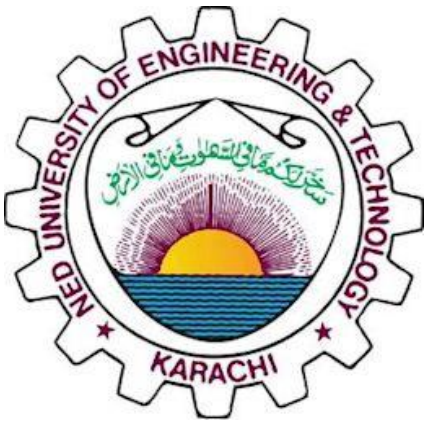
SOFTWARE ENGINEERING (CS-326)

PROJECT: WORKSPY DESIGN DOCUMENT



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CHAPTER 1
INTRODUCTION

1.1 Purpose of the Document

The purpose of this document is to provide a structured design for the WorkSpy. Specifically, this document outlines the design flow for version 1.0 which is the first official release of the software, 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 Scope of the Project

The primary objective of Workspy is to foster a culture of transparency and accountability within teams. By providing real-time insights into project statuses, managing timesheets, 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 Definitions/Abbreviations

- GUI-Graphical User Interface
- SRS-Software Requirements Specification
- UI- User Interface

1.4 References

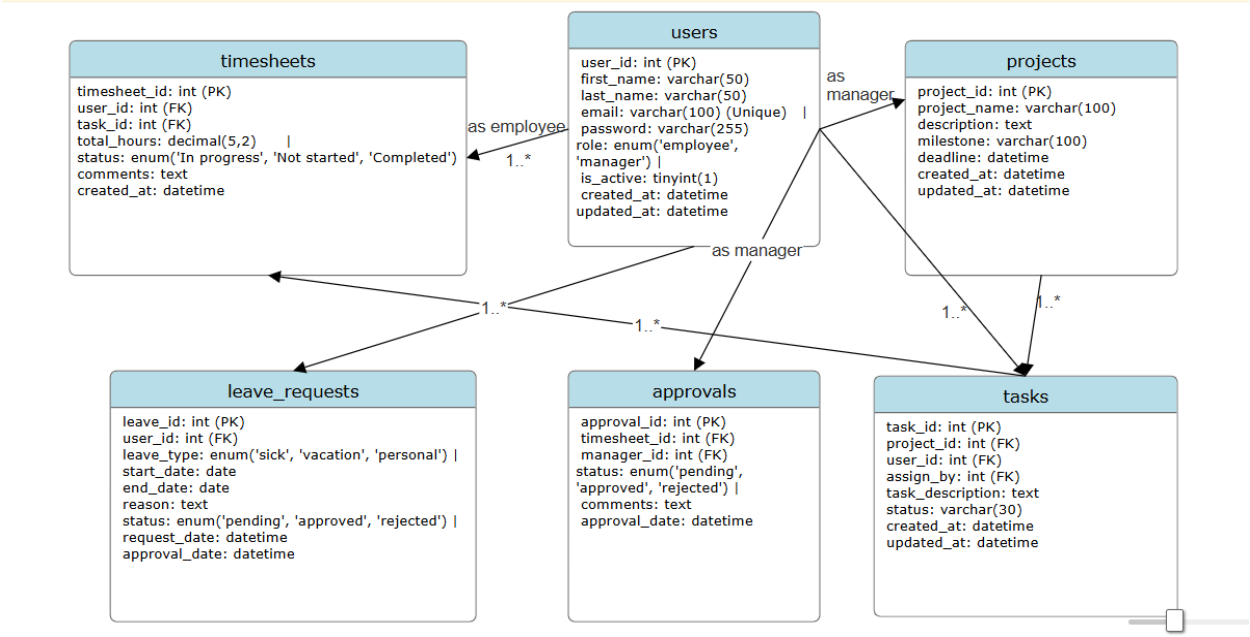
- Sommerville, I., Software Engineering.
- Pressman, R. S., Software Engineering: A Practitioner's Approach.

1.5 Overview of the Rest of the Document

- Chapter 2 covers object-oriented design, including class diagrams and a data dictionary.
- Chapter 3 discusses functional modelling using Data Flow Diagrams (DFD).
- Chapter 4 illustrates behavioural modelling with a state transition diagram.
- Chapter 5 presents interaction modelling with use case and sequence diagrams.

