

Project Design Phase-I Solution Architecture

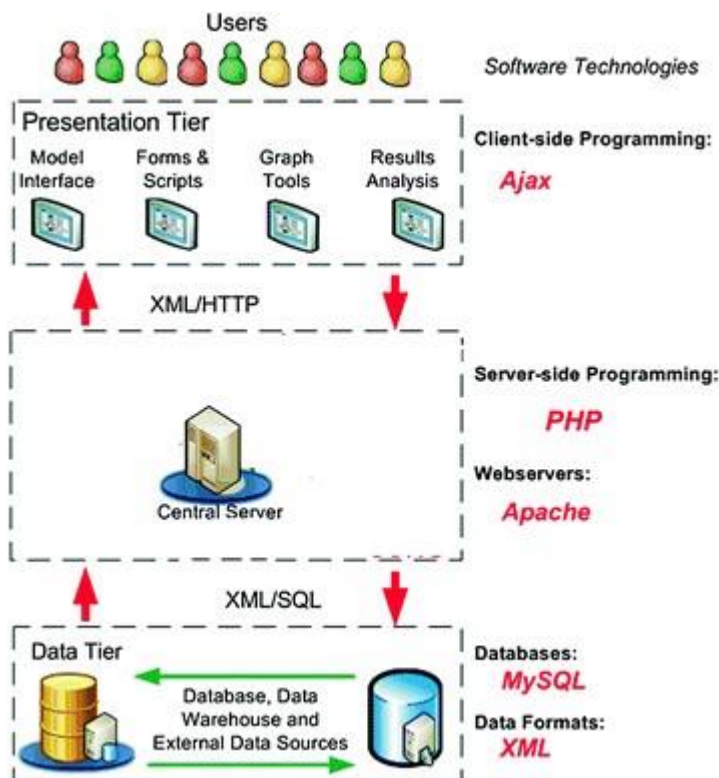
Date	19 September 2022
Team ID	PNT2022TMID27727
Project Name	Inventory Management system For Retailers
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behaviour, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Solution Architecture Diagram:



Inventory Management is one of the basic problems for a company. It may cause a lot of paperwork, if there is no automated system available. Implementing such a system is possible but there are a lot of preliminary works such as determination of the requirements, system structure decision – software requirements, barcode system selection and determination of the software tools.

A. Determination of the Requirements

Inventory Management System is generally used by IT Office Department or Accounting Office of a company or a university. Therefore, searching the basic needs for implementation is the first step of IMS design. Several meetings with IT Office and Accounting Office are arranged. Accounting Office needs detailed reporting tools, detailed categorization and declaration of specifications on each item, purchasing and billing info. The Information Technologies Office needs another module except the requirements of Accounting Office. The module is about the interior maintenance and exterior product service flow. For interior maintenance flow, there will be a section. This section will be available for all users. Basically, a maintenance request will be created by the users, and the IT Office will respond to these requests. Finally, it is the end user's needs that are also an important part of the IMS software design. This led us to use barcode based system.

B. Software Requirements

After gathering all the requirements and information, we achieve next state which is quite important for the project. If the decision is not well organized, it may cause reorganization and programming the algorithms at the beginning. At the beginning, first thing to decide is the general structure. We decide to build the system browser based. The system is going to be used by a large number of users, so it should have been designed to be reachable for every single user, instead of having a desktop application for every user. Also if we consider that Kadir Has University already has a similar system – Information Management System, it would be easy to integrate. By using the user database of the existing systems, the login parameters are ready to use for IMS. So, we would provide the portability. The next step is to decide the language to implement.

Php is a open source environment and there are a large range of resources to get help. Information Management System is already developed by using PHP. We also decide to use AJAX to obtain a faster system. In AJAX, only the needed data is being requested from the server, this method speeds up the loading time. While thinking how to code with PHP, we decide to use Model View Controller (MVC) based structure. This structure separates the visual design. We also use Code Igniter Framework for decreasing the amount of code lines. It gives ability to program faster with less effort. Code Igniter also support MVC structure. So we decide to PHP, MySQL and APACHE trio. We used MySQL as database. It is the best fit for PHP and it has the open source advantages. We need to have the login information to have a fully integrated system, and also several details such as e-mail addresses and so on

C. Barcode System

A barcode is an optical machine readable representation of data, which shows certain data on certain products. There are different types of barcodes, some of them have to be world wide unique and need license. We chose “code39” because first of all, code39 doesn’t need license, have the possibility to print for unlimited products, supports full ASCII, number, letter and special character usage (capacity of 26 capital letters, 10 numbers, 7 special characters). And also it was the easiest to read and was the best fit for the barcode generators for PHP. .