Sri Lanka Institute of Information Technology

Software Engineering Practices

(IT5030)

Continuous Assignment – 2025, Semester 1/2

DiveMaster – Diving Certificates Management System

Sprint 1 - Report

Group Name: Code Crafters

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Table of Contents

1. INTRODUCTION 1
2. SPRINT OBJECTIVE 1
3. SPRINT BACKLOG ITEMS COMPLETED 1
4. SPRINT PROGRESS OVERVIEW 2
5. KEY DELIVERABLES & ARTIFACTS 3
6. TECHNICAL HIGHLIGHTS 3
7. CHALLENGES FACED 4
8. METRICS 4
9. RETROSPECTIVE SUMMARY 4
10. FOCUS FOR SPRINT 2 5
11. APPENDIX 5

1. Introduction

Sprint 1 focused on establishing the foundational architecture of the DiveMaster system, aligning with the Agile Scrum methodology. The team prioritized core functionalities outlined in the Product Backlog, including user authentication, course management, scheduling frameworks, and initial database design. Key objectives were to deliver a functional prototype with basic user interactions and integrate critical modules for subsequent sprints.

2. Sprint Objective

Sprint 1 focused on laying the architectural and functional foundation of the DiveMaster system. The goals were:

- Establishment of core backend services and APIs
- Initial frontend implementation of user interfaces
- Authentication and user management setup
- Basic course and dive session management modules
- Equipment and scheduling service scaffolding

