LEAVE MANAGEMENT SYSTEM

MINI PROJECT REPORT

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Done By,

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Under the guidance of

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1.1 ABOUT THE PROJECT

The aim of this project is to automate the process of leave application and leave approval in an educational institution. It provides an easy way for teachers and staff to submit their leave form and get it approved by the head of the department. This enables the teachers and staff to easily review and check their leave history without any hassle and also makes the process of leave approval by the authority very fast.

The project includes a very comprehensive user-interface for all the users. For the teachers and staffs, they can easily submit the form using the ui and this application can be inspected and approved by the head of the department using the ui designed for the HOD. The administrator involved in the institution can add, edit or delete the other entities like department details, staff details, teacher details etc, that is required for the functioning of the system.

The automatic leave tracking system in this project helps the teachers to efficiently manage their leaves and helps them to quickly check the days they worked and they days they took off. While this project primarily aims to provide a leave management system, other functionality related to storing and retrieving data of different users who may apply for leave such as teachers, staffs and the departments they belong to is also provided in the system.

2.1 SYSTEM STUDY

System study refers to the process of examining a situation with the intent of improving it through better process and methods. System study is, therefore the process of gathering and interpreting facts, diagnosing problem and using the information to recommend changes in the system, in other words it means a detailed explanation of description. Before computerizing a system under consideration, it must be analyzed. We need to study how it functions currently, what are problems and what are the requirements that the proposed software should meet.

The main components of making software are:

- System and software requirements analysis
- Design and implementation of software
- Ensuring, verifying and maintaining software integrity

The online book store management system manages the complete administrative operations of a book store. We can store every detail of the activities that occur in the system. It also provides a user-friendly interface which can be operated by anyone with little knowledge about the computer system. It stores the information needed by the shop in a database which can be accessed by the administrator, staff and customer. It should maintain a well-organized database for storing the information regarding the shop. This helps to eliminate the storage of invalid data.

2.1.1 Existing System

The Existing system is based on manual work and all the process are done manually, so the teachers have to manually get the leave application form approved by the head of the department. The approval process is slow as it is done manually and it takes some time for the leave application to reach their corresponding authority and get the approval. In the current system, it is difficult to keep track of the leaves in the existing system as there is no single portal through which you can check all your leaves and other statistics about the leaves. Record maintenance is also difficult as it is done on temporary files and paper.

Disadvantages of existing system

- Difficulty in maintenance of records.
- Time consuming.
- Editing of data becomes a tedious job.
- No security of data.
- Proper generation of reports are not possible.
- Lack of efficiency.

2.1.2 Proposed System

The proposed system is interactive, highly user friendly and designed exclusively for managing leaves. The system covers almost all the functional areas of a leave management system. The Leave management system is a database system used to store the information regarding teacher details, staff details, department details, leave details, leave category details etc.

All the operations and activities related to the Leave management system can be carried out efficiently. The system manages a well-organized database for storing the resources. This helps us to eliminate the entering of invalid data. Most problems of manual systems can be solved by this system.

The computerization of the system allows the easy maintenance of the details. Large amount of data can be stored easily. In addition, updating and other changes can be done easily. The information can be retrieved with high speed and accuracy. The use of GUI oriented software makes the system user friendly.

Advantages of proposed system

- High processing speed.
- Easy to retrieve old records by using search feature.
- We can analyse leave details, staff details, teacher details and department details.
- The Leave management system shall provide the capability to back up the database.
- Minimal errors.
- Greater portability.

2.2 USER CHARACTERISTICS

The Leave management system provides the user to perform their task in an easy and much less complex way to avoid redundancy. This system ensures that the users assessing the system can ensure maximum efficiency and they can depend on the system for desired results.

There are three user characteristics in this system:

- Administrator
- Staff
- Teacher

2.2.1. Administrator

Administrator or Admin is the super user and main controller of this system. Administrator controls all the activities of the Leave management System. Admin can add, view and edit the staff, teachers and departments. He/ She can add the Leave Category. Admin can view the leaves and their approval status and can also generate several reports.

2.2.2 Staff

Staffs are the non-teaching faculties in the institution. They can submit leave application and view their leave history. They can also modify their own details.

2.2.3 Teacher

Teacher can perform various activities like submitting leave application and view their leave history. If the teacher is a head of the department, he/she can approval the leaves of teachers in his/her department. The teacher can modify their own details.

