SOFTWARE REQUIREMENTS SPECIFICATION

**For**

**Task Management System**

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# Introduction

## Purpose

The main purpose of this document is to define the requirements for the development of a Task Management System. This system is designed to facilitate efficient task creation, assignment, tracking, and completion within an organization. This project describes the hardware and software interface requirements using ER diagrams and UML diagrams.

## Document Conventions

* + - Entire document should be justified.
    - Convention for Main title

Font face: Times New Roman Font style: Bold

Font Size: 14

* + - Convention for Sub title

Font face: Times New Roman Font style: Bold

Font Size: 12

* + - Convention for body

Font face: Times New Roman Font Size: 12

## Scope of Development Project

This task management system will  revolutionize the way it helps the people to get work done.This flexible software streamlines your workflows, so you can finally conquer that mile-long to-do list.

Built for adaptability, the system allows to customize features to match the team's unique needs. Easily add new capabilities as the business grows. The intuitive interface makes adoption a breeze for users of all skill levels.The platform was developed in Java to maximize performance and cross-platform compatibility. With robust libraries and developer tools, Java was the clear choice to create a system that is both powerful and scalable.

Stop juggling multiple solutions that don't sync up. Bring the tasks, projects, and people together in one place. Our software helps to execute flawlessly, delight customers, and to grow the business. The possibilities are endless when it take charge of the tasks

## Definitions, Acronyms and Abbreviations

JAVA -> platform independence SQL-> Structured query Language ER-> Entity Relationship

UML -> Unified Modeling Language

IDE-> Integrated Development Environment SRS-> Software Requirement Specification

## References

* + - Books

 "Getting Things Done" by David Allen": This classic book outlines a popular methodology for personal task management and organization.

* "The Productivity Project" by Chris Bailey": This book documents the author's year-long experiment with various productivity techniques and tools.
* Task Management for Humans" by David P. Allen and Mike Williams": This book expands on the Getting Things Done framework with practical tips and strategies.
  + - Websites

**https://toggl.com/**

https://www.redmine.org/

# Overall Descriptions

## Product Perspective

Use Case Diagram of Library Management System

*searches*

1

1 *requests*

1

1

1..\*

\*

search\_book



1..\*

check\_limit

check\_availability

User 1

issue\_book

*request\_renew*

<<include>>

*monitors\_request*

1

*monitors\_renew* 1

1

*performs*

*give\_book*

<<include>>

0..\*

1..\*

renew\_book

verify\_member

<<include>>

*take\_book*

1

1 Librarian

Student

0..\*

1..\*

*adds\_new\_book*

*perform\_transaction\_updation*

Staff

\*

\*

return\_book

View\_logs

<<extend>>

add\_book

\*

calculate\_fine

update\_record

This is a broad level diagram of the project showing a basic overview. The users can be either staff or student.. This System will provide a search functionality to facilitate the search of resources. This search will be based on various categories viz. book name or the ISBN. Further the library staff personnel can add/update the resources and the resource users from the

system.The users of the system can request issue/renew/return of books for which they would have to follow certain criteria.

## Product Function

Entity Relationship Diagram of Library Management System



The Online Library System provides online real time information about the books available in the Library and the user information. The main purpose of this project is to reduce the manual work. This software is capable of managing Book Issues, Returns, Calculating/Managing Fine, Generating various Reports for Record-Keeping according to end user requirements. The Librarian will act as the administrator to control members and manage books. The member’s status of issue/return is maintained in the library database. The member’s details can be fetched by the librarian from the database as and when required. The valid members are also allowed to view their account information.

## User Classes and Characteristics

The system provides different types of services based on the type of users [Individuals /Teams]. Users play a fundamental role in a task management system (TMS) as they are the driving force behind creating, managing, and completing tasks.