CHAPTER 2
OBJECT-ORIENTED DESIGN

2.1 Class Diagram



2.2 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

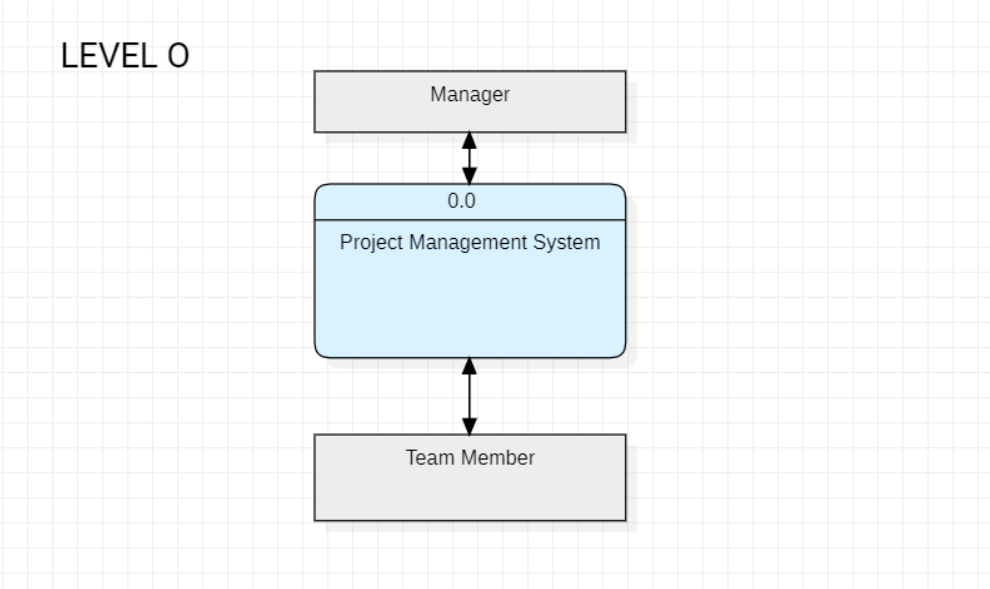
Entity	Constant	Description	Requirement	Data Type
	milestone	Major project milestone description.	Not Required	TEXT
	deadline	Project deadline.	Required	DATE
	created_at	Project creation timestamp.	Not Required	TIMESTAMP, Default CURRENT_TIMESTAMP
	updated_at	Project last update timestamp. Auto-updates 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

	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

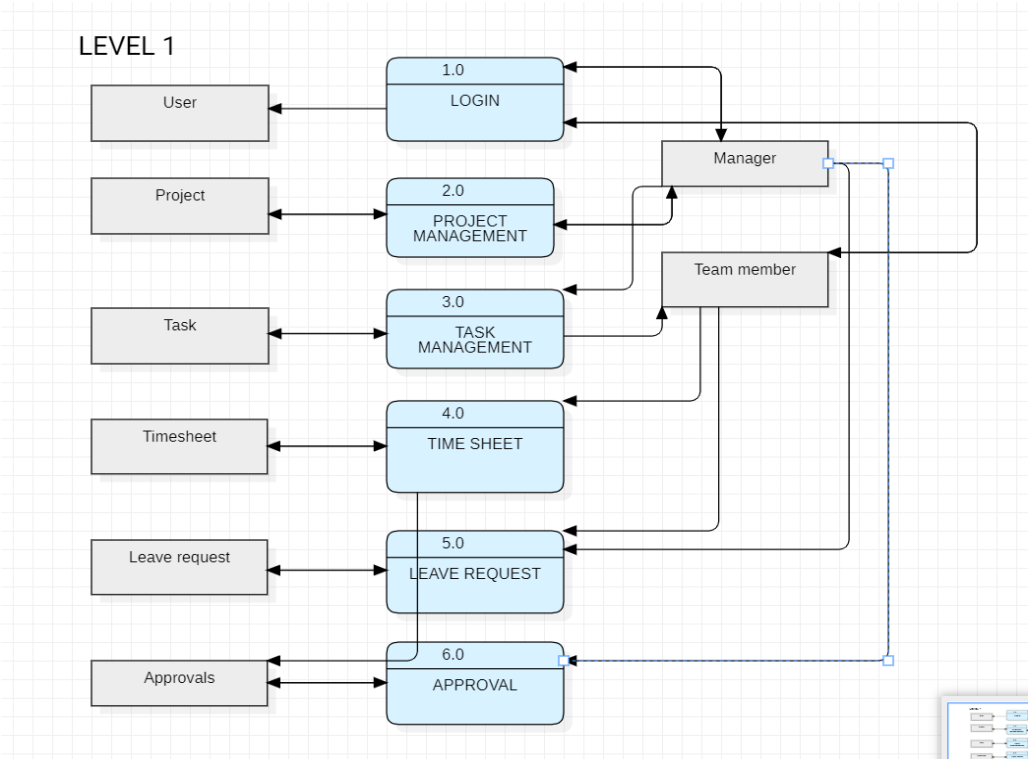
Entity	Constant	Description	Requirement	Data Type
	user_id	ID of user submitting the timesheet. Foreign key.	Required	INT, FK
	task_id	ID of related task. Foreign key.	Required	INT, FK
	total_hours	Total hours worked.	Required	DECIMAL(5,2)
	status	Current status of the timesheet entry. ENUM type.	Not 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
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

