Software Requirements Specification

for

WorkSpy

Version 1.0

Prepared by
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Contents

Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1.0	Mahnoor Zia, Anoosha Khalid, Laiba Iqrar	Initial version of the document created. This includes all foundational elements and project descriptions.	November 6, 2024

1   Introduction

Overview

WorkSpy is an advanced time and task management application designed to enhance team productivity and streamline project workflows. This intuitive platform empowers teams and managers to efficiently track time, manage tasks, and monitor project progress through a comprehensive suite of features. Workspy aims to:

- Increase Productivity: Simplify task management and time tracking for streamlined operations.

- Enhance Visibility: Provide real-time insights into project status and team performance, ensuring clarity and alignment.

- Improve Collaboration: Facilitate seamless communication and coordination across team members for cohesive project management.

1.1   Document Purpose

The purpose of this SRS document is to clearly outline what **WorkSpy** is all about and what it needs to deliver. Specifically, this document outlines the requirements for version **1.0** which is the **first official** release of the software. Aimed at providing a complete picture of Workspy's features, design goals, and performance expectations, this document serves as a go-to guide for everyone involved. Throughout the development process, this document will help keep us on track and focused on building a tool that truly meets the needs of our users.

1.2   Product Scope

The primary objective of **Workspy** is to foster a culture of transparency and accountability within teams. By providing real-time insights into project statuses, individual performance metrics, and task completion rates, Workspy empowers users to prioritize their workloads effectively.

Key benefits: Improved collaboration among team members, enhanced visibility into ongoing projects, and streamlined task management processes. Ultimately, Workspy aims to support operational excellence and drive productivity by equipping teams with the tools they need to succeed in today's fast-paced work environment.

1.3   Intended Audience and Document Overview

The primary audience for this SRS document comprises the client and the professor supervising the project. For the client, this document provides valuable insights into the functionalities, objectives, and anticipated outcomes of Workspy, enabling them to assess how effectively the application meets their business needs. Conversely, the professor will focus on the technical aspects, methodologies, and compliance with project requirements throughout the development process.

We recommend the following reading sequence for both the client and the professor:

* Overview Section: Begin with the introduction to understand the purpose and objectives of both the document and the **Workspy** application.

* Scope of the Product In this area, we outline the application's boundaries and the benefits associated with its implementation. This will help the client evaluate how Workspy aligns with their specific needs and expectations.

* Functional Requirements: This section is particularly important for the professor, as it details the specific functionalities the application must deliver.

* Non-Functional Requirements: Here, we address performance metrics, usability standards, and other quality attributes that are essential for ensuring the application meets the necessary criteria for success. This section is vital for both the client and the professor to comprehend the quality expectations for **Workspy**.

* Use Cases: This area presents practical examples of how different user types will interact with the application.

1.4   Definitions, Acronyms and Abbreviations

- GUI - Graphical User Interface

- SRS - Software Requirements Specification

- UI - User Interface

1.5   Document Conventions

This document follows specific formatting conventions to enhance readability and professionalism. The entire document is formatted in **Times New Roman font** at 12-point size. The headings of the main sections are bold and centered. Bullet points and asterisk are employed for lists, allowing for concise presentation of key features, and critical terms are emphasized in bold to highlight important concepts. Consistency in terminology and style is maintained throughout to facilitate understanding among readers.

1.6   References and Acknowledgments

Websites

[1] IEEE Std 830-1998, "IEEE Recommended Practice for Software Requirements Specifications," IEEE, 1998.

[2] User Interface Style Guide, [Online]. Available: https://alltimedesign.com/. [Accessed: Oct. 27, 2024].

[3] Use Case Document for Workspy, [Online]. Available: https://www.geeksforgeeks.org/use-case-diagram/. [Accessed: Oct. 29, 2024].

[4] SRS guideline for Workspy, [Online]. Available: https://www.geeksforgeeks.org/software-requirement-specification-srs-format/. [Accessed: Oct. 27,2024].

Books
[1] I. Sommerville, *Software Engineering*, 8th ed. Upper Saddle River, NJ: Pearson Education, 2011.

2   Description

2.1   Product Perspective

Our application is a self-contained solution, built from scratch to address a unique gap in existing systems. It's not an update or continuation of any previous product; instead, it offers original features designed for seamless interaction between managers and employees. As an independent platform, it effectively manages data, facilitates user interactions, and supports efficient communication within the organization, ensuring and enhancing overall productivity.
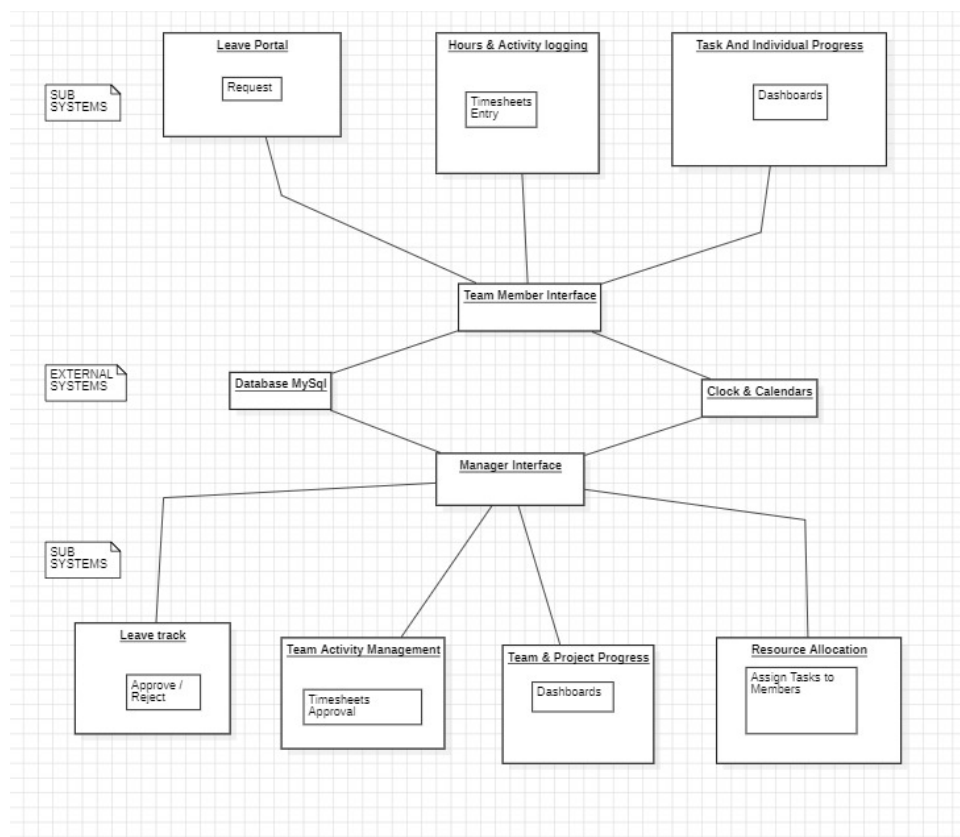

