Loyola ICAM College of Engineering and Technology

Software Requirement Specification

For

ToDo List Application

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1. INTRODUCTION

1.1 Purpose

The purpose of this document is to provide a comprehensive Software Requirements Specification (SRS) for the ToDo List Application (TLA). This document serves as a guide for the design, development, and testing of the TLA, detailing both functional and non-functional requirements. It aims to establish a shared understanding among project stakeholders, including developers, testers, and end-users, ensuring the successful implementation of the system.

1.2 Document Convention

The entire document is justified. The conventions for text formatting are as follows:

- Main Title:
    - Font face: Times New Roman
    - Font size: 20
    - Font style: Bold
- Subtitle:
    - Font face: Times New Roman
    - Font size: 17
    - Font style: Bold
- Header:
    - Font face: Times New Roman
    - Font size: Bold
    - Font style: 13
- Body:
    - Font face: Times New Roman
    - Font size: Normal
    - Font style: 11

1.3 Scope of Development Project

The scope of the ToDo List Application involves creating a digital solution that enables users to manage and organize their tasks effectively. It includes features for creating, editing, and deleting tasks, setting priorities, and deadlines. The application will facilitate collaboration among users and provide cross-platform accessibility. As task management is a universal need, the application aims to enhance user productivity and organization across various domains.

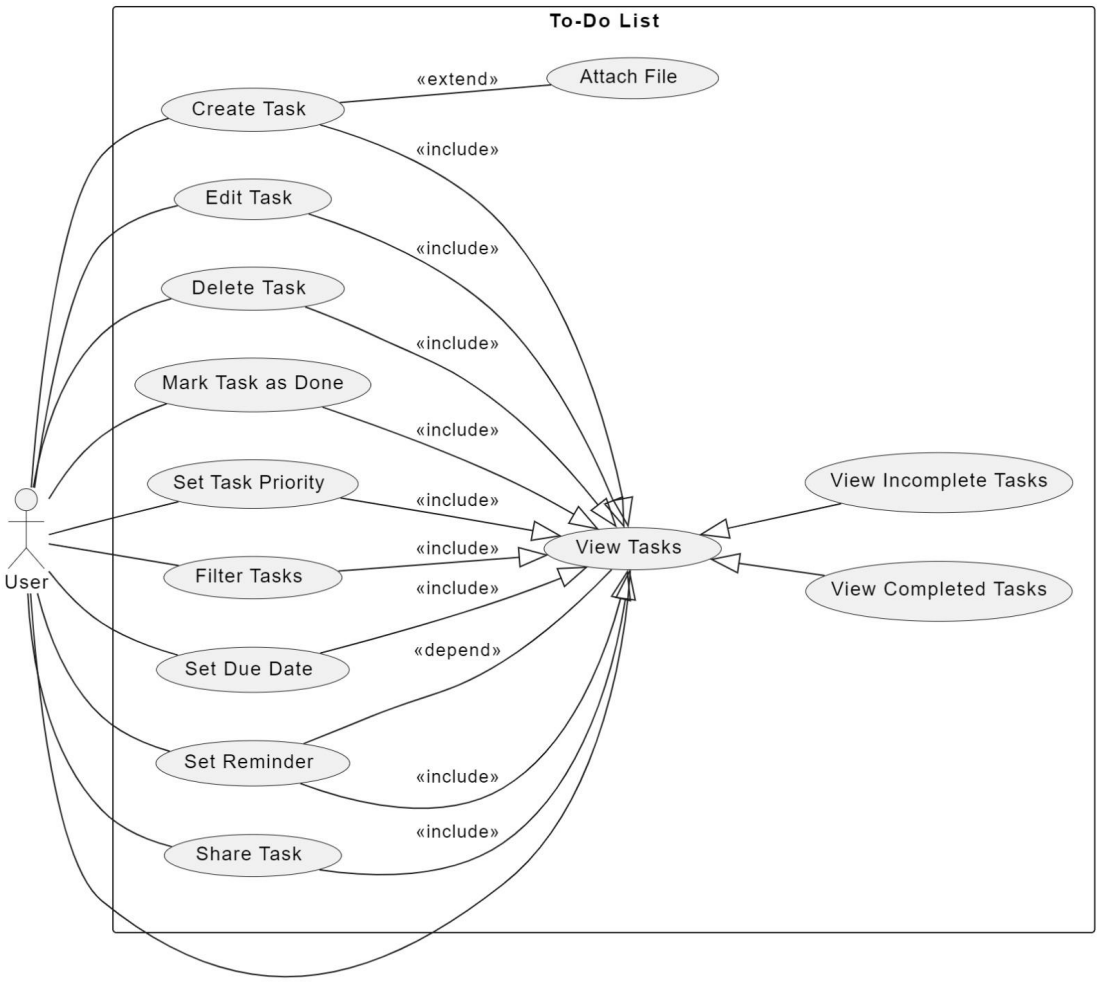
1.4 Definitions, Acronyms, and Abbreviations