CHAPTER 3
FUNCTIONAL MODELING

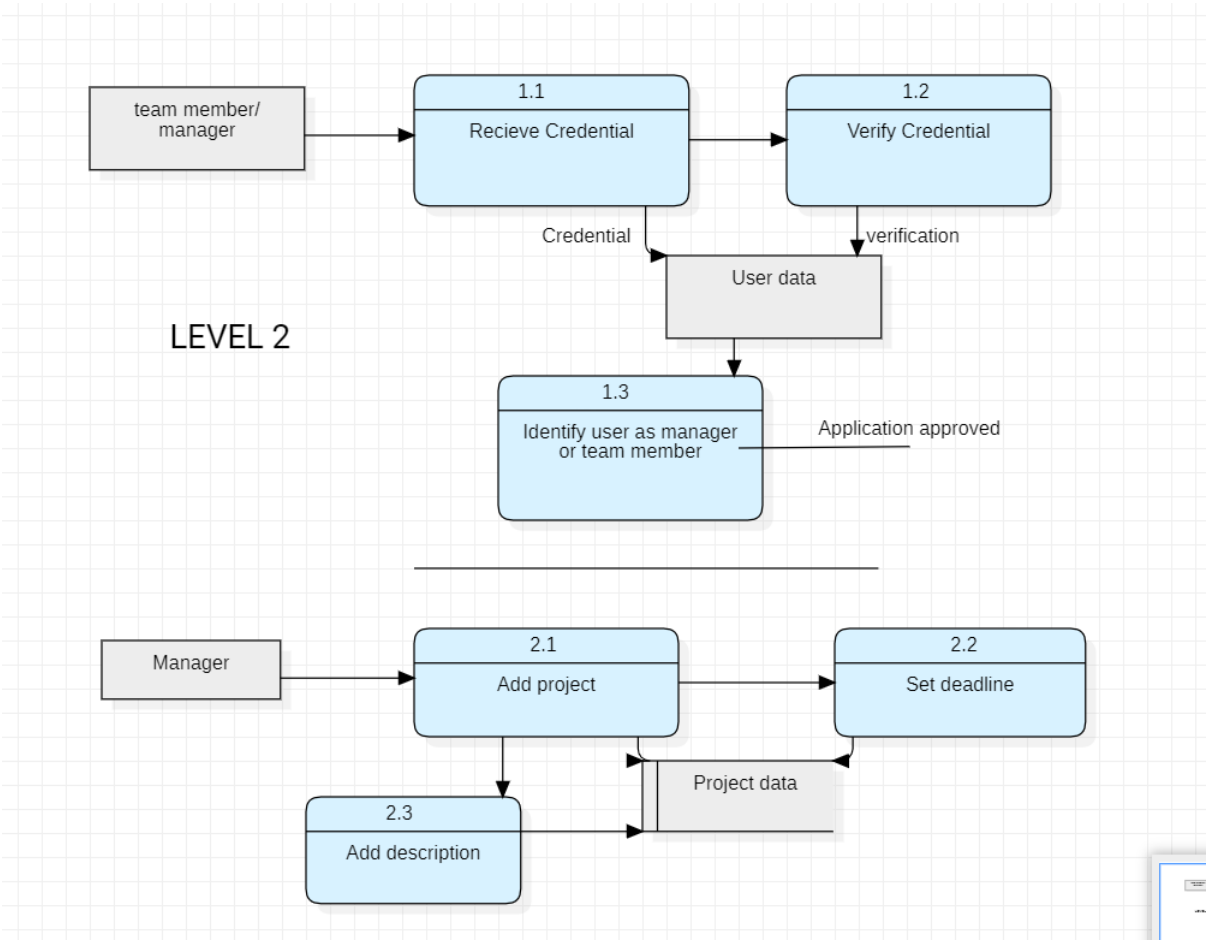
3.1 DFD Level 0

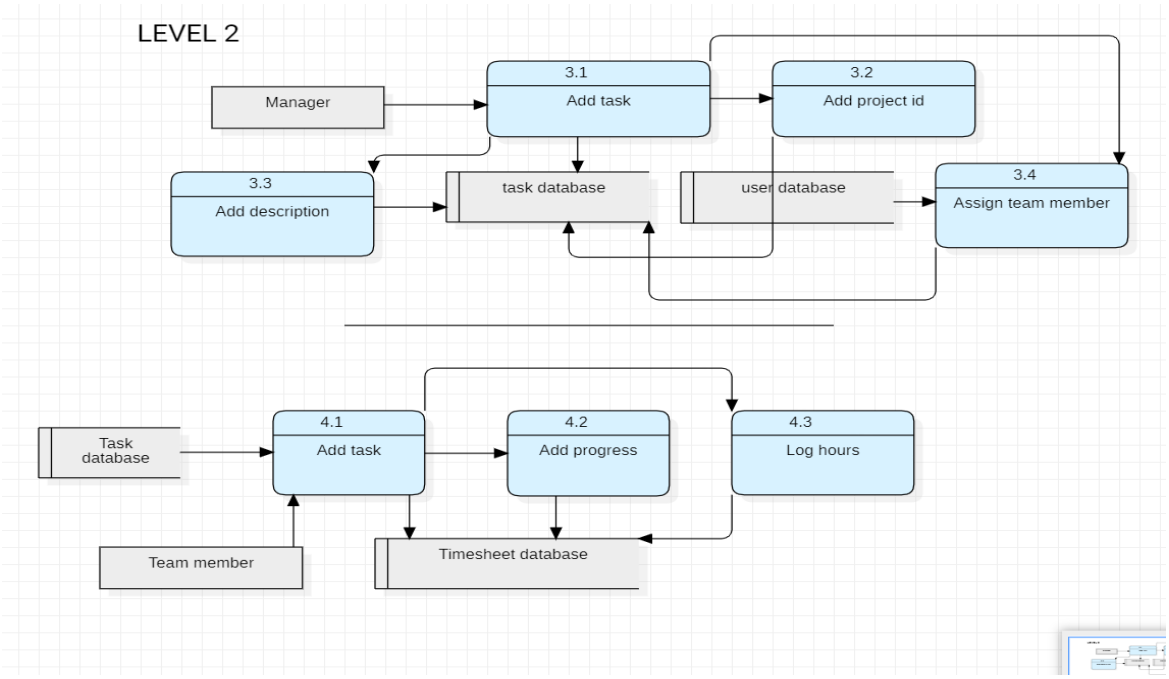