Figure 1: WorkSpy Environment Interaction Diagram.

2.2   Product Functionality

The product will provide the following major functionalities:

Team Member Interface

- Personal Dashboard:

    – Access assigned tasks and upcoming deadlines.
    – Log work hours for tasks and projects.

- Task Management:

  – Create tasks with relevant details linked to manager-assigned deliverables.

  – Update task statuses and add comments.

- Time and Activity Log:

  – Create daily time sheet entries.

  – Track and review past activities and time logs.

Manager Interface

- Dashboard Overview:

  – Visualize ongoing projects with progress indicators.

  – Monitor individual and team performance metrics.

- Project Management:

  – Create and assign new projects with defined goals.

  – Establish milestones and track deadlines.

- Time Tracking:

  – Analyze time logs submitted by team members.

- Team Management:

  – Allocate resources based on project needs.

  – Conduct performance reviews for team members.
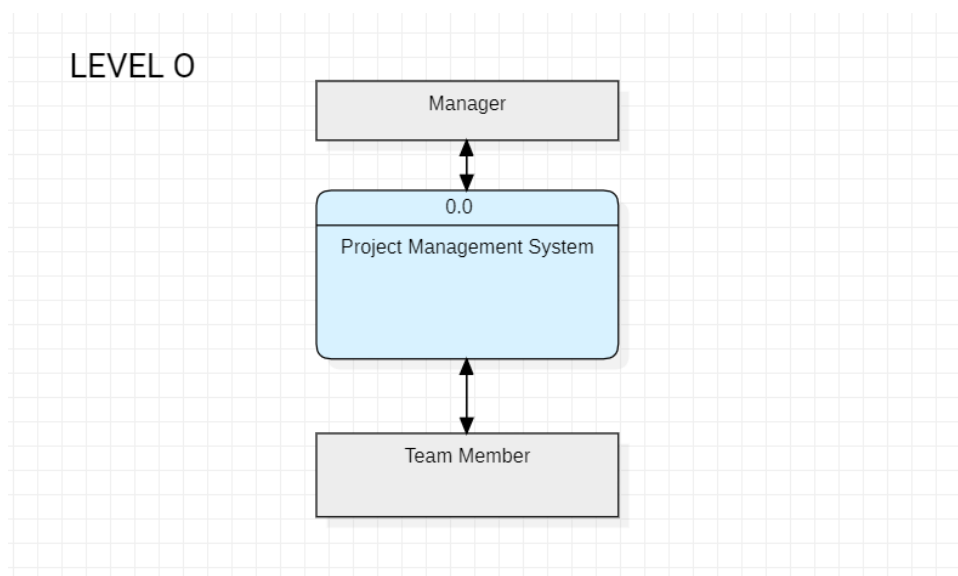
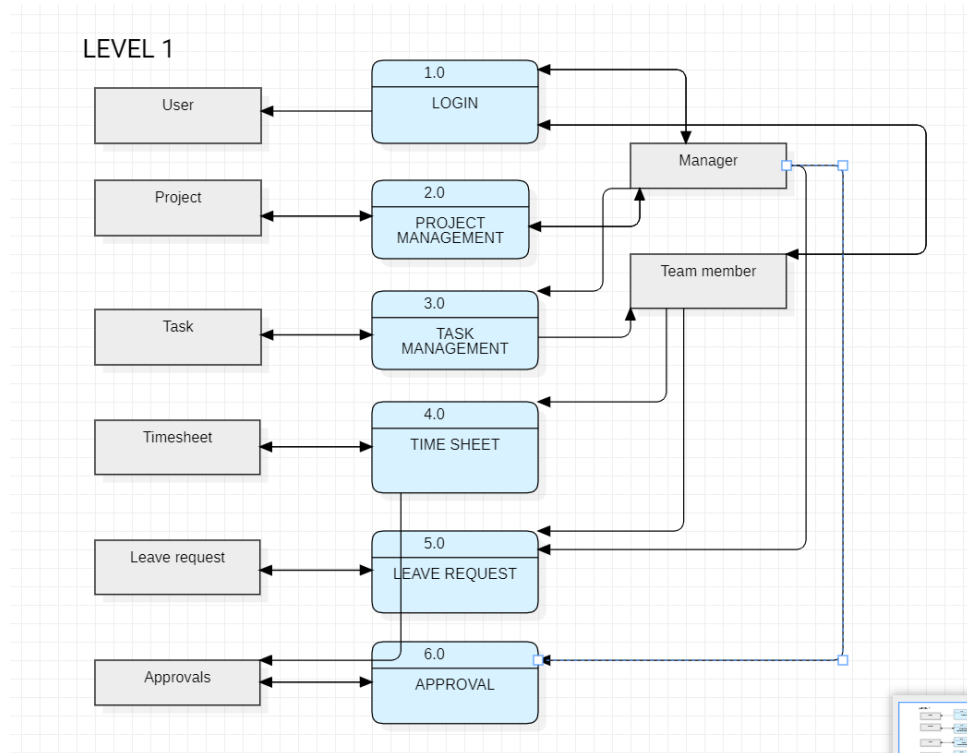## DATAFLOW DIAGRAM OF WorkSpy:

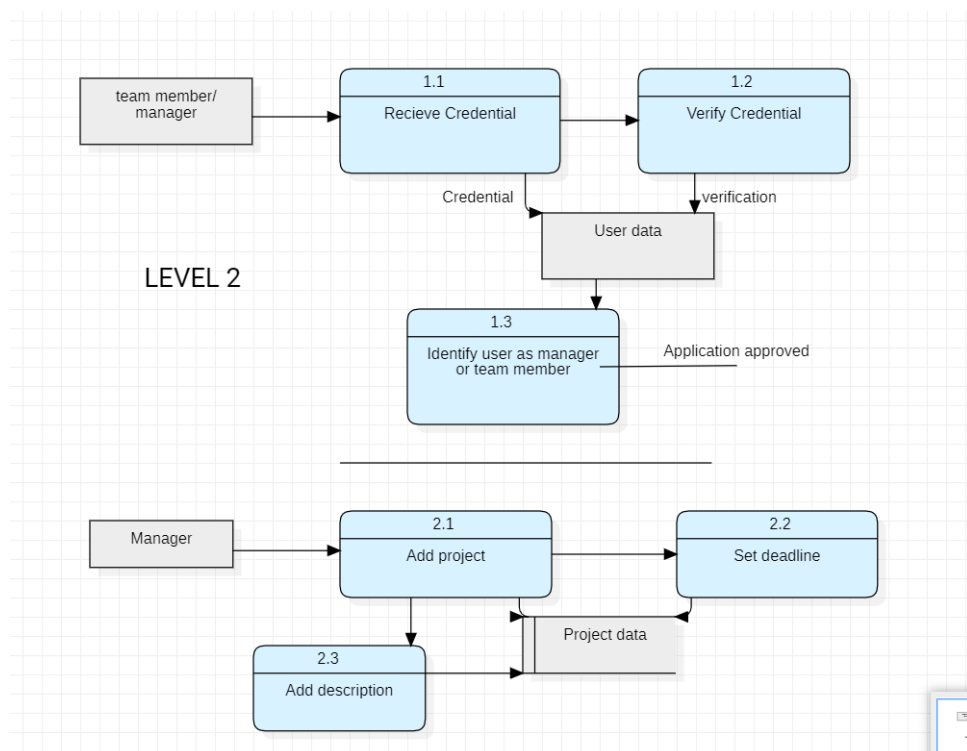Figure 2: Level 0, DFD of WorkSpy

Figure 3: Level 1, DFD of WorkSpy

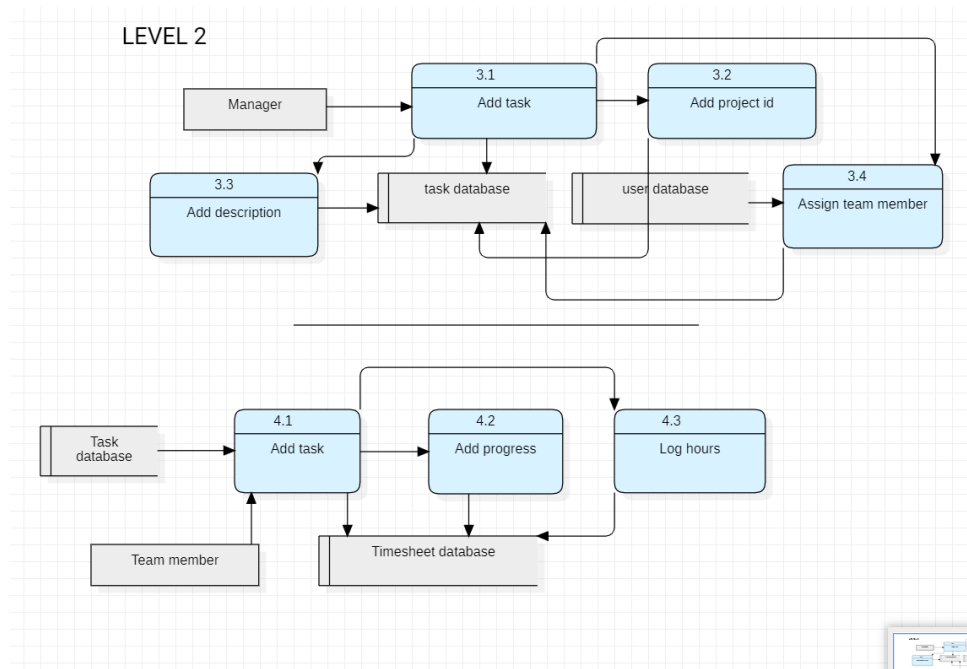Figure 4: Level 2, DFD of WorkSpy

9

Figure 5: Level 2, DFD of WorkSpy
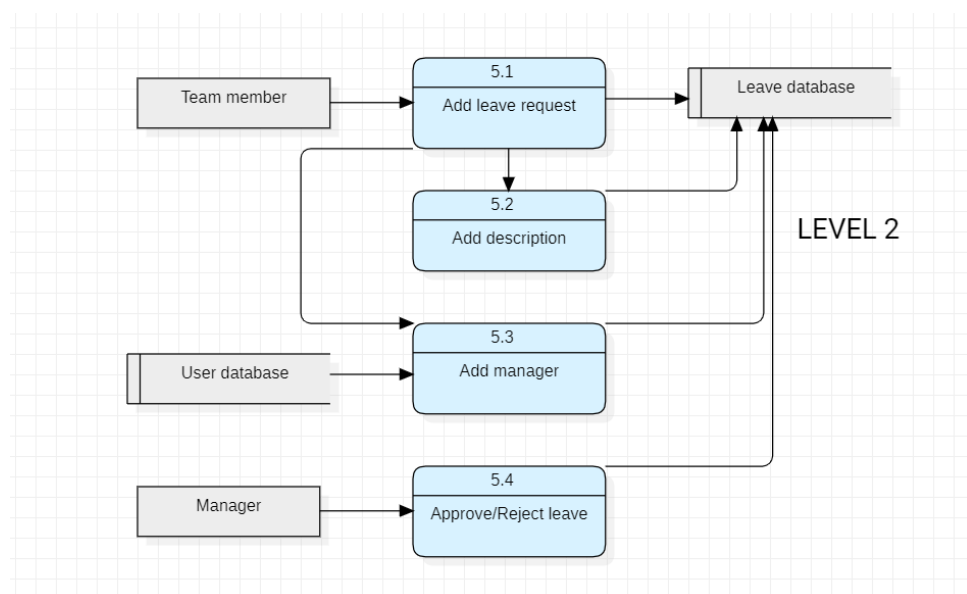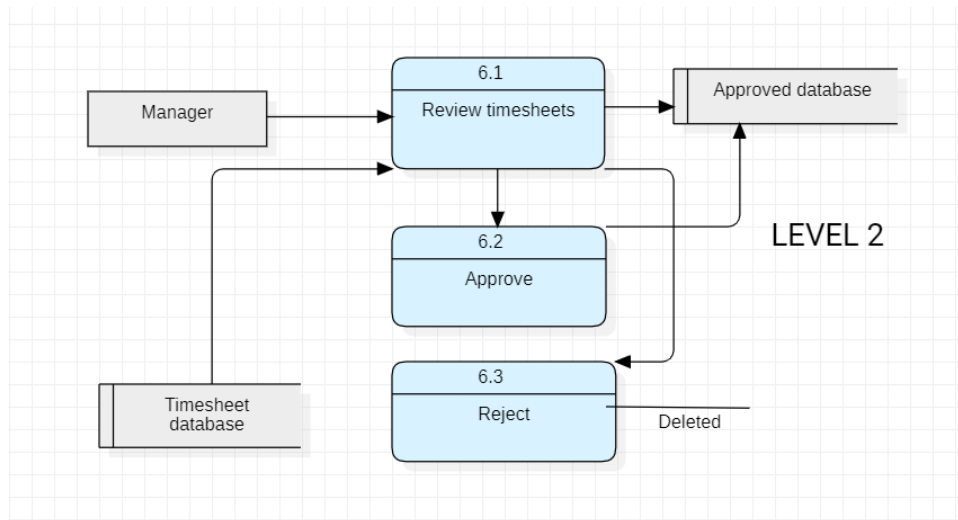

Figure 6: Level 2, DFD of WorkSpy

Figure 7: Level 2, DFD of WorkSpy

2.3   Users and Characteristics

2.3.1   Characteristics

Managers

- Usage Frequency: Regularly monitor projects and team performance.

- Functions Used: Focus on dashboard overview, project management, team management, and time tracking.

- Technical Expertise: Comfortable with technology but not tech-savvy.

- Security Level: Have administrative access to create projects and review performance.

- Education & Experience: Should be expertise in the field of management.

Team Members (Employees)

- Usage Frequency: Use the app daily for task management.

- Functions Used: Primarily use personal dashboard, task management, and time tracking.

- Technical Expertise: Familiar with standard software applications.

- Security Level: Limited to managing personal tasks.

- Education & Experience: May include students or recent graduates.

Table 1 - Characteristics of Users in WorkSpy

Characteristic	Managers	Team Members
Usage Frequency	High	Moderate to High
Functions Used	Project and team management	Task management
Technical Expertise	Moderate	Basic to Moderate
Security Level	High	Standard
Education & Experience	Management degrees	Varies; students or graduates

2.3.2   Importance of Users

Most Important: Managers are crucial since their oversight ensures project success. Their needs and feedback should be prioritized.

Less Important: Team Members play a vital role in day-to-day operations, but their requirements are secondary to the overall project objectives. Their focus is on effective task completion and collaboration within the project's scope.