- TLA: ToDo List Application
- ER: Entity Relationship
- UML: Unified Modeling Language
- IDE: Integrated Development Environment
- SRS: Software Requirement Specification

2. OVERALL DESCRIPTION

2.1 Product Perspective

Use Case Diagram For ToDo list Application



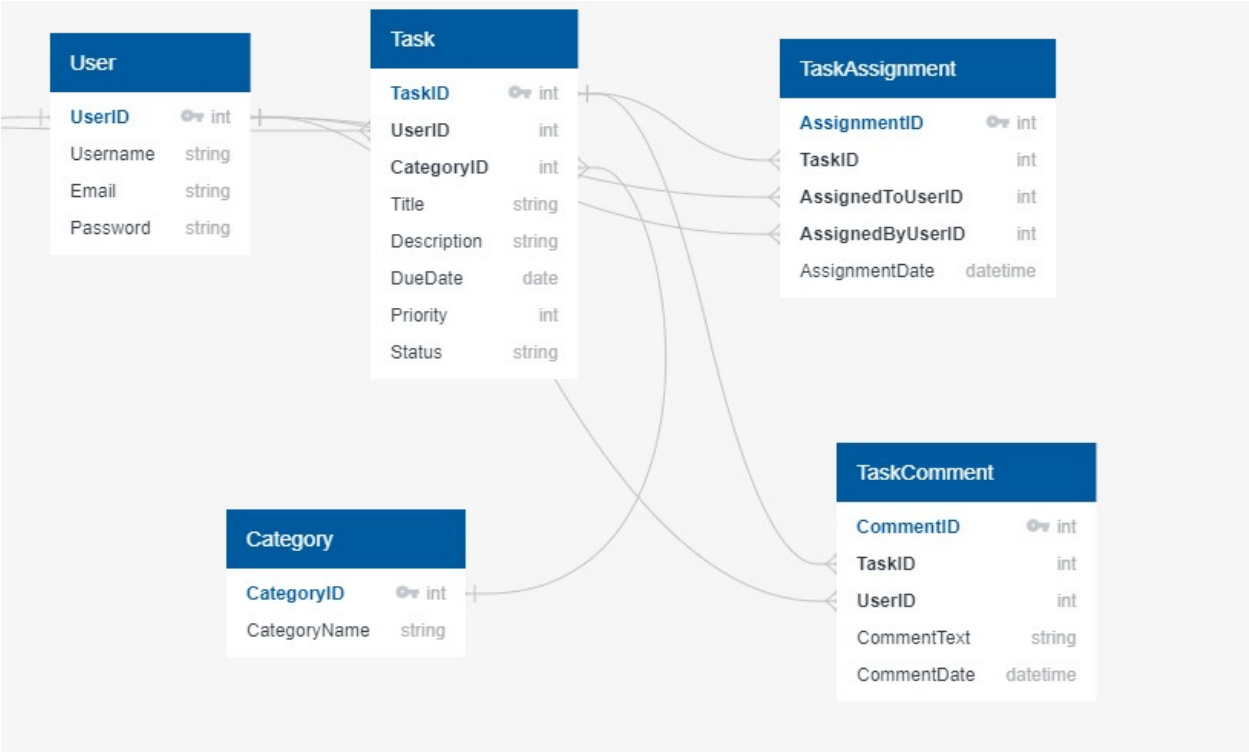
In the ToDo List Application, users play a central role in creating, managing, and completing tasks. The flow begins with users who can log in and log out of the system, ensuring secure access to their ToDo list. Users can create tasks, set priorities, and mark tasks as completed. The application also supports collaboration, allowing users to share tasks and communicate within the platform. On the administrative side, an Admin actor can log in, log out, and manage user accounts, ensuring the application's smooth operation.

