

This assignment does not count toward the final grade.

# Semester Project Proposal

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**Due** Feb 29 by 11:59pm      **Points** 0      **Submitting** a file upload  
**Available** until Feb 29 at 11:59pm

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**Due 2/29**

Late submissions will not be accepted

*Failure to submit a proposal on time will prevent students from submitting a project*

## Project Info

This semester-long project, presentation, and reflection/group evaluation are worth 20% of the total course grade. Students are tasked with brainstorming, designing, implementing, analyzing, and presenting a project which utilizes communication over a network. The purpose of this project is to provide a hands-on exploration of the real-world considerations taken when designing networked software applications. Project ideas can take on a variety of forms and students will be afforded a large degree of autonomy. It is your responsibility to structure your project, make plans, stick to deadlines, develop, and debug your code. The instructor will act as your client, so minimal assistance should be expected. *Challenge yourselves- but don't overreach!*

Students may work in groups of any size (including working alone, though this is discouraged) and may change their project idea/group composition any time before the proposal deadline. Once groups and project ideas are finalized, each project team should meet periodically with the instructor to discuss progress, roadblocks, etc. and to update their client.

## Project Grading Criteria

*100 points from Project deliverables*

*5 points from Presentation*

*5 points from Group Evaluation/Reflection*

*110 points total (20% of the course grade)*

The project will be graded based on criteria agreed upon by the project team and the instructor/client. Each group must define a "Minimum Viable Product" (MVP) and three or more "Stretch Goals". The Minimum Viable Product is the bare minimum that can be delivered while still performing the necessary functions for the chosen project to be considered acceptable. Satisfactory delivery of the Minimum Viable Product constitutes 70% of the project grade.

The remaining 30% of the project grade will come from delivering up to three Stretch Goals. Groups can define as many Stretch Goals as they want- but only a maximum of three completed goals will count towards the project grade. Each Stretch Goal delivered will be worth up to 10% of the project grade.

Note that only the best three Stretch Goals will count towards the project score- so it is to students' benefit to define many Stretch Goals and attempt to deliver as many as possible. Stretch Goals are any features beyond the scope of the Minimum Viable Product which add to the value of the final deliverable. These will generally require research outside of the course material.

## Project Specifications

### Creating your rubric

Your proposal should include your name, the names of all of your group members, and a description of your project. Your Minimum Viable Product should be a list of requirements that your client could evaluate for completion (bullet-point lists are encouraged). Your Stretch Goals should be a list of 'luxury' features that would be nice to have in your program, but are not integral to its function. Bullet-point lists are a good format for these. Projects require at least three Stretch Goals, but groups can define as many as they like so long as they are approved.

### Design specifications

Part of your design specifications should be a breakdown of your network architecture. Some questions to consider: Is your program using client/server architecture or P2P? Are you using TCP or UDP (and why)? Are you defining your own proprietary protocol or using an existing one like HTTP? Is your program single-threaded or multi-threaded? Is sensitive\* data being transferred? If so, how are you protecting it?

Try to specify which functions are server-bound and which are client-bound. You should strive to minimize network traffic as much as possible. Explore options such as persistent HTTP, caching, and more to try to reduce stress on the network.

Consider listing some [user stories \(https://en.wikipedia.org/wiki/User\\_story\)](https://en.wikipedia.org/wiki/User_story) to aid your group and your client in understanding and visualizing the expectations of the program.

*\*If you plan on storing or transferring sensitive data such as passwords, you are required to provide a minimal amount of cryptographic protection. Even though this is not a cryptography course, special design considerations must be made whenever sensitive data is stored/transferred, regardless of the setting.*

## Deliverables

All project files must be included for full credit. Only one group member needs to upload the project, but ensure that the names of all group members are included somewhere in the submission (code comments, text file, etc.). The project files include the raw code files, any associated files needed to run the project, **and a standalone build (formatted for Windows- .exe or .jar)**.

If you hosted your project on GitHub or a similar repository service, it is sufficient to submit a link so long as all files are contained in the repository. Only files edited before the deadline will be graded- all commits after the deadline will be ignored.

Every student must submit an evaluation/reflection document individually. Do not include this paper in the project deliverables dropbox.

## Final Notes

- A "default" project will not be assigned. A key part of this project is doing research and constructing a plan before you start working. I'm happy to discuss project ideas and plausibility, but it is your job to bring ideas and prior research to the table.
- The application you create can use techniques covered in class, or techniques you learned on your own. However, groups must write their own code. You may use any and all first-party libraries included in Java, C#, and C++. All third-party libraries must be approved by the instructor before use.
- Any programming language or combination of languages can be used for this project. However, not all languages are 'networking' languages. For example, C++ does not offer first-party support for socket programming. Research languages beforehand to examine their networking capabilities and decide on your language accordingly.
- You are strongly encouraged to use version control software such as [GitHub \(https://github.com/\)](https://github.com/) to manage your project. Even if you aren't working in a group, effective version control can help you keep reliable backups and track progress.
- Each member of the group might receive a different grade for this project based on their individual contributions. This will be determined by the instructor's observations and the views expressed in each group member's reflection/evaluation document
- It is critical that your group works well together! In the event that a member of your group is disruptive, unhelpful, or worse- notify the instructor as soon as possible!

- Extenuating circumstances can allow changes to project ideas or group composition after the proposal deadline. However, due dates cannot be changed.

If your proposal is marked as "Complete" then it is approved. However, please check the comments as it is possible that it was approved 'with revisions'. If it is marked as 'Incomplete' then significant adjustments must be made.