



# UITs

**UNIVERSITY OF INFORMATION  
TECHNOLOGY AND SCIENCES**

## Software Project Design and Development

**submitted by :**

**Name :** Md Shariful Islam Sajib Sarker

**ID:** 2125051016

**Section :** 7A1

**Batch :** 50

**submitted to :**

**Name :** Saima Siddique Tashfia

**Designation :** lecturer of UITs

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and Development

# Understanding and Implementing SCRUM in Learning platform Software Project

## Introduction

Software development methodologies play a vital role in ensuring project success. SCRUM, a popular Agile methodology, emphasizes iterative development, collaboration, and adaptability. It provides a framework for managing complex software projects by breaking them into manageable increments, fostering teamwork, and responding effectively to changing requirements.

## What is SCRUM?

SCRUM is an Agile framework used for managing and completing complex projects. It is especially effective in software development, where requirements often evolve during the project lifecycle. SCRUM provides a structured approach to ensure collaboration, productivity, and continuous delivery of value to stakeholders.

## Key Characteristics of SCRUM

1. **Iterative Development:** Work is divided into short, fixed-length cycles called Sprints.
2. **Team Roles:** SCRUM defines specific roles for team members:
  - **Product Owner:** Defines the product vision and prioritizes work.
  - **SCRUM Master:** Facilitates the process and ensures adherence to SCRUM principles.
  - **Development Team:** Builds and delivers the product increment.
3. **Artifacts:**
  - **Product Backlog:** A prioritized list of features and tasks.
  - **Sprint Backlog:** A subset of the Product Backlog chosen for the current Sprint.
  - **Increment:** The working product delivered at the end of each Sprint.
4. **Meetings (Ceremonies):**
  - **Sprint Planning:** Defines the goals and tasks for the Sprint.
  - **Sprint Review:** Demonstrates the completed work to stakeholders.
  - **Sprint Retrospective:** Reflects on the Sprint to identify improvements.

# How SCRUM Was Implemented in My Project

The project involved developing a Learning platform Web Application. The application included features like course creation, assignment, tracking, and reporting. Requirements were dynamic as stakeholders frequently revised priorities.

## SCRUM Implementation Process

### 1. Initiation and Team Formation

- **Roles:**
  - **SCRUM Master:** Facilitated meetings and ensured the team followed SCRUM principles.
  - **Development Team:** Comprised four developers, including a front-end specialist, back-end specialist, and UI/UX designer .

### 2. Planning and Backlog Creation

- A Product Backlog was created by gathering requirements from stakeholders. Key features were identified, such as user authentication, task assignment, and Analytics dashboards.
- Each item was broken down into smaller tasks with estimates (e.g., "Create user login page" or "Integrate database for task storage").

### 3. Sprint Planning

- We adopted 1-week Sprints. At the start of each Sprint:
  - The team selected tasks from the Product Backlog to form the Sprint Backlog.
  - Tasks were assigned based on team expertise and capacity.

### 4. Daily Standups

- Daily 15-minute meetings ensured transparency and progress tracking.
- Team members answered:

1. What did you do yesterday?
2. What will you do today?

### 5. Sprint Review

- At the end of each Sprint, a Sprint Review was held with stakeholders to demonstrate completed features.

- Stakeholders provided feedback, which was added to the Product Backlog for future Sprints.

## 6. Sprint Retrospective

- After each Sprint, the team discussed:
  - What went well?
  - What could be improved?
  - Actionable steps for the next Sprint.

## 7. Delivering Increments

- Each Sprint resulted in a functional increment:
  - Sprint 1: Student dashboard creation.
  - Sprint 2: Teacher dashboard creation.
  - Sprint 3: Analytics dashboard creation.

## Benefits of Using SCRUM in the Project

1. **Improved Collaboration:** Clear roles and frequent communication ensured alignment among team members and stakeholders.
2. **Flexibility:** The iterative nature of SCRUM allowed us to adapt to changing requirements without disrupting progress.
3. **Enhanced Quality:** Continuous feedback and testing during Sprints improved the quality of each increment.

## Conclusion

SCRUM proved to be an effective methodology for managing the development of our Task Management Application. Its iterative approach ensured that we delivered value to stakeholders early and often while maintaining flexibility to adapt to changes. By fostering collaboration and continuous improvement, SCRUM enabled us to complete the project efficiently while meeting the dynamic needs of the business.

## References

1. Schwaber, K., & Sutherland, J. (2020). *The SCRUM Guide*.
2. Rubin, K. S. (2012). *Essential SCRUM: A Practical Guide to the Most Popular Agile Process*. Addison-Wesley.