

Training Management System (TMS)	Software Requirement Specification
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1. Introduction

The Training Management System (TMS) Software Requirements Specification (SRS) defines the requirements for the development and implementation of a comprehensive training management system. The TMS aims to streamline and automate the management of trainers, trainees, courses, batches, assignments, and communication within a training environment. This document provides an overview of the system, its objectives, and the intended audience.

1.1 Purpose

The purpose of the TMS (Training Management System) project is to provide a comprehensive platform for managing training programs, trainers, and trainees. It aims to streamline the registration process, create and manage batches and courses, assign trainers and trainees to batches, schedule training programs, facilitate assignment creation and submission, provide a collaborative classroom environment, and enable communication through group chat. The TMS project aims to enhance the efficiency and effectiveness of training management, ensuring smooth coordination between trainers and trainees.

1.2 Scope

The Training Management System (TMS) project aims to provide a comprehensive platform for managing training programs, trainers, and trainees. The project's purpose is to enhance the efficiency and effectiveness of training management by streamlining various processes. The scope of the TMS project includes the registration of trainers and trainees, allowing the admin to capture their relevant information such as personal details, contact information, educational background, and expertise. Admin can create batches with specific start and end dates, assign trainers and trainees to these batches using a dynamic user interface, and schedule training programs within each batch. The system enables trainers to create assignments and daily tasks, set deadlines, and track trainees' progress. A collaborative classroom environment is provided where trainers can upload messages, files, and comments in a date-wise order. Trainees can search and filter the data, comment on trainer's posts, and

access a notice board managed by trainers. Trainees can submit assignments electronically in various formats, and trainers can review and evaluate the submissions. Additionally, a group chat feature facilitates communication among participants of a specific batch, enabling textual communication and the sharing of images and files. Overall, the TMS project aims to serve as a centralized platform for efficient training management, enhancing collaboration and effectiveness throughout the training process.

1.3 References

Reference	Location
Requirement Specification	

1.4 Definitions, Acronyms and Abbreviations

Term/Acronym	Definition
TMS	Training Management System
User	Someone who interacts with the application.
FR	Functional Requirement
NFR	Non-Functional Requirement
UI	User Interface
API	Application Programming Interface

2. Overall Description

2.1 Overview

Product Perspective: The Training Management System (TMS) is composed of two main components: the frontend and the backend. These components work together to provide a seamless user experience through a REST API-based connection. The frontend relies on the

backend architecture for implementation and dynamically receives resource files from the backend.

User Characteristics: The TMS system caters to three different user roles: Admin, Trainer, and Trainee. Each user can have one or multiple roles within the system.

Admin: The Admin role holds the highest level of authority in the system. Administrators have the ability to add, modify, and delete information, as well as assign roles to other users. They have complete control over system administration and configuration.

Trainer: Trainers are responsible for conducting training programs and managing course content. They have specific permissions and capabilities within the system that allow them to create assignments, set deadlines, and provide guidance to trainees. Trainers may also have access to certain administrative functions related to their training programs.

Trainee: Trainees are the individuals participating in the training programs. They have view permissions to access relevant training materials, schedules, and assignments. Trainees can interact with the system to submit their assignments and track their progress. They have limited modification permissions, primarily pertaining to their own personal data.

The TMS system is designed to cater to the specific needs of each user role, ensuring that administrators have the necessary control, trainers can effectively manage training programs, and trainees can access and engage with the training materials and assignments provided to them.

2.2 Technical platform

The technical platform for the project includes:

Backend:

- Spring Boot for Java application development
- JWT for secure authentication
- JPA for object-relational mapping
- Relational database (MySQL or PostgreSQL) for data persistence

Frontend:

- React.js for dynamic and interactive user interfaces
- RESTful APIs for communication with the backend

Security:

- JWT token-based authentication
- Authorization and access control mechanisms

Development Environment:

- IDE like IntelliJ IDEA
- Package managers like npm

User Experience:

Responsive design for a user-friendly experience on different devices.