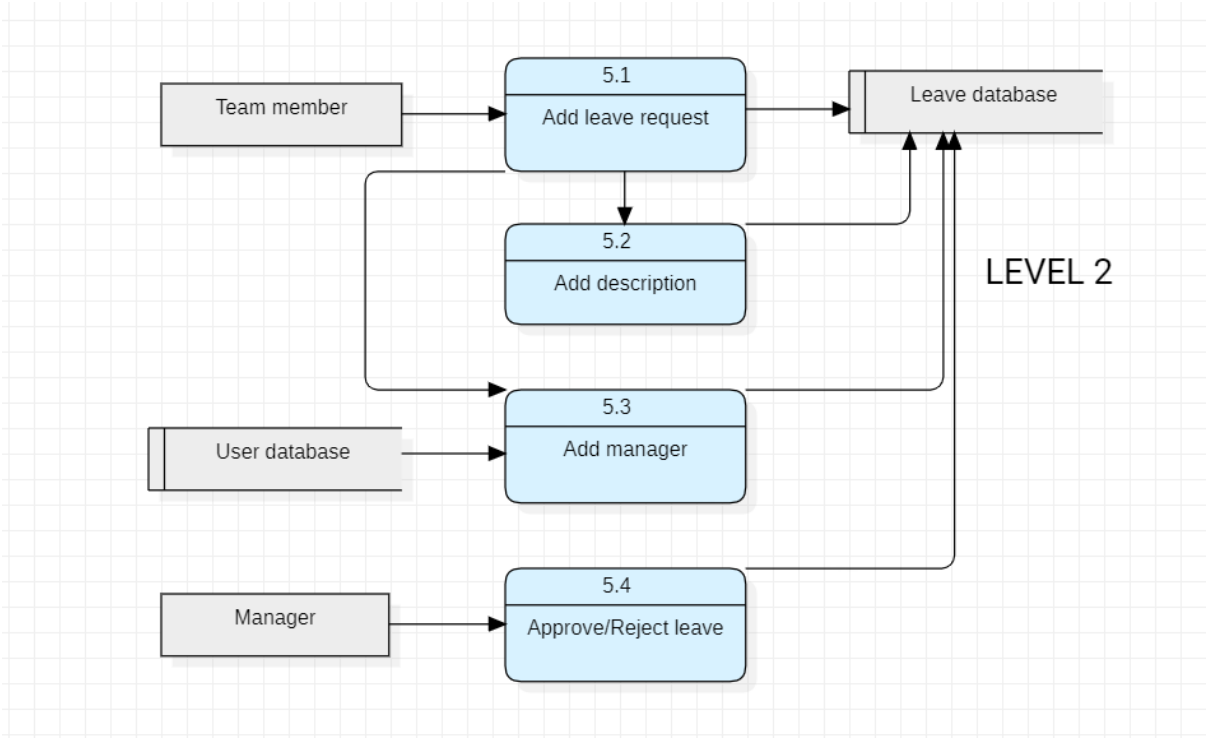
3.2 DFD Level 1

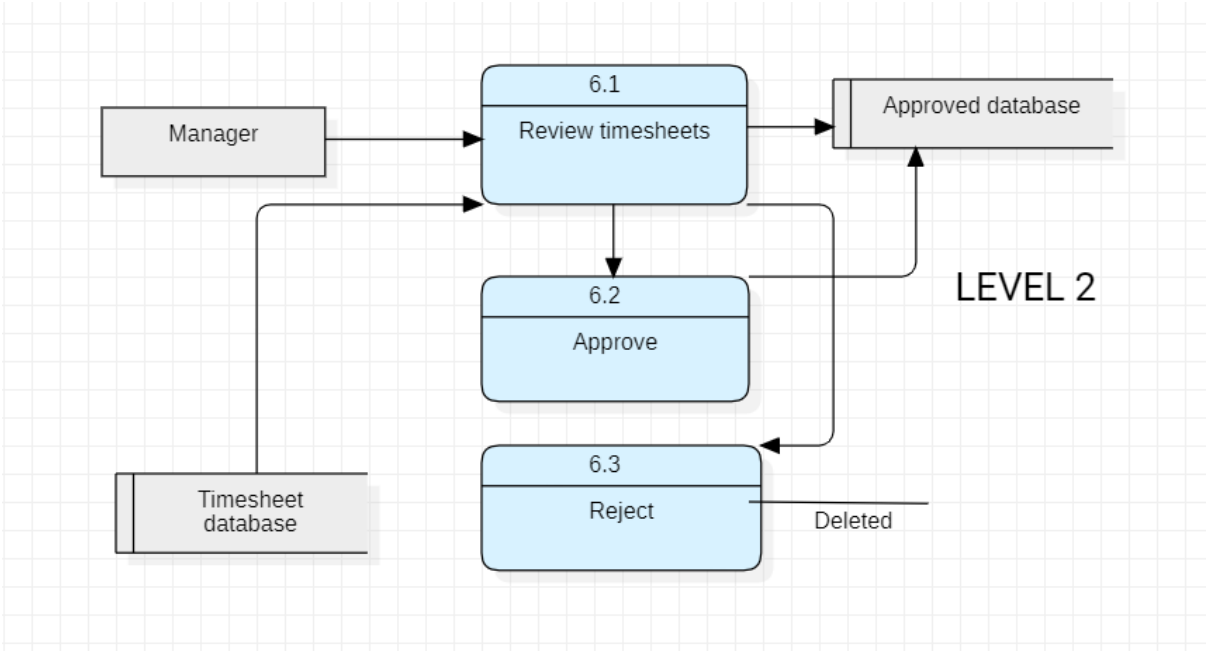


3.3 DFD Level 2