2.4   Operating Environment

The software will operate in a versatile environment, requiring a minimum hardware setup of a 2 GHz processor, 4 GB RAM, and 500 MB of available disk space. It will be compatible with Windows 10/11, macOS, and popular Linux distributions like Ubuntu. Additionally, the system must coexist with database management systems such as MySQL for efficient data handling.

```
Client Side (User Interface)
            |
            v
Application Server (Business Logic)
            |
            v
   Database Server (MySQL)
```
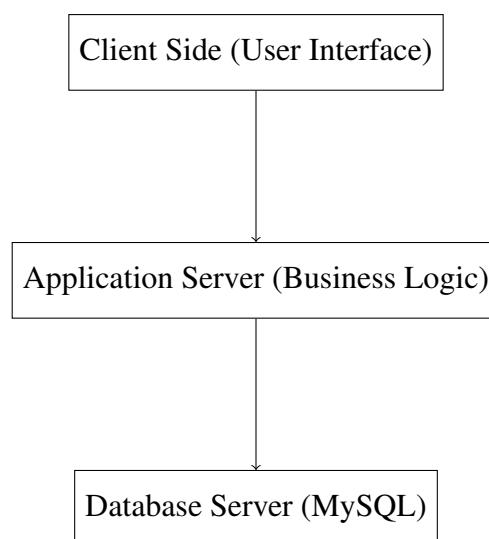
Figure 8: Block Diagram of the Operating Environment

2.5   Design and Implementation Constraints

The development of this product will be limited by these constraints:

Constraints

1. Hardware Limitations: The application requires devices with at least 2 GHz processors, 4 GB RAM, and sufficient disk space, limiting performance and complexity.

2. Software Compatibility: Must work with MySQL or PostgreSQL, restricting framework and library choices.

3. Development Tools: The project will use Node.js, limiting options to compatible libraries and frameworks.

4. Security Protocols: Compliance with security standards is required, necessitating robust data protection measures.

5. User Experience: The application must cater to users with varying technical skills.

2.6   User Documentation

For our software **WorkSpy**, we'll provide essential user documentation to ensure a smooth experience. This will include a comprehensive user manual that details all features with step-by-step instructions. Additionally, there will be an online help section for quick access to context-specific assistance. All documentation will be available in PDF format for offline access and HTML for easy online use.

