Motivation

There exist several sorting algorithms, such as bubble sort, selection sort, insertion sort, merge sort, quick sort, heap sort, etc. The sorting algorithm is essential in the computer programming area, and its correctness also is a classic proposition for proving. However, after some surveys taking and information collecting, we found that this knowledge is not easy to understand. The reason is that the abstract sorting process needs logical thinking while how the algorithms work is not directly perceived. Some research has been taken to show that visualizing the sorting algorithm might be a good way to solve this problem. Rudder and other researchers (2007) claimed that animations and visualizations can help present those abstract concepts in an easy-understanding way.

Design Idea

Thus, Team 10 focuses on creating a game with the animation feature to achieve to visualize the sorting algorithm. It will be useful for those who are interested in sorting algorithms. The main picture is that the software will give a taste at the beginning by providing some easy tutorials. After that, it will provide several modules for users to learn different algorithms principles and even prove their correctness. During the process, all explanations and guides will be displayed using animation. Finally, some tests will be provided for them to check whether they understand perfectly.

Timeline

As planned, one month will be spent on the requirements and specifications. Interview, focus group and other requirement gathering activity will be taken. After that, team members probably spend four months on the software’s design. Agile and TDD would be used to make sure everything is expected. Eventually, quality should be evaluated by testing and maintenance, it will take about two months.