2.2 Product Function

The ToDo List Application focuses on streamlining task management processes, reducing manual effort. Users can create, edit, and delete tasks, categorize and prioritize them, and set due dates. The system

maintains records of user activity and allows users to access their task information. Admins oversee user accounts and ensure the application's overall functionality.

ER Diagram for ToDo list Application



2.3 User Classes and Characteristics

Standard User:

- Registers an account with a unique username and password.
- Logs in to access the application's features.
- Creates, edits, and deletes tasks.
- Categorizes and prioritizes tasks.
- Sets due dates and receives reminders.
- Collaborates with others by sharing tasks.
- Views personal task history and progress.

Administration(Admin):

- Has administrative privileges to manage the application.
- Can add, edit, or remove user accounts.
- Monitors and maintains the overall functionality of the application.

2.4 Operating Environment

The ToDo List Application is designed to operate within a versatile computing environment. It is compatible with multiple operating systems, including Windows 10, Windows 11, and Ubuntu. The application functions seamlessly in popular web browsers such as Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox.

2.5 Assumptions and Dependencies

Assumptions:

- User Engagement: Users are assumed to actively use the application for task management.
- Device Compatibility: Users have access to compatible devices, such as computers or smartphones.
- Data Accuracy: The application assumes users input accurate task data for reliable tracking.
- Internet Connectivity: Users have a reliable internet connection for accessing and syncing data.

Dependencies:

- Data Sources: The application relies on accurate task data from user input.
- Server Infrastructure: The application's performance depends on the reliability of server infrastructure.
- Mobile Platforms: If there's a mobile app version, it depends on mobile operating system policies.

2.6 Requirements

- Operating System: Windows 10, Windows 11, Ubuntu
- Language: Java, HTML, CSS
- Framework: Spring
- Database: MySQL Server

2.7 Data Requirements

The ToDo List Application involves inputs and outputs that facilitate user interactions with the system. Inputs consist of user queries sent to the database, while outputs encompass query results and user task details.

3. EXTERNAL INTERFACE REQUIREMENTS

3.1 GUI

The Todo List application's graphical user interface (GUI) will comprise a user-centric web interface featuring the following essential components:

- **Login and Registration Pages**: Users will access the application through secure login credentials. New users can register through a dedicated registration page to create their accounts.
- **Task Management Pages**: The core functionality revolves around task management. Users can create, view, edit, and organize their tasks through an intuitive and efficient interface.
- **User Profile Page:** A dedicated space for users to manage their personal information, preferences, and settings. This page will allow users to customize their experience within the application.
- **Navigation Menus and Buttons:** Clear and intuitive navigation elements will facilitate seamless movement between different sections of the application. Menus and buttons will offer easy access to various features and functionalities, ensuring a smooth user experience.

This user-friendly web interface aims to enhance accessibility, ease of use, and efficiency for users engaging with the Todo List application.

4. SYSTEM FEATURES

The system will have the following features:

User authentication: The user authentication feature ensures a secure login process. A user-friendly password recovery mechanism will be implemented, allowing users to securely regain access to their accounts in the event of forgotten passwords. This may involve email verification or security questions.

Task creation and management: Users can effortlessly create tasks through an intuitive interface, providing input fields for essential details such as task title, description, due date, and priority. Clear and user-friendly form validation ensures accurate data input.The system enables dynamic editing of tasks, allowing users to modify task details, update due dates, and adjust priorities as their requirements evolve. Changes made are instantly reflected in the user interface.

Task organization and categorization: Users can create custom categories to organize tasks based on specific criteria. Tasks within each category are dynamically sorted based on priority levels, ensuring that users can focus on high-priority items. This feature promotes efficient task management and planning.