2.7   Assumption and Dependencies

For **WorkSpy**, several key assumptions could impact the design and functionality of the system. First, we assume that users will have reliable internet access, as the application will require connectivity for real-time data synchronization. Second, it is assumed that the target users possess a basic level of technical proficiency to navigate the application effectively.

We expect to rely on MySQL for database management, assuming compatibility with existing systems. Any changes to these assumptions could significantly affect the overall design and user experience of WorkSpy.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

- **Login and Signup Screen:** A clean interface for email, username and password entry, featuring a "Forgot Password?" link.

- **Dashboard:** The main screen post-login, providing an overview of projects, tasks, and performance metrics with quick access widgets.

- **Project Management Screen:** Manager can create, view, edit, and delete projects, assign team members, set deadlines, and track progress.

- **Task Management Screen :** Manager can create, assign, prioritize tasks, and filter them by status, due dates, and assigned users.

- **Timesheet Page:** Users should fill the timesheets daily for records and manager can see and approve or reject it.

- **Reports and Analytics Screen:** For managers, this screen generates performance reports using visual graphs and charts.
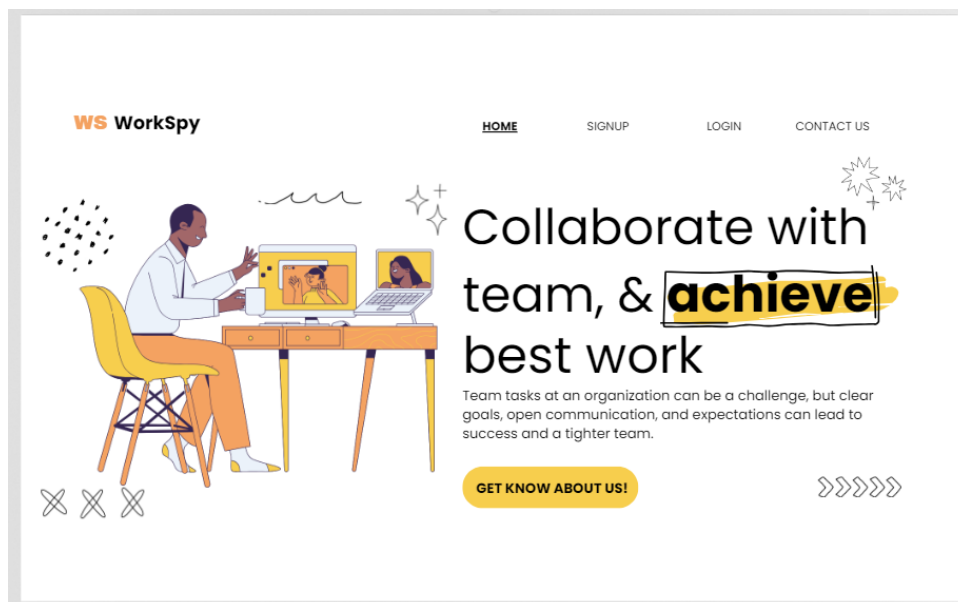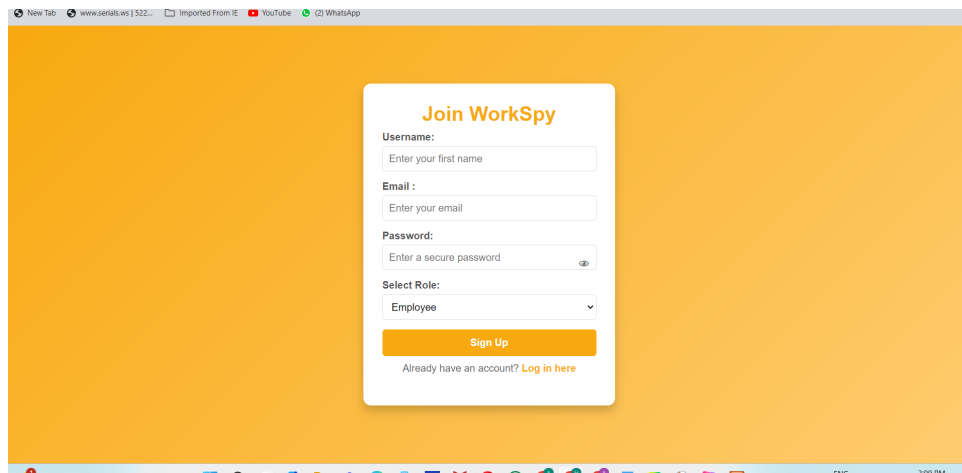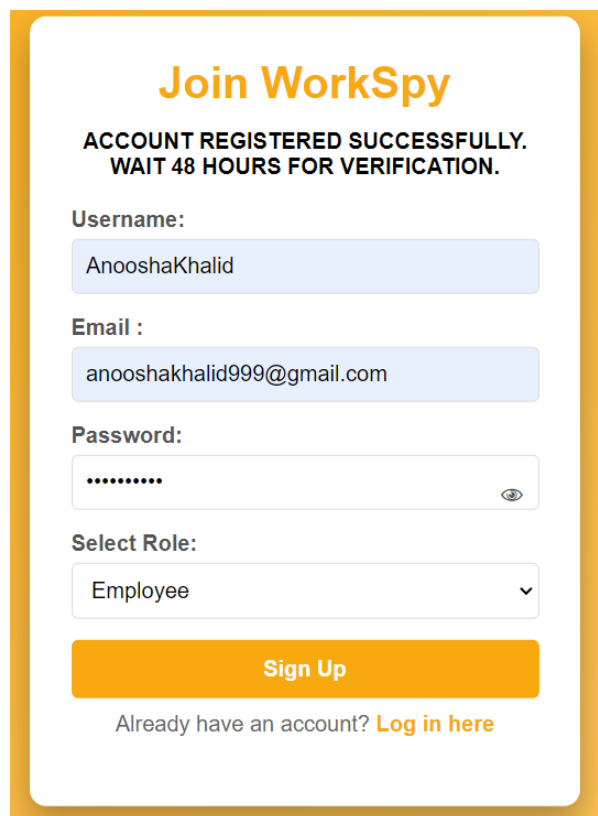

Figure 9: This is an index page of WorkSpy.