2.3 SYSTEM SPECIFICATION

2.3.1 Hardware specifications

The selection of hardware is very important in the existence and proper working of any software. when selecting the hardware, the size and capacity requirements are also important. below is some of the hardware that is required by the system.

Processor	Intel Core i3-3220 (3.3 GHz) or above
RAM	4 GB or above
Storage	512 GB or above
Other	Keyboard and Mouse

2.3.2 Software specifications

Operating system	Windows7/8/8.1/10
Front end	JAVASCRIPT
Back end	POSTGRESQL

2.3.2 About software tools and platforms

JAVASCRIPT: Javascript is a general-purpose programming language originally designed for client-side scripting. it was originally created by Brendon Eich in 1995. Javascript in combination with html and css can be used to make highly dynamic web pages. The server-side implementation of javascript know as nodejs can be used to make server-side applications and CLI apps.

Features

- Allows you to make dynamic web pages using client-side scripting
- Enables development of fast server-side applications using nodejs
- Build progressive web apps and single page apps

POSTGRESQL: Postgresql is a free and open-source relational database management system emphasizing extensibility and SQL compliance. It is capable of handling many queries at a time and is used by many companies world-wide. It has a great open-source community and is constantly patched to improve performance and reliability.

Key Capabilities of SQL

- High Availability
- Performance and Scalability
- Security
- Manageability
- Developer Productivity
- Business Intelligence

3.1 MODULES AND DESCRIPTION

The Leave management system has several modules. They are:

1. Department Management

2. Teacher Management

3. Staff Management

4. Leave Management

    4.1 Category management

1. Department Management

This module stores the details of the different departments. The admin can add, edit and view the different departments. Department name, Department head etc are stored using this module.

2. Teacher Management

The aim of this module is to manage all the teachers of the institution. This is done by admin. Admin can add and view the details of Teacher. Teacher name, Teacher contact number etc. are stored using this module. Teachers can log into their account using the password provided by the admin and can view their leaves and submit leave application. If the teacher is a head of the department, then he/she can approve leaves. The teacher also can edit their own details.

3. Staff Management

The aim of this module is to manage all the teachers of the institution. This is done by admin. Admin can add and view the details of Staff. Staff name, Staff contact number etc are stored using this module. Staffs can log into their account using the password provided by the admin and can view their leaves and submit leave application. The staff also can edit their own details.

4. Leave Management

The module mainly focuses on the leave management that is categorizing the leaves into different categories. The teachers can submit the leave application through this module and the corresponding head of the department can approve those leaves. Teachers and staffs can also view their pending and approved leave records.

4.1 Category Management

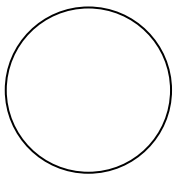
This module deals with adding, updating and viewing of different categories of leaves.

3.2 DATA FLOW DIAGRAM

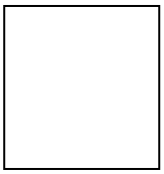
A data flow diagram is graphical tool used to describe and analyze movement of data through a system. These are central tool and the basis from which the other components are developed. The transformation of data from input to output, trough processed, may be described logically and independently of physical components associated with the system. These are known as the logical data flow movement of data between people, departments and workstations. A full description of a system actually consists of a set of data flow diagrams.

A DFD is also known as a "bubble chart" has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. So, it is the starting point of the design to the lowest level of detail. A DFD consists of a series of bubbles joined by data flows in the system.

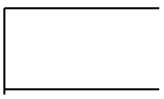
In the DFD, there are four symbols:



Process that transforms data flow



Source or Destination of data



Data store

Data flow

Rules for drawing data flow diagrams

Rule 1: Establish the context of the data flow diagram by identifying all of the net input and output data flows.

Rule 2: Select a starting point for drawing the DFD.

Rule 3: Give meaningful labels to all data flow lines.

Rule 4: Label all processes with action verbs that relate input and output data flows.

