Statement of Work (SOW)

Project Title: Web Utility for Time Table Generation
Date: 7 February 2025

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1. Introduction

The "*Web Utility for Time Table Generation*" project aims to develop an efficient web-based tool for generating optimized class schedules. It will automate timetable creation, considering constraints like faculty availability, classroom vacancy, and course requirements. The platform will be user-friendly, reducing manual effort and improving scheduling accuracy for educational institutions.

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2. Scope of Work

- **Project Description:**

The project will develop an interactive web application that automates timetable generation for academic institutions. It will include a user-friendly interface, an optimized back-end algorithm, and seamless API integration for real-time scheduling.

- **Objectives:**

1. Develop a web-based solution to generate conflict-free academic timetables automatically.
2. Implement role-based access for administrators, faculty, and students.
3. Ensure scalability for different educational institutions.
4. Integrate an optimization algorithm to handle constraints effectively.
5. Ensure seamless API integration for efficient data exchange and interoperability with institutional systems.

- **Key Activities:**

1. Conduct requirements gathering and feasibility analysis.
2. Design UI/UX for an intuitive user interface.

3. Develop a robust back-end to handle scheduling logic.
4. Implement API integrations for real-time data handling.
5. Test and validate the system for accuracy and efficiency.
6. Deploy the final solution with documentation.

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3. Deliverables

[All the dates are tentative]

Deliverable	Start	End
Project Plan Document	13-02-2025	20-02-2025
UI/UX Design	21-02-2025	05-03-2025
Back-End Development (Logic)	06-03-2025	15-04-2025
API Integration and Testing	16-04-2025	28-04-2025
Final Deployment and Documentation	29-04-2025	10-05-2025

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4. Timeline and Milestones

Milestone	Description	Due Date
Project Kickoff	Initial Project Meeting	07/02/2025
Phase-1 Completion	Front/Back End Implementation	15/04/2025
Phase-2 Completion	Improvisations, API Integration	28/04/2025
Final Delivery	Submission of all Deliverables	10/05/2025

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5. Roles and Responsibilities

Responsibilities are subjected to change, based on the requirement

- **Team Members:**
  - **Anish Kumar Maganti (SE22UARI018) -** Front/Back Integration
  - **Sriman Satwik Reddy Chinnam (SE22UARI166) -**Back-End (API)
  - **Thodupunury Vamshi Krishna (SE22UARI198) -** Front-End (UI/UX)
  - **Gopu Venkata Kaashith (SE22UARI200) -** Back-End (Logic Testing)
- **Client Contact:** Software Engineering course, Mahindra University

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7. **Assumptions and Constraints**

- **Assumptions:**

1. The institution provides necessary data (course schedules, faculty availability, classroom details).
2. The system should be deployed on a cloud or institutional server.
3. Users must have basic technical knowledge to operate the web utility.

- **Constraints:**

1. Computational constraints on cloud-based deployments (Docker) may limit execution of advanced constraint-solving models.
2. The scheduling algorithm cannot guarantee an optimal solution in polynomial time for large-scale institutions due to NP-hard complexity.
3. API integration/testing depends on Postman, meaning downtime or API rate limits could disrupt functionality.
4. React-based front-end with Tailwind CSS may face “hydration issues” in SSR setups, impacting initial load performance.

8. Approval Signatures

Client:
Name: _____
Title: _____
Signature: _____
Date: _____
Service Provider:
Name: _____
Title: _____
Signature: _____
Date: _____