Because of its strong collaborative working style, Agile software development approach was applied. It is a method of software development that prioritizes design and execution. For this project, the scrum agile methodology was used. This report addressed the Software engineering process's "Problem Domain, Requirement Specification, System Analysis, Interface Layout, and Architectural Design."

## Project Background

The project was created using a web-based application. The current course leader Dr. Simon white had approached our software engineering company to examine the possibility of creating a computerized electronic index of a course management software. This is an initial software development approach by the stakeholder of the Woodlands University College (WUC) with maximum of 10 departments, at least 100 faculty team members, and around 1000 active students’ involvement. There are three prominent features included: Record Management System, Student Portal or Information and Organization’s website.

The project's major goal is to create a digital platform out of the course's clerical-based working software. According to the criteria, the project includes the following prominent features:

|  |  |  |
| --- | --- | --- |
| **S.N.** | **Requirement Area** | **Functionality** |
| 1 | Corporate Web Portal | It refers to the website of the organization where user first interact with its interface to access the course management system. |
| 2 | Content Management System | It means the record management system for all types of users that includes features like: create, amend, archive, display, delete, etc. |
| 3 | Student Records/ Information Portal | It refers to the student login portal having limited access to its content management system. |
| 4 | Login System | The system has multiple user account for 4 types of users: Admin, tutor, module leader and student. |
| 5 | Search Engine | The user can have a customized input to filtered out the requested items. |

1.2 Projects Aims and Objectives

The aim of the project is to design and develop a course management software system and pilot system using an Object-Oriented development method which makes the learner or student more familiar with all the faculties present in the computing courses. The main objective of the project is to collect the information about problem domain through the elicitation process and work for it. The other objectives are listed below:

* Research and investigate in the document provided by client.
* Understanding and applying the agile software development methodology to the proposed software system.
* Using the requirement analysis approach, try to determine the consistency of the needs. Sort out any misunderstandings that may occur between the needs offered by each stakeholder. Understanding the system's functional and non-functional requirements current software system.
* Validating and verifying the system requirement.
* System interface design approaches for the relevant systems must be implemented such as Wireframes, screen mock-up design.
* Implementation of system analysis and design record management system such as Textual Analysis and BON (Business Object Notation) Diagram.
* Testing and evaluating the system.

1.3 Project Development Methodology

A project management methodology is a collection of guidelines, tools, and methods for planning, executing, and managing projects. Project management approaches assist project managers in leading and managing team members while enabling team cooperation. There are several project management methods, each with its own set of advantages and disadvantages. Some are better suited to specific sectors or projects. We use Agile method to develop the course management system.

The Agile software development technique is one of the most straightforward and efficient methods for translating a business demand into software solutions. Agile techniques are iterative techniques that prioritize quick software development, frequent product releases, lowering process overheads, and creating high-quality code. It engages the consumer in the development process directly.

The Agile method supports the following principles, they are:

* Satisfy the customer through early and continuous delivery of valuable software.
* Welcome changing requirements, even late in development. Agile processes harness change for the customer’s competitive advantages.
* Deliver working software frequently, from a couple of weeks to a couple of months, with preference to the shorter timescale.
* Business people and developers must work daily throughout the project.
* Build project around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
* The most efficient and effective method of conveying information to and within a development team is face-face conversation.

Scrum

Scrum is an agile advancement technique which focuses openly on the most skilled method to oversee assignments inside a group based improvement climate. Fundamentally, Scrum is gotten from movement that happens during a rugby match. Scrum puts stock in engaging the improvement group and supporters working in little groups (express 7 to 9 individuals). Spry and Scrum comprise of three jobs, and their obligations are made sense of as follows:

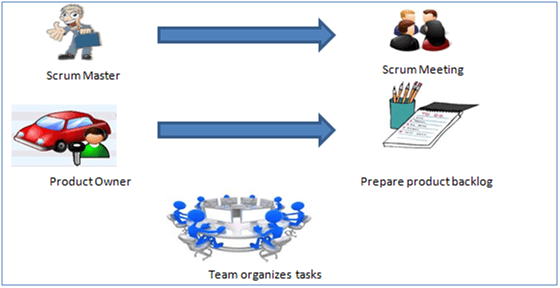


Fig. Scrum methods

1. **Scrum Master:**

Scrum Master is liable for setting up the group, run gathering and eliminates snags to advance Item proprietor.

1. **The Product Owner:**

It makes item build-up, focuses on the excess and is answerable for the conveyance of the usefulness at every emphasis.

1. **Scrum Team:**

Group deals with its own work and coordinates the work to finish the run or cycle.

Product Backlog

Here necessities are followed details on the no of requirements (user stories) to be finished for each delivery. It ought to be kept up with and focused on result Owner, and it ought to be circulated to the scrum group. Group can likewise demand for another prerequisite expansion or alteration or cancellation.

Process stream of Scrum Methodologies:

Process stream of scrum testing is as per the following:

* Every cycle of a scrum is known as Sprint.
* Item accumulation is a rundown where all subtleties are placed to get the finished result.
* During each Sprint, top client accounts of Product overabundance are chosen and transformed into Sprint accumulation.
* Group chips away at the characterized run accumulation
* Group checks for the everyday work.
* Toward the finish of the run, group conveys item usefulness.