CSC/ECE 573 (002) – Internet Protocols
Project
Fall 2016

Project Proposal

Each group has to submit a project proposal describing in detail what project they will do for this course. For your reference, I have uploaded a description of a sample project. Note that you *CANNOT* do that sample project for this course. You must propose a project of your own and then start working on that immediately. The sample project is there to help you get an idea of the expected complexity of the project you propose. Make sure that the project you propose requires at least as much work as the sample project would, otherwise, you risk losing points on the project.

We have gone through many application layer protocols. Think innovatively and come up with a novel internet application and develop it as a project for this course. Your project must contain components related to two of the three top layers of the networking stack, i.e., Application layer, Transport layer, and Network layer.

The project proposal must contain the following sections in this sequence:

1. Introduction
2. Problem Statement
3. Project Objectives
4. How do you plan to carry out the project
5. How will you evaluate your project
6. What exactly will be shown during the demo

Note that the sample project description does not follow these 6 steps. However, your project proposal must follow these steps and then contain all relevant information as given in the sample project description.

In the project proposal, clearly (and in detail) write the section "Demo Setup" [The last point in the list above]. See the sample project description for an example. The sample project does not list the steps of the demo. However, you will have to write each and every step of the demo you will do to show that whatever you proposed is working. For each step, write down an appropriate percentage of the grade that you think should be assigned to that step. The sum of the percentage of all steps should be 100. Note that the instructor may change the percentage assigned to each step if he does not find your allocation of percentages appropriate. You will be notified about those percentages soon after the submission deadline of the proposal.

Note that the instructor will not ask the team members to clarify anything that is ambiguous in the proposal. Therefore, please write your goals, project description, demo steps, and anything else that you put in the proposal (while adhering to the 6 section outline mentioned above) as clearly as possible. Writing unclearly will have two disadvantages. First, the instructor and the TA will develop an understanding of the outcomes expected from your project that might be different from what you intended to do: instructor and TA could be expecting one thing and you could be working on something else. This will create problems at the time of demo and project submission, and will negatively affect your grade. Second, the proposal document will count towards 10% of the total grade of the project. If it is not clearly written, you will lose points.

Deadlines

Proposal submission: 11:45pm on October 12, 2016 via Moodle

(One submission per team; no more, no less)

Project code and final report submission: 11:45pm on December 2, 2016 via Moodle

(One submission per team; no more, no less)

The code that you submit should be straightforward for the TA to execute. You must include a README file with detailed and clear instructions on:

a. Environment settings
b. How to run the code
c. How to interpret the results
d. Any sample input and output files

Demos: Will be scheduled on the days right after the deadline. The TA will coordinate with the teams *Late submissions will not be allowed for project proposal, so please be mindful of the deadline.* For final code and report submission deadline and rules, please see slide 6 in Lecture 1. If you don't submit your code up to 10 hours after deadline, you will not be allowed a demo. However, special circumstance, such as medical reasons, will be entertained as valid excuses for delayed submission on providing proof.

Instructions for Final Report

Every team must submit a final report on the project. This report should be a *self-contained document*, including any and all flowcharts.

Every report must have a *cover page* containing:

- the course title,
- submission date, and
- all team-member names.

Negative points will be assigned to reports missing- or having an incomplete cover page.

The second page of each report must detail the breakdown of individual contributions of each team member to the project. Quantify, as a percentage, each student's contribution to each project component such as algorithm design, coding, debugging, report preparation, and any other project-related effort. Assign weightage to each component depending on how complex and effort-consuming that component was. The sum of contributions of the students in group for each project component should be 100%. An example below shows how you will have to write the breakdown of individual contributions on the second page of the project report. This sample assumes there are 4 students in the team.

Component	**Component weightage**	**Student 1**	**Student 2**	**Student 3**	**Student 4**
High level design	0.1	30	30	20	20
Algorithm development	0.25	10	20	30	40
Coding	0.35	30	10	25	35
Debugging	0.20	10	20	50	20
Report writing	0.1	0	0	0	100
Per student aggregate contribution		30 * 0.1 + 10 * 0.25 + 30 * 0.35 + 10 * 0.2 + 0 * 0.1 = 18	30 * 0.1 + 20 * 0.25 + 10 * 0.35 + 20 * 0.2 + 0 * 0.1 = 15.5	20 * 0.1 + 30 * 0.25 + 25 * 0.35 + 50 * 0.2 + 0 * 0.1 = 28.25	20 * 0.1 + 40 * 0.25 + 35 * 0.35 + 20 * 0.2 + 100 * 0.1 = 38.25

In this example, student 1 eventually contributed 18% to the total effort of doing the project, student 2 eventually contributed 15.5%, student 3 contributed 28.25%, and student 4 contributed 38.25%. If project receives an overall grade of 80 out of 100, student 1 will get 0.18*4*80=57.6 out of 100 for this project, student 2 will get 0.155*4*80=49.6, student 3 will get 0.2825*4*80=90.4, and student 4 will get 0.3825*4*80=122.4 (yes it is possible to get more than 100; this will happen if a team does the project very well, but major effort came from only one or two students).

For the reports that are missing or having an incomplete contributions breakdown page, the contribution from each team member will be considered equal.

The rest of the report must contain the following sections:

1. **Introduction**: State the objective of your project; provide some background information.
2. **Design**: Provide a block diagram of your system before presenting the detailed algorithm flowcharts; describe in detail your algorithm, as self-explanatory flowchart. For any detail of the flowchart that needs additional explanation, put a brief description in a footnote on the flowchart page, and provide the detailed explanation on a separate page; Specify exactly the user-controllable parameters to be entered when running your program: what are the allowed values, what are the recommended values, are there any values that should be avoided?, etc. One page should only contain one flowchart and no text (other than footnotes, if needed)
3. **Implementation**: Specify the programming language and any other tools used for the development; Describe briefly the content of each source-code file
4. **Results and Discussion**: Present your experimental results (if any) in graphical charts and tables; Each chart/table should have a caption and should be referenced and described in the text; Provide technical explanations and comments on any observations you might have found interesting.
5. **Related Work and references**: Cite the literature or web sources that you have utilized in completing your project (if any). List all the references (books, journal/conference papers), web pages (include URL and webpage title) that have been used in the project.

Reports that only contain charts but no description and explanation will receive a poor grade. The length of the report is limited to 6 letter sized pages, double column format, 10pt font, and one inch margin on each side. Note that page 1 and 2 containing names and effort breakdown do not count towards the 6 page limit. The pages containing only flow charts and footnotes of less than three lines also do not count towards the page limit. However, if any page with flowchart(s) contains explanatory text, then that page will count towards the page limit. Submit your final report as a pdf

Breakdown of Project Grade

Project proposal: 10%

Project demo and code: 70% (You must specify how this part of the grade should be distributed across various steps of your demo. Again note that the sum of percentages of all steps you write in the demo setup must equal 100.)

Final report: 20%