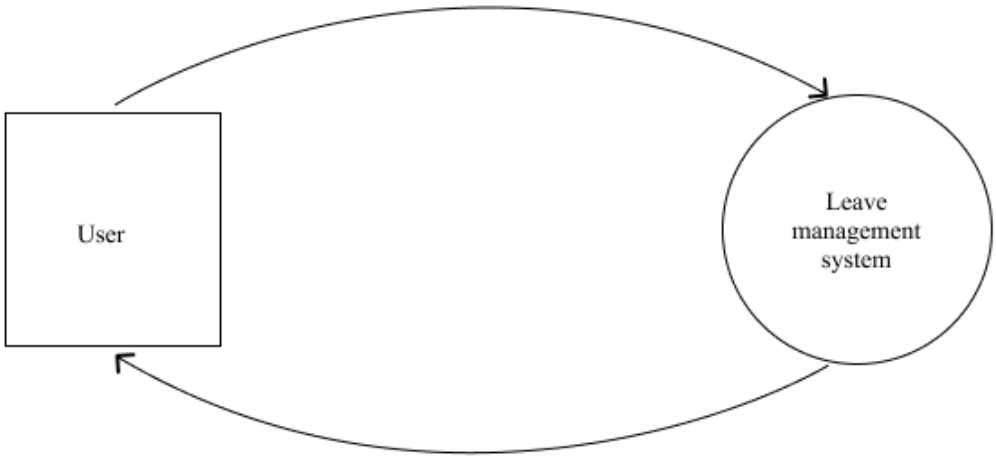
Rule 5: Omit insignificant functions routinely handled in the programming process.

Rule 6: Do not include control or flow of control information.

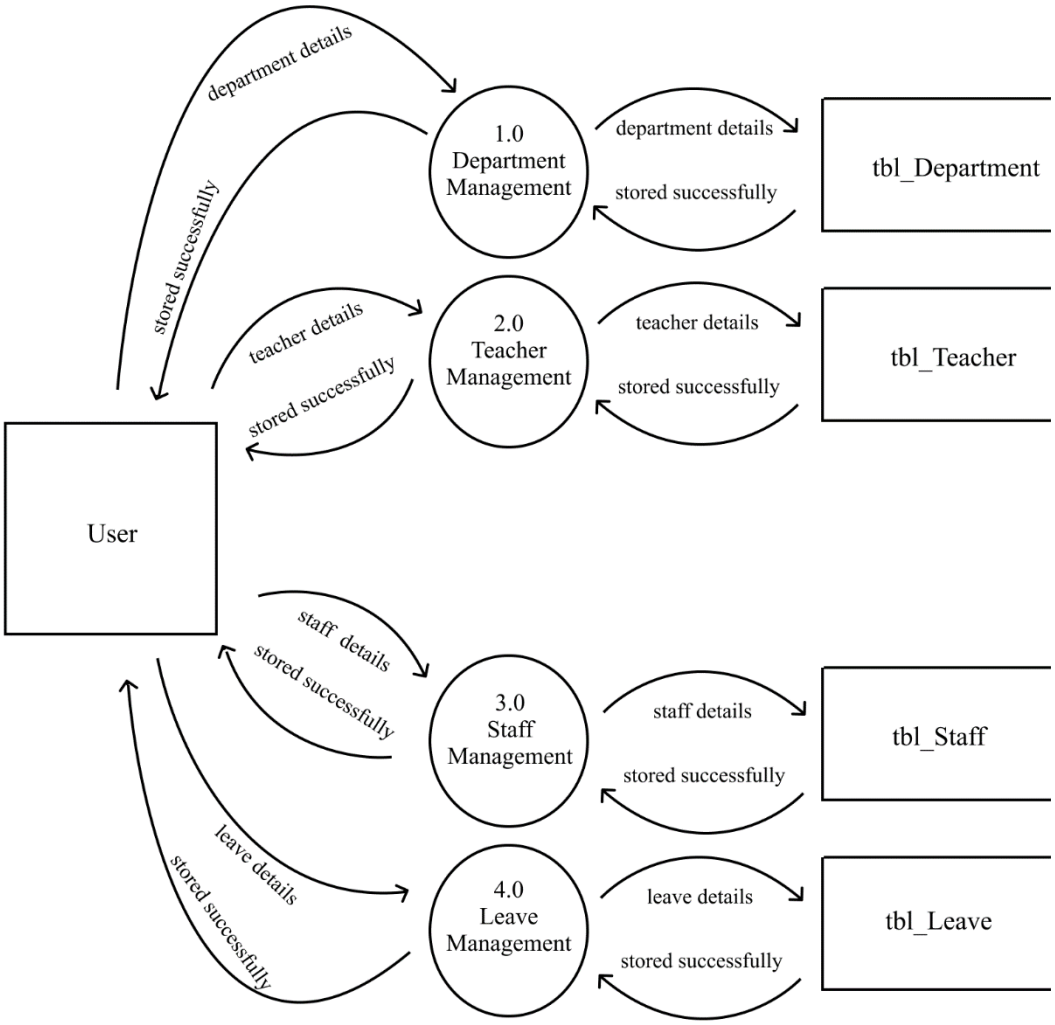
Rule 7: Do not try to put too much information in one DFD.

