expand on content written for the proposal and progress report (which you may include here). In addition to clearly defining the topic, you should include details on the solution or evaluation you developed. According to what you defined in your proposal and progress report (incorporating my feedback), you should also evaluate the results of your project along with a clear discussion and explanation of these results.

Project types

There are three main types of projects you may wish to do. Details on each type are given below. You are not limited to these types of projects but they will provide a helpful starting point.

Exploration

Consider an underexplored topic related to the subject matter discussed in the course. Your exploration should aim to either provide a useful extension to existing work or to provide a partial solution to an unsolved problem. You can often find good ideas by reading the “future work” section of published papers.

Evaluation

It is challenging for authors to evaluate their work against all relevant alternatives. Accordingly, a useful project topic is to perform such a comparison. Examples in this course may include developing a NoSQL version of a relational database application or benchmark and providing a detailed comparison between the two. You may also choose to compare the performance (possibly by implementing) existing systems or algorithms where a detailed comparison does not already exist.

Survey

A survey provides an overview of research that has been done in a specific subarea. If you choose to do a survey, you should not simply list descriptions of existing work but attempt to compare and contrast different approaches in a meaningful way and identify possible areas where more work is required. To complete your proposal, you should at least skim through a number of papers and provide an idea of what different approaches or subproblems in the area you plan to discuss.

You should expect to read many additional papers to complete a reasonable survey. A good survey paper requires a *lot* of reading. Since the output of a survey paper consists only of writing, survey papers are expected to be longer. Be especially careful to properly cite all your sources to avoid plagiarizing existing work. Remember that any material which is copied from existing work must clearly be indicated as a quotation with the appropriate citation.

Note that since summary of existing work is a larger component of survey projects compared to other project types, the literature review need not be complete when submitting your progress report. Your progress report should however, include details on the different types of systems or techniques you are surveying along with a representative example.

Format

As discussed in the syllabus, any papers submitted for the project (including the proposal) must use the [LaTeX version](#) of the template provided by ACM for their conference publications (two columns). If you are unfamiliar with LaTeX, you may wish to use the Overleaf web-based editor. The ACM provides an [Overleaf template](#) which you can use as a starting point.

Feedback

Each member of your group will individually provide feedback about the performance of your teammates on the entire project and for the presentation of one other team. The feedback will consist of a grade out of 100 points and comments: around 100 words for each of your teammates (including yourself), and 500 words for the other team's presentation. For other presentations, the feedback should include a brief summary of the presentation as well as any positive notes or opportunities for improvement. Feedback will be written and submitted individually by each member of a group.