The features that are available to the individual are:-

* + - Students: Manage academic tasks, assignments, projects, and exams. Need features for prioritizing, setting deadlines, and tracking progress.
    - Freelancers: Manage multiple client projects, deadlines, invoices, and expenses. Require flexible scheduling, collaboration tools, and time tracking.
    - Remote Workers: Juggle work tasks, meetings, personal errands, and family commitments. Need time management tools, calendar integration, and mobile access.
    - Homemakers: Organize household chores, meal planning, childcare schedules, and appointments. Benefit from recurring tasks, reminders, and shared family lists.
    - Can access the account for any devices.

The features that are available for teams are:-

* + - Project Managers: Assign tasks, track progress, manage resources, and facilitate team communication. Need reporting tools, Gantt charts, and collaborative editing features.
    - Small Business Teams: Share tasks, documents, and deadlines across departments. Require role-based access control, file sharing, and project templates.
    - Creative Teams: Manage brainstorming sessions, design iterations, and feedback loops. Need visual boards, file version control, and real-time collaboration tools.
    - Customer Support Teams: Track customer tickets, prioritize issues, and collaborate on resolutions. Require ticketing systems, escalation workflows, and live chat integration.
    - Executives: Set strategic goals, delegate tasks, and monitor overall progress. Need high-level dashboards, reports, and filtered task views.

## Operating Environment

The product will be operating in windows environment. The Task Management System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Also it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection.

The hardware configuration include Hard Disk: 40 GB, Monitor: 15” Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

## Assumptions and Dependencies

The assumptions are:-

* + - The coding should be error free
    - The system should be user-friendly so that it is easy to use for the users
    - Users have consistent and reliable internet access to utilize the TMS effectively.
    - The system should have more storage capacity and provide fast access to the database
    - Users possess fundamental skills like navigating interfaces, uploading files, and using online tools.
    - Users set achievable deadlines and understand the impact of dependencies
    - Users may access from any computer that has Internet browsing capabilities and an

Internet connection

* + - Users must have their correct usernames and passwords to enter into their online accounts and do actions
    - Users actively utilize the TMS to track progress, update tasks, and collaborate effectively.

The dependencies are:-

* + - The TMS relies on a stable and scalable server environment, secure data storage solutions, and reliable network connectivity.
    - Seamless integration with existing tools like calendars, email, and communication platforms enhances user experience and workflow efficiency.
    - A native or web-based mobile app ensures task management on the go, catering to busy users and remote teams.
    - The system should have the general report stored
    - The information of all the users must be stored in a database that is accessible by the Task Management System.
    - The TMS's success hinges on user acceptance and willingness to adapt existing workflows. Training, support, and feedback mechanisms are crucial.

## Requirement

Software Configuration:-

This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.

Operating System: Windows NT, windows 98, Windows XP Language: Java Runtime Environment, Net beans 7.0.1 (front end) Database: MS SQL Server (back end)

Hardware Configuration:- Processor: Pentium(R)Dual-core CPU Hard Disk: 40GB

RAM: 256 MB or more

## Data Requirement

The inputs consist of the query to the database and the output consists of the solutions for the query. The output also includes the user receiving the details of their accounts. In this project the inputs will be the queries as fired by the users like create an account, and can assign task. Now the output will be visible when the user requests the server to get details of their account in the form of time, date and overview of individual and team task completion rates, workload, and performance.

# External Interface Requirement

## GUI

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update,deleting.

* + - It allows user to view quick reports like task assignment .
    - It provides Leverage cloud storage
    - The user interface must be customizable by the administrator
    - All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
    - The design should be simple and all the different interfaces should follow a standard

template

* + - The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module

Login Interface:-

In case the user is not yet registered, he can enter the details and register to create his account. Once his account is created he can ‘Login’ which asks the user to type his username and password. If the user entered either his username or password incorrectly then an error message appears.

Customization:-

It allows users to define custom reports based on specific data points and filter criteria.

Categories View:-

Categories view shows the categories of tasks and provides ability to the users to add/edit or delete category from the list.