3. Functional Requirements:

Requirement ID	Main Features	Requirement Description
FR1	Login	Users with any role can log in with their email and password
FR2	Trainers and Trainee Registration	Admin can register trainers and trainees
FR3	Create Batches	Admin can create new batches with necessary fields, including starting date and ending date
FR4	Create Courses	Admin can create courses and assign trainers to those courses

FR5	Assign Trainers/Trainees to Batches	Admin can assign trainers and trainees to specific batches
FR6	Batch Scheduling	Admin can create and manage the schedule for each batch, including assigning training programs
FR7	Assignment/Daily Task Creation	Trainers can create assignments and daily tasks, assign them to batches, and set deadlines for submission
FR8	Classroom Features with a Dashboard	Trainers can upload messages, files, and comments in the classroom
FR9	Classroom Features with a Notice Board	Trainers can manage a notice board in the classroom
FR10	Submit Assignments	Trainees can submit their assignments, and trainers can view and assess the submissions
FR11	Group Chat Feature	Participants of a specific batch can communicate through a group chat feature

4. User Interface

UI No.	UI Name	Related Function Req ID	Description
UI1	Login Screen	FR1	A screen where users can enter their credentials to log into the system
UI2	Registration Form	FR2	A form for trainers and trainees to provide their personal information for registration
UI3	Batch Creation Form	FR3	A form for the admin to create new batches, including fields for starting date,

			ending date, and other details
UI4	Course Creation Form	FR4	A form for the admin to create new courses, including fields for course name, description, and trainer
UI5	Assign Trainers/Trainees	FR5	A form for the admin to assign trainers and trainees to specific batches
UI6	Batch Schedule Management	FR6	A screen or component for the admin to create and manage the schedule for each batch
UI7	Assignment Creation Form	FR6	A form for trainers to create assignments, including fields for assignment title, description, and deadline
UI8	Classroom Dashboard	FR7	A dashboard where trainers can upload messages, files, and comments for trainees
UI9	Notice Board Management	FR8	A component for trainers to manage the notice board, including adding, editing, and deleting notices
UI10	Assignment Submission	FR9	A feature for trainees to submit their assignments, with the ability to upload files in various formats
UI11	Group Chat Feature	FR10	A chat component or screen for participants of a specific batch to

			communicate with each other
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5. Non Functional Requirements

5.1 Performance Requirements

Requirement ID	Requirement Description	Acceptability/Completion Criteria	Limitations/Constraints
NFR1	Usage of the result in the list view	The results displayed should be user-friendly and clear	None
NFR2	Response Time	Response time should be ≤ 2 seconds (100% of the time)	None
		Response time should be ≤ 1 second (100% of the time)	
NFR3	Application Portability	The application should run on any browser	None

5.2 Security Requirements (SR)

Requirement ID	Requirement Description	Acceptability/Completion Criteria	Limitations/Constraints
SR1	Front End Layer Role Check	Users should only view options associated with their role	Can be manipulated with JavaScript
SR2	Always check if the token is expired	Smooth auto login functionality	None
SR3	Always filter token for any API request	Secure authentication for API requests	None
SR4	Verify role from token to return response	Protection of sensitive data	None

6. Design Constraints

6.1 Hard Drive Space

ID: QR1

Title: Hard Drive Space

Description: The application's need for hard drive space.

Scale: The amount of hard drive space required by the application.

Measurement: Megabytes (MB).

Must: The application should not occupy more than 20 MB of hard drive space.

Plan: The target is to occupy no more than 15 MB of hard drive space.

Wish: Ideally, the application should occupy no more than 10 MB of hard drive space.

MB: Megabyte (defined unit of measurement)

6.2 Application Memory Usage

ID: QR6

Title: Application Memory Usage

Description: The amount of operating system memory occupied by the application.

Scale: Megabytes (MB).

Measurement: Observations obtained from the performance log during testing.

Must: The application's memory usage should not exceed 20 MB.

Plan: The target is to keep the application's memory usage below 16 MB.

Wish: Ideally, the application's memory usage should be below 10 MB.

7. Software Quality Attributes

Reliability

ID: SQR1

TAG: System Reliability

GIST: The reliability of the system.

SCALE: The reliability that the system gives the right result.

MUST: More than 98% of the searches.

PLAN: More than 99% of the searches.

WISH: 100% of the searches.

Availability

ID: SQR2

TAG: System Availability

GIST: The availability of the system when it is used.

SCALE: The average system availability (not considering network failing).

METER: Measurements obtained from 1000 hours of usage during testing.

MUST: More than 98% of the time.

PLAN: More than 99% of the time.

WISH: 100% of the time.