**Technic Implementation**

Operating Systems: Windows 7, Mac OS, Linux Shell

Programming Languages: JAVA, SQL, JavaScript, HTML and PHP

Software: Axure RP Pro, Eclipse, Notepad++, MySQL Workbench,

MAMP (MAC, Apache, MySQL, PHP), TortoiseSVN

Basically, the description of the project from stakeholders is analyzed, which are divided into functional requirements and non-functional requirements from students and supervisor. Based on the requirements, the wireframe of this system is roughly designed. The Axure RP Pro 6.5, a wireframe designing software, is chosen to implement this. It is an ideal option for creating high fidelity prototypes to demonstrate different states of complex interactions to developers and business owners. The system is quickly built up in Axure RP and present to our stakeholders in a click-through prototype, which is mainly focus on the types of information displayed, the range of functions available and the relative priorities of the information and functions. After negotiating with the stakeholders, these unnecessarily functions are eliminated and some omissive requirements are added. Finally, we reach an agreement on the requirements with the stakeholders.

After ensuring the requirements from stakeholders and understand the general structure of the web peer assessment system, the marking program is written with JAVA under the Eclipse integrated development environment to demonstrate how the students’ final mark, based on the group mark given by supervisor and personal marks from team members, are calculated through the process of a specific algorithm. Because each student needs to be assessed for six criteria with the mark from 0 to 5, a two-dimension array is chosen to store the data. The supervisor just need to type the weight and group mark, then this algorithm will automatically calculate each student's individual mark according to the proportion it takes. If the weight becomes larger, the gap between different students tends to be larger. However, the average mark will not change, which is still the group mark that is given by supervisor. In some special cases, a student’s mark may be larger than 100. At that time, this algorithm will automatically set the mark to 100.

For constructing the database to store information on website, the MySQL Workbench, a visual database design tool that integrates SQL development, administration, database design, is selected to sketch the ER diagram to describe the abstract relations, attributes and keys among different tables. Then, the ER diagram is converted into the SQL code to create these tables in real database system. Totally, there are five tables: PeerMark, Students, Groups, Modules and StudentsModule. One module can have lots of groups and one group can have lots of students. The relationship between Students and Modules is many-to-many (one student may register in lots of modules and one module may be chosen by lots of students). Hence, the junction table StudentsModlue is used to connect them in order to improve the efficiency of SQL searching and avoid mess of data.

The general visual page of the WebPAS site is programed with HTML language using Notepad++. It is embedded with PHP code to make a connection to the database. For database type choices, we select MySQL because it is the worlds’ most popular database system and can be run in many platforms, which provide lots of flexibility to program. Due to the requirement to enables programmatic access to computational objects within a host environment and dynamic content than static HTML (e.g. expanding a tree with a given ID, adding an event listener), JavaScript language is used to realize these functions. Cascading Style Sheets (CSS) is also applied to further define the appearance and layout of text and other material of the website. CSS enable the separation of document content from document presentation, which improve content accessibility and provide more flexibility and convenient in the specification of presentation characteristics.

During the development phase, the version control system TortoiseSVN is used to keep track of what changes have been merged. Changes are usually identified by a number or letter code. Revision is associated with a timestamp and the person making the change, which can be compared, restored, and merged. The software TortoiseSVN provide the overview of the status of files directly in the Windows explorer descriptive dialogs and allow moving files by right-dragging them in the windows explorer. Comparing with typing subversion command line to upload documents, it is much more efficiency.