User profile management: Users can filter tasks based on priority levels and completion status, providing a quick overview of pending tasks and those requiring immediate attention. This feature enhances task visibility and prioritization.
Users have the ability to customize their profiles by adding personal information, profile pictures, and other relevant details. This feature enhances the user experience by providing a personalized touch.

Search and filter functionality: Tasks can be filtered based on due dates, enabling users to focus on upcoming deadlines or review completed tasks within specific time frames. This functionality enhances task planning and retrospective analysis.

5. OTHER NON-FUNCTIONAL REQUIREMENTS

5.1 Performance Requirement

- **Application Responsiveness:** The application's responsiveness is a critical aspect of user experience. It is mandated that the application responds to user interactions within a stringent time frame of 2 seconds. This response time ensures that users receive immediate feedback, enhancing the perception of a smooth and efficient task management system.
- **Concurrent Access:** The ToDo List Application is designed to accommodate concurrent user sessions seamlessly. It should maintain optimal performance even under a substantial load of concurrent users. This involves efficient resource management, optimized database queries, and a scalable architecture to prevent performance degradation during periods of high user activity.

5.2 Safety Requirement

- **Secure Storage:**User data, including sensitive information such as passwords, will be stored with a paramount focus on security. Additionally, sensitive data will be transmitted securely over encrypted channels to prevent interception.

- **Data Backup and Recovery:** To ensure data safety, a robust backup and recovery mechanism will be implemented. Regular backups of user data will be performed, and procedures for swift data recovery in the event of data loss or system failure will be established.

5.3 Security Requirement

- **Authentication and Authorization:** Robust user authentication and authorization mechanisms will be implemented to safeguard against unauthorized access. Secure login processes, multi-factor authentication options, and granular authorization levels will ensure that only authorized users have access to specific functionalities within the application.
- **Protection from vulnerabilites:** The application will be fortified against common web vulnerabilities, such as Cross-Site Scripting (XSS) and Cross-Site Request Forgery (CSRF). Input validation, output encoding, and anti-CSRF tokens will be incorporated into the development process to prevent malicious exploits and enhance overall security.

5.4 Requirement Attributes:

- **Administrative Access:**
  Attribute: Accessibility
  Description: Multiple authorized administrators have the capability to adjust system configurations, whereas regular users lack this privilege.
- **Open Source:**
  Attribute: Licensing
  Description: The project is intended to be open source, allowing community contributions, promoting transparency, and enabling customization.
- **Database Quality:**
  Attribute: Usability
  Description: The database prioritizes user-friendliness to ensure easy interaction and data retrieval for all users.
- **Ease of Installation:**
  Attribute: Installation
  Description: Users will experience a simple download and installation process, streamlining system setup.

5.5 Business Rules for the Todo List Application:

- **User Registration:** Users must provide accurate information during registration, limiting each individual to one active account.
- **Privacy and Data Handling**: User data is handled confidentially, compliant with data protection laws. Users have data access, modification, or deletion rights upon request, and anonymized data may be utilized for service improvements.
- **Exercise and Workout Data Entry:** Users are responsible for accurately inputting exercise data. They are encouraged to consult healthcare professionals for tailored exercise recommendations. Historical exercise data entry is supported.

- **Safety and Health Warnings:** The application must provide safety guidelines for exercises that may pose risks. Users should consult healthcare professionals before starting new exercise programs, especially with preexisting medical conditions.

5.6 User Requirements for the Todo List Application:

- **User Registration and Profiles:** Account creation should be user-friendly with customizable profiles for personal details and workout goal setting.
- **Task Management:** Users need the ability to efficiently manage tasks, including categorization, priority setting, and status tracking.
- **Reminder and Notification System:** Users can opt-in for notifications, reminders, and alerts related to task deadlines, updates, or specific events within the application.

These outlined requirements and rules define the essential functionalities, guidelines, and user expectations for the Todo List Application.

6. OTHER REQUIREMENTS

6.1 Class Diagram

A class diagram detailing the application's class structure will be provided as part of the project documentation.