Figure 10: This is a signup page of WorkSpy.

Figure 11: This is for a verification of user.
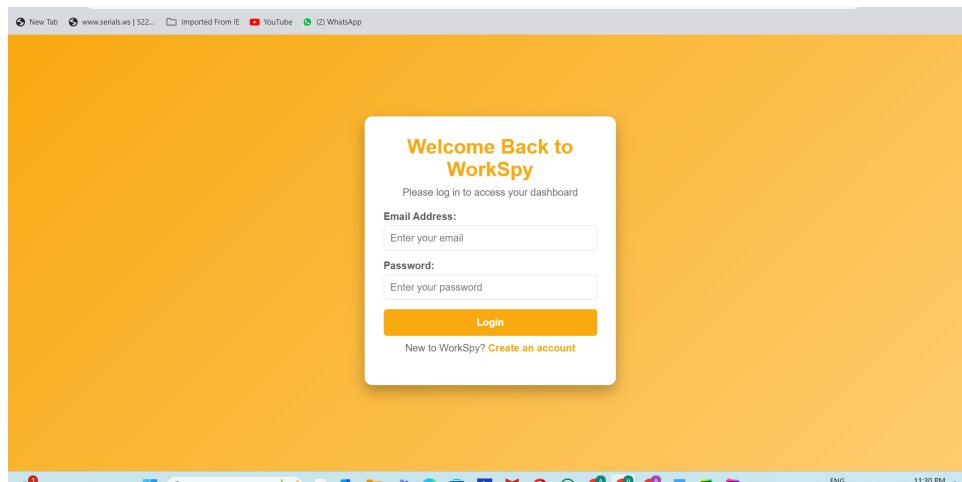
Figure 12: This is a login page of WorkSpy.
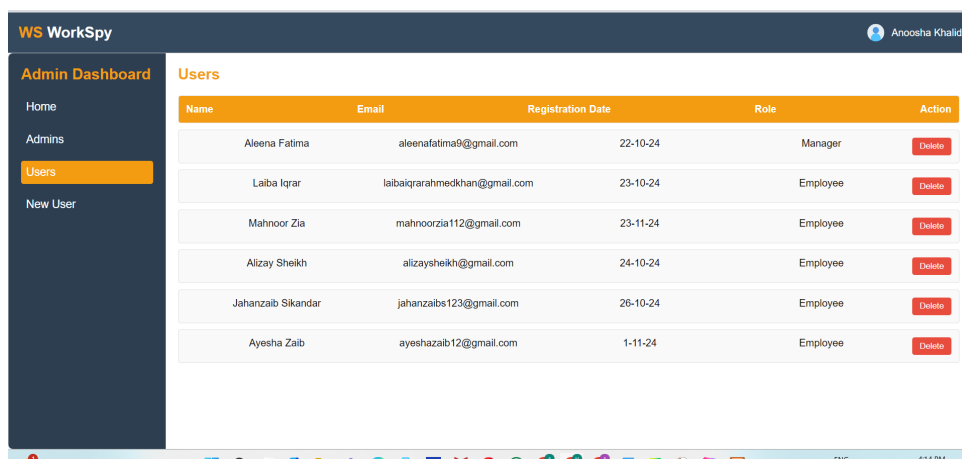
Figure 13: This is an admin dashboard of WorkSpy.
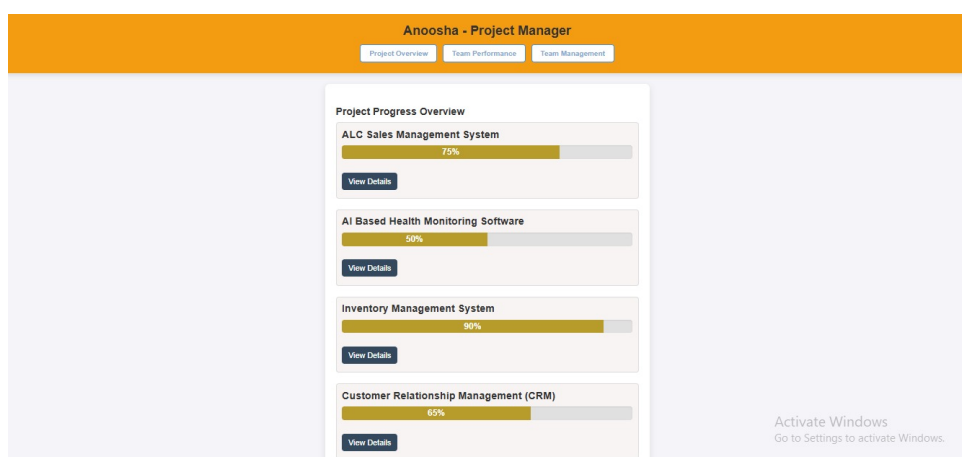
Figure 14: WorkSpy's dashboard

Figure 15: WorkSpy's dashboard

Figure 16: WorkSpy's dashboard

3.1.2   Hardware Interfaces

WorkSpy, is designed exclusively for standard desktop and laptop computers. It will utilize a mouse and keyboard for navigation and input. There are no special libraries required for hardware communication, as standard input/output functionality is supported natively on these devices

3.1.3   Software Interfaces

For **WorkSpy**, the software will interface with the OS to manage file storage, networking, and user authentication, compatible with Windows or other OS.

3.1.4   Communications Interface

For **WorkSpy**, we'll use key communication standards to keep data safe and ensure smooth integration. All data sent between users and the server will be encrypted, so information stays private and secure, likely through SSL/TLS protocols to prevent unauthorized access.