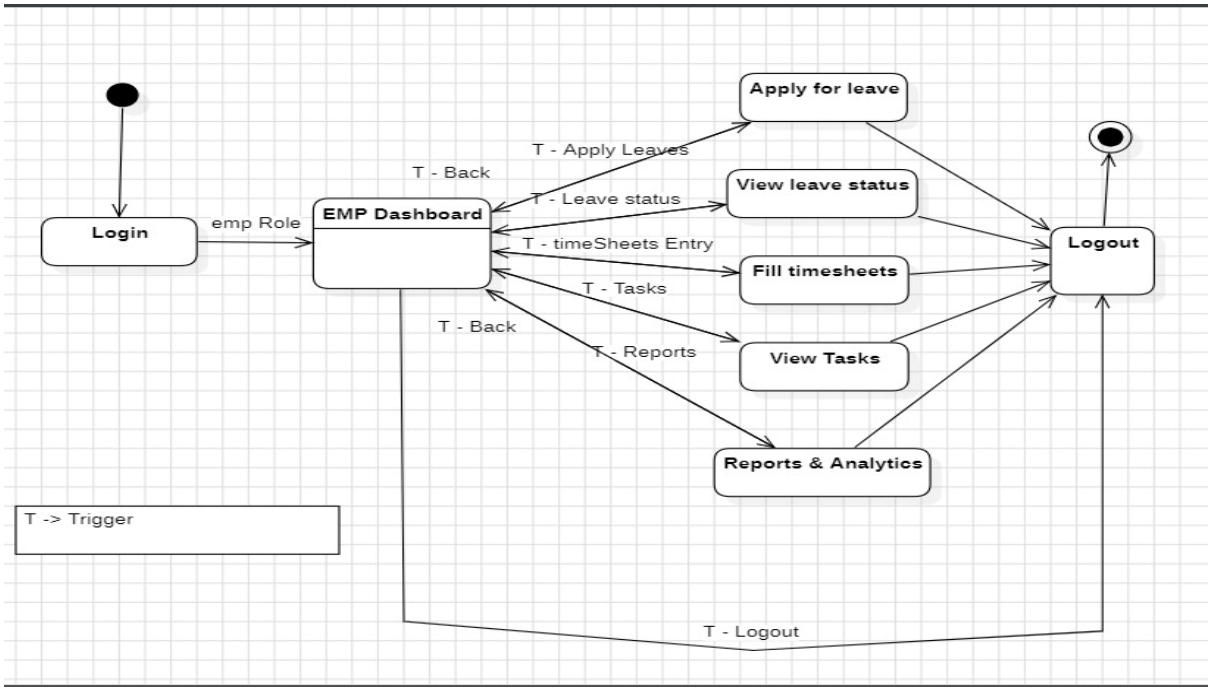

Team member
5.1
Add leave request
Leave database
5.2
Add description
LEVEL 2
5.3
User database
Add manager
5.4
Manager
Approve/Reject leave


Manager
6.1
Review timesheets
Approved database
6.2
Approve
LEVEL 2
Timesheet database
6.3
Reject
Deleted