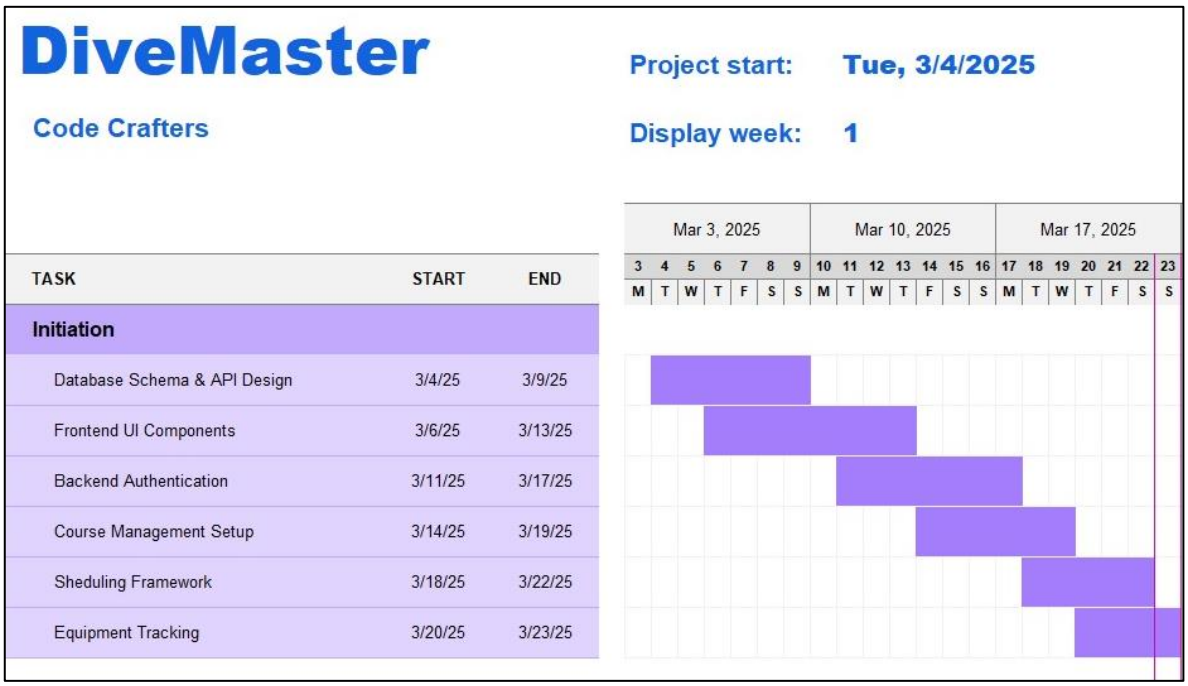
3. Sprint Backlog Items Completed

ID	User Story	Status	Owner
GU-01	Guest views diving courses and sessions	Completed	Gamlath M.G.H.C
GU-02	Guest requests account creation	Completed	Gamlath M.G.H.C
RD-01	Recreational diver account creation and login	Completed	Gamlath M.G.H.C
RD-02	Recreational diver booking functionality	Completed	Premarathne H.M.P.D
RD-05	Dive log creation (depth, time, etc.)	Completed	Singh W.M.T.R
RD-10	Equipment availability check before dive	Completed	Weerapana W.M.G.D
IN-01	Instructor views assigned students	Completed	Kaushalya M.K.B
IN-02	Instructor schedule management	Completed	Premarathne H.M.P.D
CA-01	Certification authority reviews performance records	Completed	Kaushalya M.K.B

4. Sprint Progress Overview

4.1 Sprint Burndown Chart

4.2 Gantt Chart for Sprint 1



5. Key Deliverables & Artifacts

Artifact	Description
API Blueprint	RESTful APIs for user management and course registration
User Authentication Module	JWT-based login, signup, and role-based access control (RBAC)
Course & Session Management UI	React.js interfaces for course browsing and dive bookings
Equipment Inventory Stub	Equipment availability checker and database seed setup
Scheduling Engine Prototype	Initial logic for instructor-dive session allocation with conflict resolution
Dive Log Module	Basic dive record entry and validation interface

6. Technical Highlights

- **Frameworks Used:**
    - Frontend: React.js + Tailwind
    - Backend: Laravel (REST APIs)
    - DB: MySQL (hosted), SQLite (offline app)
- **Security Implementations:**
    - Multi-Factor Authentication (MFA) stub
    - Role-Based Access Control (RBAC)
    - Encrypted data storage and secure token flows
- **DevOps & Collaboration Tools:**
    - Version Control: GitHub
    - Software Testing : Selenium
    - Team Communication: Microsoft Teams

7. Challenges Faced

Challenge	Resolution/Next Steps
Integration delays between frontend and backend	Setup Swagger documentation for seamless API testing
Incomplete offline data syncing prototype	Moved full implementation to Sprint 2 with SQLite and background sync module prioritised
Timezone-based scheduling conflicts	Added user timezone preference field; adjustment logic to be refined in Sprint 2

8. Metrics

Metric	Value
Total User Stories Completed	9
Total Story Points Completed	9/45 (20%)
Bugs Identified During Sprint	4 (all resolved)
Team Meetings Held	7 (1/week + kickoff)

9. Retrospective Summary

What Went Well:

- Effective division of modules across the team
- Clean and scalable API structure
- Smooth Git workflow and frequent peer reviews

What Can Be Improved:

- More rigorous UI testing for mobile responsiveness
- Earlier implementation of offline-first data sync logic

10.Focus for Sprint 2

Upcoming Deliverables
Implementation of AI-powered marine life tracking and signal recognition
Integration of file uploads for assessments and dive logs
Enhanced dive scheduling optimization using availability heuristics
Role-based dashboard UI development
Real-time instructor notifications and dynamic booking system refinement
Offline data syncing for mobile diving logs using Flutter and SQLite

11.Appendix

Team Member	**Primary Sprint Responsibilities**
Singh W.M.T.R	Dive log module, digital logging APIs
Premarathne H.M.P.D	Scheduling service foundation, session booking logic
Kaushalya M.K.B	Assessment backend scaffolding
Weerapana W.M.G.D	Equipment availability tracking, maintenance module base
Gamlath M.G.H.C	User authentication system and guest user interfaces