We'll also rely on RESTful API standards, which makes it easier for WorkSpy to connect with other systems if needed. This approach helps keep things organized and sets us up well for future integrations or updates.

3.2   Functional Requirements

3.2.1   User Management

- User Registration:

    - Create a new user account.
    - Validate email format and uniqueness.

- User Login:

    - Authenticate user credentials.
    - Provide feedback for incorrect login attempts.

- Password Management:

    - Allow users to reset their passwords via email.
    - Update passwords securely.

- Role Management:

    - Assign roles (e.g., manager, team member).
    - Update user roles as needed.

3.2.2   Project and Task management

- Project Creation:

    - Set up new projects with title and description.

- Task Creation:

    - Create tasks with descriptions and deadlines.
    - Assign tasks to specific team members.

- Task Tracking:

    - Monitor task progress with timesheets.

- Project Editing:

    - Update project details (e.g., goals, deadlines).
    - Modify team task assignments as needed.

- Task Updates:

    - Update task status (e.g., pending, in progress, completed).
    - Add comments to tasks.

- Task Filtering:
    - Filter tasks by status, assignee, or due date.

3.2.3   Time Tracking

- Time Logging:
    - Log hours worked on tasks and projects.

- Time Sheet Management:
    - Create and manage daily time sheet entries.

- Data Visualization:
    - Present data through graphs and charts.
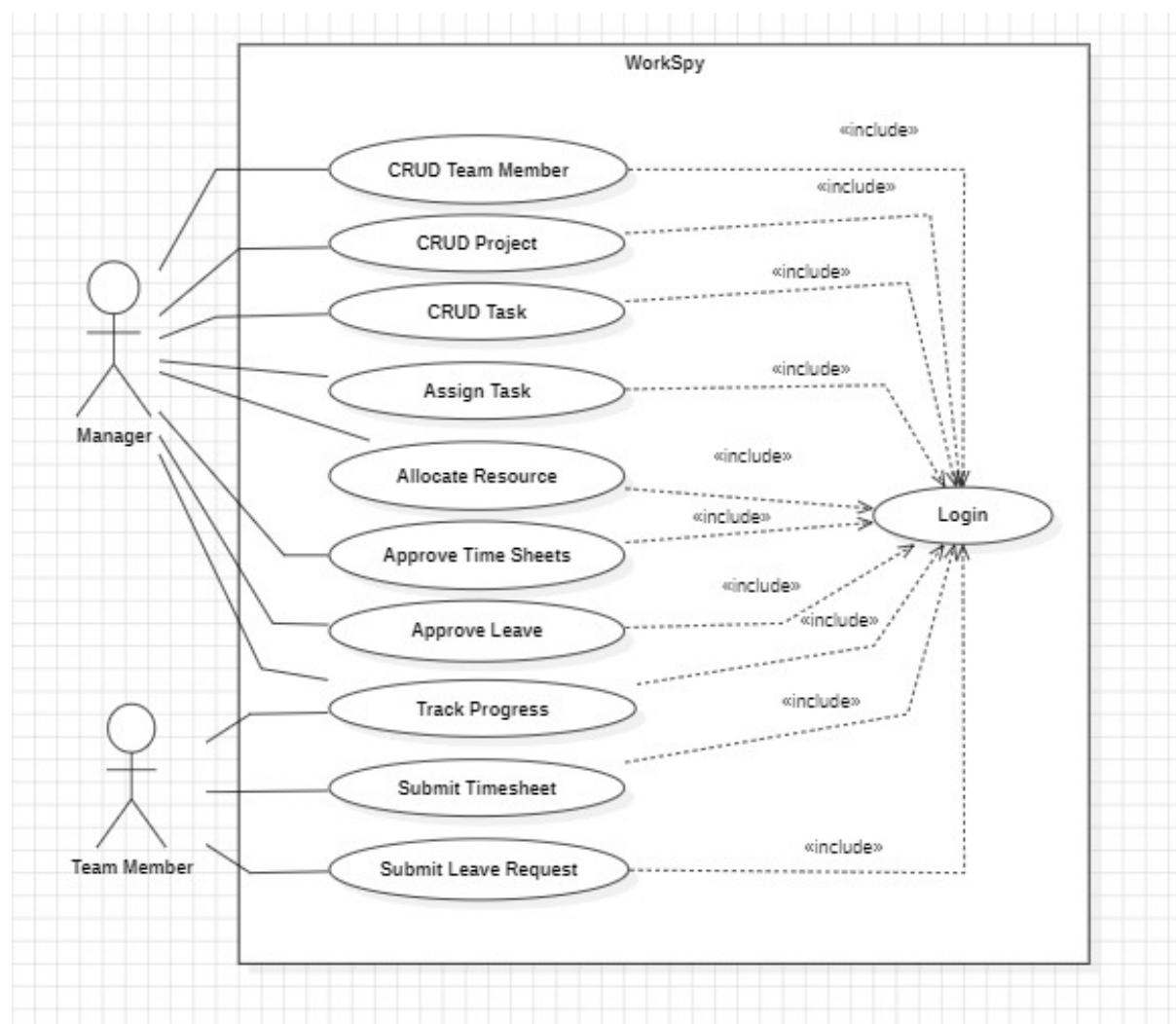
3.3   Behaviour Requirements

3.3.1   Use Case View

Figure 17: UseCase Diagram of WorkSpy.

19

4 Other Non Functional Requirments

4.1 Performance Requirements

Below are the some performance requirements for **WorkSpy:**

1. Authentication and login should complete within 2 seconds for optimal user experience.
2. The system should handle at least 100 concurrent users without performance degradation.
3. Data retrieval operations must be completed within 2 seconds under normal load conditions.
4. System availability should be 99.9% during operational hours.
5. System response times (e.g., button clicks, form submissions) should be under 500 milliseconds to ensure real-time interaction.

