Problem Statement

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Communication efficiency is important especially in a fast paced world, but it can be time consuming. Teaching assistants of lab sessions may sometimes become ill or encounter emergencies in conflict with the lab session, therefore becoming unable to cover their assigned labs. When these situations arise, Santa Clara University lacks a way for TAs and professors to communicate with each other efficiently in case coverage is needed for a lab session.

The current solution in Santa Clara University for meeting this need is merely for the particular case at hand and without consideration of wider applications. Professors in charge of the lab sessions usually prefer the TAs to find a replacement by him- or herself. Alternatively, in case of serious illness or other conflicts, the TA would contact the professor, and then the professor would try to find a substitute through some medium such as phone calls and emails. However, whoever is looking for a substitute does not know the schedule availability of others beforehand. Thus, he or she has to contact each TA one by one to check if others are available. This method of communication is very time consuming and inefficient, which would affect the progress of the lab session and the students' lab attendance if a substitute has not been found.

Our web-based application solves this problem by providing a list of available TAs for the TA who needs a substitute or the professor in charge, so that they do not have to waste time looking for substitutes themselves. They can then contact each TA according to the list provided, and ask them if they want to cover the lab session. The potential users of our application are teaching assistants and professors in charge of lab sessions. Our main functional requirement is a signup and login system for TAs and Professors to identify each other. Our system will collect the schedule of all the TAs beforehand when they signup. Users who need a substitute can query the system to find out who is available during the time period of that lab, so he or she can send the message to the right person. When there are no available TAs during the lab session, the system will display a warning message notifying the user of this. In this situation, the professor will also be noticed by email. Non-functional requirements of our application are that when finding the replacement, other TAs for the same course might be listed at the beginning, then branching out from there to improve usability. Our system will have high reliability by supporting multiple queries in case more than one TA needs substitutes. Also, our system will have assurable security with the login system. The major design constraints of our application are that it has to be a web-based software, support the Linux operating system, and work on both Firefox and Chrome. In addition, the project has to be finished by the end of 2017 Fall Quarter of Santa Clara University. Our system will first deploy among TAs and Professors in Santa Clara University Engineering School for testing purposes. The application should provide quick responses and send messages on time. Overall, this web application will provide user a list of available TAs to facilitate the process of finding a suitable substitute to cover the lab session.