

This module on developing a web-based tool allows me to spend time designing and building software from zero to one. The work is initially implementing two metaheuristic algorithms for group formation but ending up with one metaheuristic algorithm and one clustering algorithm. I discussed the issue with my supervisor when I realized that the second algorithm I wrote was different from a metaheuristic algorithm, then we both agreed that it would be interesting to use two kinds of algorithms for group formation problem and compare their performance. During the developing process, the programming language that I used was Java then was switched to Python, because I found out that using Python libraries and web frameworks such as Flask would be more convenient and easier for a later website development. These are the two main changes that I made. I learn that the changes were identified and decisions were made early enough so I didn't need to change the report later.

Throughout of the project, some work cannot be finished. The initial idea of the project includes creating both heterogeneous and homogeneous groups, however, given the complexity of defining a new heuristic, it would be better to focus on just one type that is more helpful for collaborative learning. In this case, I did research on heterogeneous groups and this improved the pace and efficiency of my work towards my project goals. Also due to Covid, student data cannot be collected. Therefore, I used self-generated data to test the algorithms.

When describing the problems and designing the methodology for the product, I didn't follow a proper way to write those sessions, therefore some contents of my report had no logical connection. After looking at the feedback provided by my supervisor, I went through several examples of past reports to find out the general structures. And I revised the module SEPR, used the approaches that I have been taught in that module to solve the problems. The report has been much more precise and logical after I adapted the approaches. I learn that when developing a software product, some commonly used methodologies, such as Waterfall development method and requirement tables that I had used for my other project, could be applied to any other software development process. I should always use the knowledge and skills that I gained from the university and apply them to the real engineering projects.

Due to Covid and other reasons, I didn't meet feedback deadlines. However, I was giving more flexibility on submitting my drafts after discussing with my supervisor. Therefore, I made a project timeline based on my own pace on the project. It went well at the beginning, but when other modules' assessments came out, I had several assignments and exams to work on, the pace slowed down again. In the future, I would improve my time management and organization skills by setting goals and considering risk management.

The technical problem is that I stayed in my country to study where a lot of mediums such as Zoom, Google Meet and Gmail are banned. Although the university provides a special VPN, it always has a connection error. Also because English is not my first language, the voice was not clear enough for me from the computer, therefore there were some misunderstanding and confusion when I talked about my ideas with my supervisor. The online communication was not as good as face-to-face and it was not a pleasant experience. In order to solve this, I sent my questions and ideas by emails rather than speaking virtually. As well as sent my report drafts and got comments back in Word file, which provided clear and detailed feedbacks for me. This allowed me to be clear on actions. However, although writing is a good way of communication, but in the real workplace, speaking at the meeting is still a must-have skill. Therefore, in the future I will always communicate with my colleagues, practice oral and listening skills, and pay attentions to the key elements while listening.

At the first few weeks of the module, I was not quite sure what I will be doing but reading the literature and book that my supervisor suggested for me. I was hoping that my supervisor would give me more specific tasks in order to create the product, however, after a supervisor meeting, I realized that this module is a self-thought project and it is a self-learning process, which I fully take ownership for workload and problem solving in the project. I also learn that an independent learner should take responsibility in setting goals, planning and time-management. In the future, I will transfer these skills into the workplace and improve self-directed learning.

The project brief was given by the supervisor however some problems need to be self-defined. At the beginning, my work had no clear direction. After taking my supervisor's advice, I did research on the gap between what have been done and what should be improved in the area of collaborative learning. I listed down the key contents of the literatures and made a table conclusion with bullet points, then made decisions on what should my final product solve. Then I found the workable approaches to solve these problems based on the advice from my supervisor and the solutions in the literature. As plenty prior works have available and comprehensive solutions for the group formation problem, I implemented the popular algorithms and improved them when creating the web-based tool. However, more algorithms could be explored and implemented to make the product better, if given time. In the future, I would make a plan, look at relevant resources, talk to the stakeholders and keep track of progress of a problem.