4.2 Safety and Security Requirements

Safety Requirements

1. Data Backup: Regular data backups ensure that, in case of system failure, all user data remains intact.

2. User Privacy: Protecting personal data is a priority; only authorized users can view sensitive information.

3. Error Handling: Immediate alerts for critical errors.

Security Expectations & Requirements

The client expects secure handling of data, with the following measures:

- User Authentication: After signup user can't login unless approved by the admin.

- Data Encryption: Encrypt password to protect user information.

- Automatic Logout: Sessions expire after a set period to prevent unauthorized access due to inactivity.

4.3 Software Quality Attributes

4.3.1 Reliability

Reliability ensures that the software performs consistently and correctly under expected conditions.

Requirements

- Error Handling: The software shall implement robust error handling mechanisms to manage unexpected inputs and system failures. For instance, when a user enters invalid data, the application should display a clear and informative error message rather than crashing.

Implementation Plan

- Automated Testing: We will develop a comprehensive suite of automated tests, including unit tests and integration tests to validate software behavior and identify issues before deployment.
  To support **WorkSpy's** consistent performance, automated error handling will be integrated.

4.3.2 Maintainability

If a code is understandable, easy to modify means it is also maintainable.

Implementation Plan

- Code Reviews: We will establish a code review process to ensure that all changes are scrutinized for clarity.

4.3.3 Usability

It means how usable a software is to a user.

Implementation Plan

- Transparent UI: **WorkSpy** will feature an intuitive UI, including visual timesheet summaries, simple interface, transparent dashboard and guidance for all users.

4.3.4 Security

Security refers to the measures and practices implemented to protect user, systems etc.

Implementation Plan

- Password Encryption and Role based access: To protect user information, **WorkSpy** will employ encryption for passwords while role-based access control will restrict access to sensitive information.

Apendix A - Data Dictionary

Table 2 - Data Dictionary

Entity	Constant	Description	Requirement	Data Type
USERS	user_id	Unique identifier for each user. Primary key, Auto-increment.	Required	INT, PK
	first_name	User's first name.	Required	VARCHAR(50)
	last_name	User's last name.	Required	VARCHAR(50)
	email	Unique email address for each user.	Required, Unique	VARCHAR(100), Unique
	password	Encrypted user password.	Required	VARCHAR(255)
	role	User role, either 'employee' or 'manager'. ENUM type.	Required	ENUM('employee', 'manager')
	is_active	Account active status. Defaults to TRUE.	Not Required	BOOLEAN, Default TRUE
	created_at	Account creation timestamp.	Not Required	TIMESTAMP, Default CURRENT_TIMESTAMP
	updated_at	Account last update timestamp. Auto-updates on modification.	Not Required	TIMESTAMP, Auto-update
PROJECTS	project_id	Unique identifier for each project. Primary key, Auto-increment.	Required	INT, PK
	project_name	Project's name.	Required	VARCHAR(100)
	description	Project description.	Not Required	TEXT

Entity	Constant	Description	Requirement	Data Type
	milestone	Major project milestone description.	Not Required	TEXT
	deadline	Project deadline.	Required	DATE
	created_at	Project creation timestamp.	Not Required	TIMESTAMP, Default CURRENT_TIMESTAMP
	updated_at	Project last update timestamp. Auto-updates on modification.	Not Required	TIMESTAMP, Auto-update
TASKS	task_id	Unique identifier for each task. Primary key, Auto-increment.	Required	INT, PK
	project_id	Identifier for related project. Foreign key.	Required	INT, FK
	user_id	ID of user assigned to the task. Foreign key.	Required	INT, FK
	assign_by	ID of user who assigned the task. Foreign key.	Required	INT, FK
	task_desc	Detailed task description.	Required	TEXT
	created_at	Task creation timestamp.	Not Required	TIMESTAMP, Default CURRENT_TIMESTAMP
	updated_at	Task last update timestamp. Auto-updates on modification.	Not Required	TIMESTAMP, Auto-update
TIMESHEETS	timesheet_id	Unique identifier for each timesheet. Primary key, Auto-increment.	Required	INT, PK

Entity	Constant	Description	Requirement	Data Type
	user_id	ID of user submitting the timesheet. Foreign key.	Required	INT, FK
	task_id	ID of related task. Foreign key.	Required	INT, FK
	total_hours	Total hours worked.	Required	DECIMAL(5,2)
	status	Current status of the timesheet entry. ENUM type.	Not Required	ENUM('In progress', 'Not started', 'Completed'), Default 'In progress'
	comments	Comments on the timesheet entry.	Not Required	TEXT
	created_at	Timesheet creation timestamp.	Not Required	TIMESTAMP, Default CURRENT_TIMESTAMP
APPROVALS	approval_id	Unique identifier for each approval. Primary key, Auto-increment.	Required	INT, PK
	timesheet_id	ID of related timesheet. Foreign key.	Required	INT, FK
	manager_id	ID of approving manager. Foreign key to users.	Required	INT, FK
	status	Approval status. ENUM type.	Not Required	ENUM('pending', 'approved', 'rejected'), Default 'pending'
	comments	Manager's comments on the approval.	Not Required	TEXT
	approval_date	Date of approval action.	Not Required	TIMESTAMP, Default CURRENT_TIMESTAMP

Entity	Constant	Description	Requirement	Data Type
LEAVE _REQUESTS	leave_id	Unique identifier for each leave request. Primary key, Auto-increment.	Required	INT, PK
	user_id	ID of user submitting leave request. Foreign key.	Required	INT, FK
	leave_type	Type of leave. ENUM type.	Required	ENUM('sick', 'vacation', 'personal')
	start_date	Start date of leave.	Required	DATE
	end_date	End date of leave.	Required	DATE
	reason	Reason for leave request.	Not Required	TEXT
	status	Approval status for the leave request. ENUM type.	Not Required	ENUM('pending', 'approved', 'rejected'), Default 'pending'
	request_date	Date leave was requested.	Not Required	TIMESTAMP, Default CURRENT_TIMESTAMP
	approval_date	Date leave was approved or rejected.	Not Required	DATE