Use case diagram explanation

To develop the functionality of the software, its basic usage and layout should be confirmed first. By ensuring these, it also attributes to the next stage’s implementation. Unified Modeling Languages (UML) and low-fidelity prototypes for user interface help establish this part. Particularly, team ten has drawn a use case diagram and sequence diagram, presented in Section 4.1 and Section 4.2. Low fidelity is shown in Section 4.3.

4.1 Use Case Diagram

The use case diagram displays what users can do with the software and its basic functionality. This diagram is drawn based on the requirements gathered. It also helps confirm the requirements with stakeholders.

1. View user guide of the software: Several user guides will introduce each software component, such as buttons and control bars. Description of different modules will be claimed as well.

2. Feedback to developers: there is a platform that will provide developers’ email addresses.

3. Downloading the learning note: The notes are gathered and edited by developers. They can be downloaded as images for offline learning.

4. Animation: The software provides animation for each sorting algorithm. It will show the sorting process of its corresponding sorting algorithm. Users can adjust the animation to their requirements (pause, step forward, or backward). Besides, users can modify the com[1]ponent of animation by changing the default input array. Users can set the input array in two ways: select an array set randomly generated by the software or set it manually.

Sequence diagram explanation

This software provides users the most flexibility and the freedom of choice, so four small sequence diagrams are presented to show some beginning steps of each function part, instead of one diagram for the whole process.

Figure 4.2 shows the process when users open the software. According to users’ requests, the customized page will be presented.

Figure 4.3 shows the process when users enter the “animation” page. After choosing a sorting algorithm, a simple front page will be presented with the algorithm’s brief introduction and a preset animation. After that, users can go to a page where they can type in the inputs they want.

Figure 4.5 shows the process when users enter the “correctness” page. After choosing a sorting algorithm, a page with animation will be shown. Users can choose a list of inputs from pre-defined legal and illegal input sets. Then the software will play the animation of selected inputs.