**Requirement:**

The software is free education-assisting software and it is mainly used by college students and teachers. In order to meet the needs of users and provide good user experience, this software should satisfy a large number of significant requirements. In next two parts, there are two types of requirements and each specific requirement will be analyzed and explained in details.

**Functional requirements:**

In order to accurately analyze the functional requirements, the main process of using this software should be divided into four parts.

The first part is selection. When users open the software, there should be a help document to illustrate how to use this software and explain the principle of algorithm. Then the software should provide the function of selecting different algorithms. For users with no other specific data, software should supply some existing sample data to them and the function of modifying parameter which is set as default value. It also requires the function of prompting and checking the format of the file when users import specific sample data.

The second part is output. The Software should use the algorithm which is chosen by user to deal with the import sample data and generate the outcome image. After that, the software need provide modifiable parameter list and some simple explanations of each parameter. Furthermore, the software should provide the output function to export images, data, or both according to the user's choice.

The third part of using process is modification and comparison. The software should permit user to combine two images together to compare the differences between them. The software also need provide the function of clearing the current data and results if users want to import another sample data. Considering some users like teachers could use this software in their lecture or workshop, so it is important to provide a function of putting the software window into the top. Ultimately, when the software crashes for some reason, there should be some way to restart it.

The future development is the final part. For the purpose of making the software updatable and adaptable, it requires some function of checking update and submitting bugs by users.

**Non-functional requirements:**

As for the non-functional requirements, it should be explained from two aspects.

Firstly, the window size of the software should be suitable for demonstration and the user interface should be convenient for user activity. Additionally, the running time of using the algorithm to deal with the sample data should be as quick as possible. The purpose of these requirements is to improve the user experience.

Secondly, the software needs to run on a variety of platforms and operating systems and it should be convenient for update and improvement. That means the software require appropriate software capacity to be convenient for users download and use in a short period of time. Furthermore, because the software is free, it is better that the development costs should be properly reduced. The purpose of these requirements is to reduce the costs of use and develop and improve the compatibility and stability of the software.