# CHAPTER THREE

## 3.1 SYSTEM DESIGN METHODOLOGY

Rapid application development (RAD) is a software development methodology, which involves iterative development and the construction of prototypes. Rapid application development is a term originally used to describe a software development process introduced by James Martin in 1991.

The basic principles are:

The key objective is for the fast development and delivery of a high-quality system at a relatively low investment cost.

Attempts to reduce inherent project risk by breaking a project into smaller segments and providing more ease-of-change during the development process.

Aims to produce high-quality systems quickly, primarily via iterative Prototyping (at any stage of development), active user involvement, and computerized development tools. These tools may include Graphical User Interface (GUI) builders, Computer-Aided Software Engineering (CASE) tools, Database Management Systems (DBMS), fourth-generation programming languages, code generators, and object-oriented techniques.

The key emphasis is on fulfilling the business need, while technological or engineering excellence is of lesser importance.

Project control involves prioritizing development and defining delivery deadlines or “timeboxes”. If the project starts to slip, the emphasis is on reducing requirements to fit the timebox, not in increasing the deadline.

Generally, it includes joint application design (JAD), where users are intensely involved in system design, via consensus building in either structured workshops, or electronically facilitated interaction.

Active user involvement is imperative.

Iteratively produces production software, as opposed to a throwaway prototype.

Produces documentation necessary to facilitate future development and maintenance.

Standard systems analysis and design methods can be fitted into this framework.

(Boehm, 1986)

## 3.2 TOOLS AND TECHNOLOGY USED

For a project of this sort to be successful, a lot of tools were used. Below are the tools used.

### 3.2.1 HTML, BOOTSTRAP, AND CSS

Hypertext Mark Language (HTML) is a mark language used in defining how the data on a web page will be formatted. This is used to render all the data seen on the web pages.

the Cascading Style Sheet Sheet (CSS) is used to design the look and feel of web pages. CSS controls the beauty of the web pages.

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS and (optional) javascript-based design templates from typography, form, buttons, navigation, and other interface components.

### 3.2.2 PHP AND MYSQL

There is a need for data storage in the application and this is made possible with the help of PHP and MySQL database. PHP is the interface used to communicate with the database engine. The PHP runs on a server. The MySQL database was chosen for its simplicity. With PHP and MySQL data, dynamic data can be rendered to the user based on their interaction with a web application.

### 3.2.3 JAVASCRIPT, AJAX AND JQUERY

Alongside HTML and CSS, javascript is one of the core technologies of the world wide web. Javascript enables an interactive web page and is an essential part of the web applications. The vast majority of websites use it for client-side page behavior, and all major web browsers have a dedicated javascript engine to execute it. Jquery on the other hand is a javascript library that is intended to simplify javascript code and takes care of most of the workload for the developers. On a web page, there are times a data has to be returned to the user without the need to refresh the whole web page and that’s when Ajax comes into play. With Ajax, web applications can send and retrieve data from a server asynchronously (in the background) without interfering with the display and behavior of the existing page. By coupling the data interchange layer from the presentation layer, Ajax allows web pages and, by extension, web application, to change content dynamically without the need to reload the entire page.

References

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