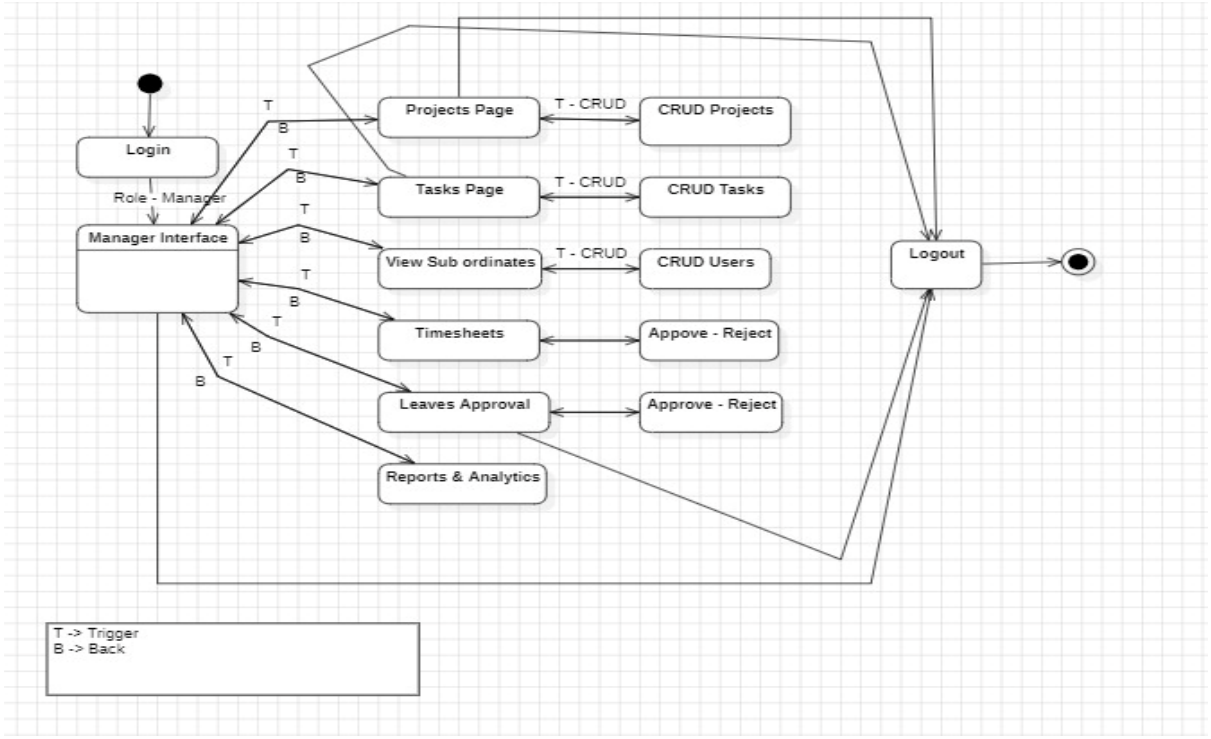
CHAPTER 4
BEHAVIORAL MODELING

4.1 State Transition Diagram

For employee:

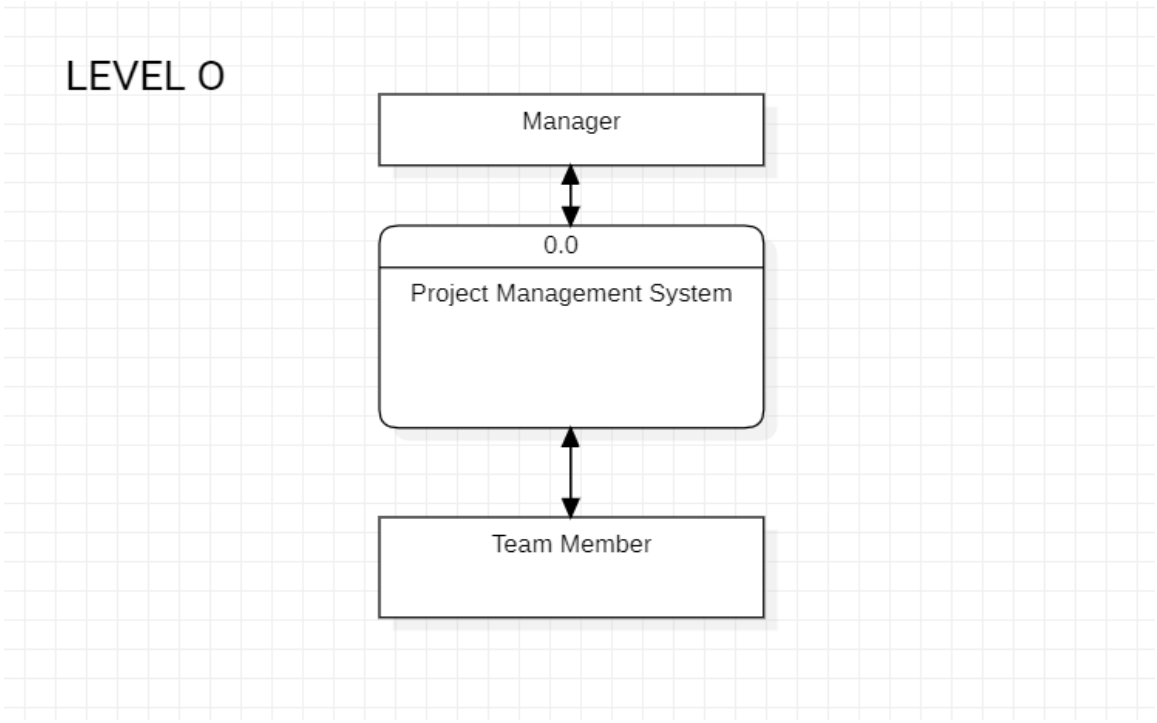


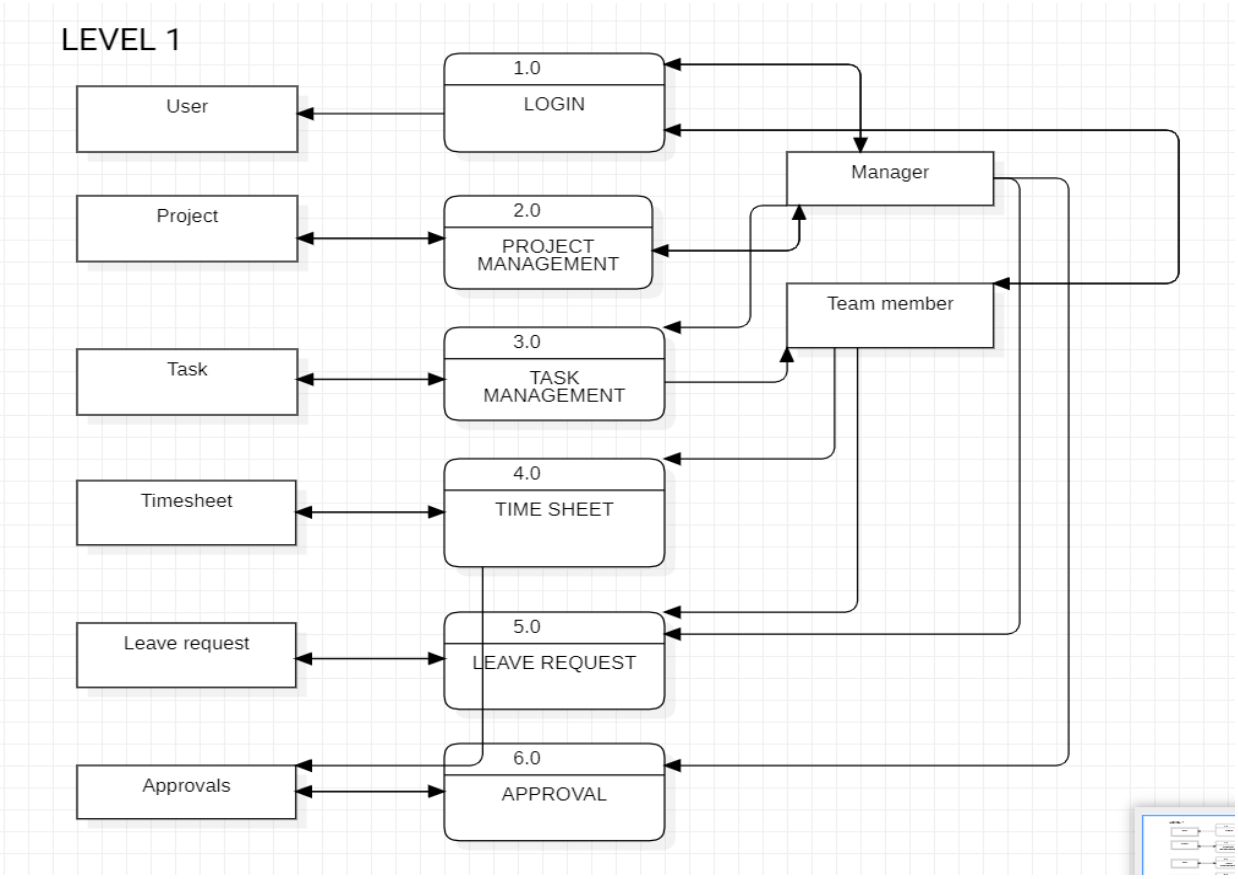
For Manager:



CHAPTER 5
INTERACTION MODELING

5.1 Use Case Diagram





5.2 Sequence Diagram