Users Control Panel:-

This control panel will allow team leads to add/remove users; add, edit, or remove a resource. And manage lending options.

# System Features

The users of the system should be provided the surety that their account is secure. This is possible by providing:-

* Share tasks with team members and assign specific roles (owner, collaborator, viewer).
* Create teams and assign tasks to entire teams for efficient project execution.
* Define team roles and permissions for granular access control and accountability.
* Receive real-time notifications for task updates, deadlines, and assigned tasks.

# Other Non-functional Requirements

## Performance Requirement

The proposed system that we are going to develop will be used as the Chief performance system for each and every individuals . While functional requirements define the "what" of a TMS, non-functional requirements address the "how" and "how well" it performs. These non-referential aspects are crucial for user satisfaction and overall system effectiveness. Here are some key considerations:

The performance of the system should be fast and accurate

* + - TaskManagement System shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period. Thus it should have inbuilt error testing to identify invalid username/password
    - The system should be able to handle large amount of data.

## Safety Requirement

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

## Security Requirement

* + - System will use secured database
    - Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
    - System will have different types of users and every user has access constraints
    - Proper user authentication should be provided
    - No one should be able to hack users’ password
    - There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

## Requirement attributes

* + - There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
    - The project should be open source
    - The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
    - The user be able to easily download and install the system

## Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data.This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither admin nor member should cross the rules and regulations.

## User Requirement

Individual Users:

Create and manage tasks: Define tasks with clear titles, descriptions, deadlines, priorities, and

Tags.

rack progress and visualize workflows: Monitor task completion with progress bars, Kanban boards, or

Gantt charts.

Set reminders and notifications: Receive alerts for deadlines, upcoming tasks, and assigned work.

Attach files and notes: Add relevant documents, images, and notes to each task for context.

Break down complex tasks into subtasks: Manage large projects by dividing them into smaller, actionable

Steps.

Team Users:

Team task management: Create and assign tasks to teams, track progress, and measure team

Performance

Role-based permissions: Define user roles with specific access levels and task ownership privileges.

Team communication: Discuss tasks, share updates, and collaborate within designated team spaces.

Managers and Administrators:

User management: Create, edit, and delete user accounts, assign roles, and manage access

Permissions.

System configuration: Customize task types, workflows, and reporting features.

Security and compliance: Implement data security measures, user authentication, and audit logs.

# Other Requirements

## Data and Category Requirement

There are different categories of users namely users,Admin,Teachers, students etc. Depending upon the category of user the access rights are decided.It means if the user is an administrator then he can be able to modify the data,delete, append etc. All other users except the Librarian only have the rights to retrieve the information about database. Similarly there will be different categories of books available. According to the categories of books their relevant data should be displayed. The categories and the data related to each category should be coded in the particular format.

## Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Books, Business rules; C: Class,Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; M: Member; N: Non-functional Requirement; O: Operating environment; P: Performance,Perspective,Purpose; R: Requirement, Requirement attributes; S: Safety, Scope, Security, System features; U: User, User class and characteristics, User requirement;

## Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

* + - Administrator: A login id representing a user with user administration privileges to the software
    - User: A general login id assigned to most users
    - Client: Intended users for the software
    - SQL: Structured Query Language; used to retrieve information from a database
    - SQL Server: A server used to store data in an organized format
    - Layer: Represents a section of the project
    - User Interface Layer: The section of the assignment referring to what the user interacts with directly
    - Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
    - Data Storage Layer: The section of the assignment referring to where all data is recorded
    - Use Case: A broad level diagram of the project showing a basic overview
    - Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system’s cases, their attributes, and the relationships between the classes
    - Interface: Something used to communicate across different mediums
    - Unique Key: Used to differentiate entries in a database

## Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes’ structure and their relationships to each other frozen in time represent the static model. In this project there are certain main classes

which are related to other classes required for their working. There are different kinds of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here ‘Librarian’, ‘Member’ and ‘Books’ are the most important classes which are related to other classes.

