ECLT 5820 Distributed and Mobile Systems
Project Specification

Important date

- Project grouping deadline: Oct. 18, 2021 (Monday)
- Proposal deadline: Nov. 1, 2021 (Monday), electronic version
- Project group presentation: 7-9:30pm, Nov. 29, 2021 (Monday), face-to-face mode
- Project final deliverables (including a project final report and a presentation file): 23:59:59pm, Dec. 6, 2021 (Monday)
- Course Email: eclt5820@cse.cuhk.edu.hk

Introduction

The course project is to conduct a research work on a topic related to this course. Each team should be composed of 3 students to work on the project. Please send your group members' names, student IDs, and students' Emails to the course Email account before the above mentioned deadline. We would randomly group students if they did not submit the group information before the deadline.

No plagiarism is allowed for the project. The submitted documents will be compared with all the Internet documents using plagiarism detection software (namely Veriguide, http://veriguide1.cse.cuhk.edu.hk). Copying materials from the Internet or published papers without proper acknowledgement will be detected easily using this plagiarism detection software. Violations of this policy will result in a failing grade in the course for all the members in the team.

Grading Criteria

Your project will be graded primarily based on the following weighting scheme:

- Project proposal: 10%
- Presentation: 40%
- Final Report: 50%

Late submissions within three days will be deduced 30% of the score, while late submissions more than three days will get 0 marks on that phase.

Pick a Topic

You can choose from one of following categories to conduct a comprehensive or in-depth research work. All topics relevant to this course are of interest:

- Characterization of Distributed Systems
- Communication and Remote Procedure Call
- Security
- Naming, Trading and P2P Systems
- Time, Coordination and Agreement

- Concurrency Control
- Transactions
- Fault Tolerance and Replication
- Data-driven Distributed System Management
- Web Services
- Mobile and Ubiquitous Computing
- Distributed Multimedia Systems
- Cloud Computing
- Other topics covered by the textbook
- Business issues relating to distributed and mobile systems topics listed above

You are encouraged to choose one hot term in which you are interested within the scope specified above, and explore the techniques around the term. For your reference, we list some hot terms as follows.

- Mobile Payment System
- Indoor Positioning System
- Recommendation System
- Smartphone Security Procedure
- Big Data Application
- Smart Home
- Autonomous Car
- Blockchain
- Artificial Intelligence System

You are free to discuss your project with the instructor any time after the weekly lecture is conducted.

Write a Proposal

After selecting a topic, you are required to write a brief proposal (1 A4 page). The proposal should include the title, and a brief introduction of the project work. Each group should send the proposal (softcopy in PDF or Word format) to the course Email account, by the due date specified above. In the proposal, you should provide the information of: Group IDs, student names, student IDs, and Email addresses.

Work on the Project

To conduct a solid research work, you need to survey 5-10 related published papers, make a summarization, propose novel ideas if possible, and write a final report. Specifically, our final report should contain the following contents:

- The important challenges in the research area of your selected topic
- Some (at least two) representative systems/applications (e.g., what they are and how they address the aforementioned challenges)
- Detailed comparisons between these systems/applications (e.g., application scenarios, performance, efficiency, the techniques/algorithms used, etc.)
- Possible improvements and new functionalities that could make them better

Particularly, you are encouraged (but not required) to show some programming efforts. For example, you can conduct experimental comparisons for the systems/applications, you can also implement or simulate your ideas of improvements and new functionalities.

Present the Course Project

Each group is required to do a face-to-face presentation (around 10 mins) to introduce the project. Project final deliverables include a project final report and a presentation file. Please submit them to the course Email before Dec. 6, 2021. The structure of your presentation should roughly follow your final report.

Your presentation will be graded mainly based on the technical contents of your work, the clarity of your slides, and the fluency of your presentation. Think about how you can best present your work so as to make it as easy as possible for your audience to understand your main messages. Try to be concise and to the point. Pictures, illustrations, examples, and system demonstrations are generally more effective than text for explaining your project. All group members are expected to participate in the presentation.

Write a Final Report

You should write your report as if you are writing a conference paper. You should address the same questions as those you have addressed in the proposal, only with more details, especially regarding some of the challenges that you have solved in your selected research topic. Furthermore, it would be good to include a brief discussion of how your current work can be further extended. You are required to use ACM proceedings templates (ACM Standard) at this link:

https://www.acm.org/publications/proceedings-template

You could use either Latex or Word to write the final report. For Latex user, you may use the online latex platform Overleaf to edit your report (ACM Standard), and the link is:

https://www.overleaf.com/latex/templates/acm-conference-proceedings-master-template/pnrfvrrdbfwt

Note that your group needs to submit a PDF file to the project account before the final report deadline. The page requirement is 6- 8 pages for main contents, plus up to 1-page references. If you have not written such a report before, you may want to take a look at research papers from conferences or journals. The submission deadline is Dec. 6, 2021.

Grading of a project report will be based on following factors:

- The quality of your project as reflected in the importance of problem being addressed, the quality of solution, and the impact of your project.
- The novelty of your project.
- The significance of your project.
- Clarity and completeness of the report itself (i.e., whether you have clearly described what you have done and addressed all the questions that you are supposed to address).