Rule 8: Be prepared to start over.

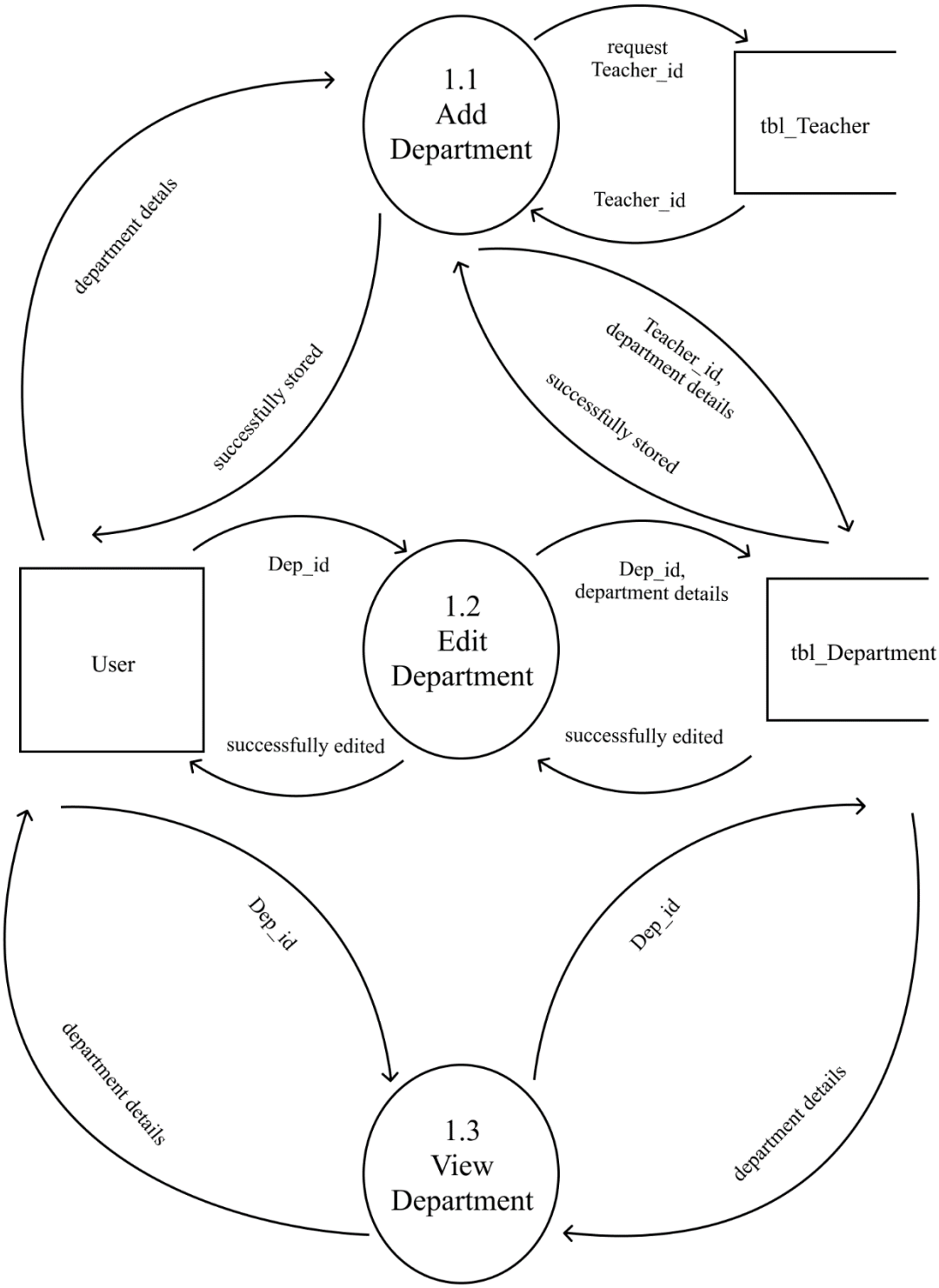
Level 0 DFD showing leave management system



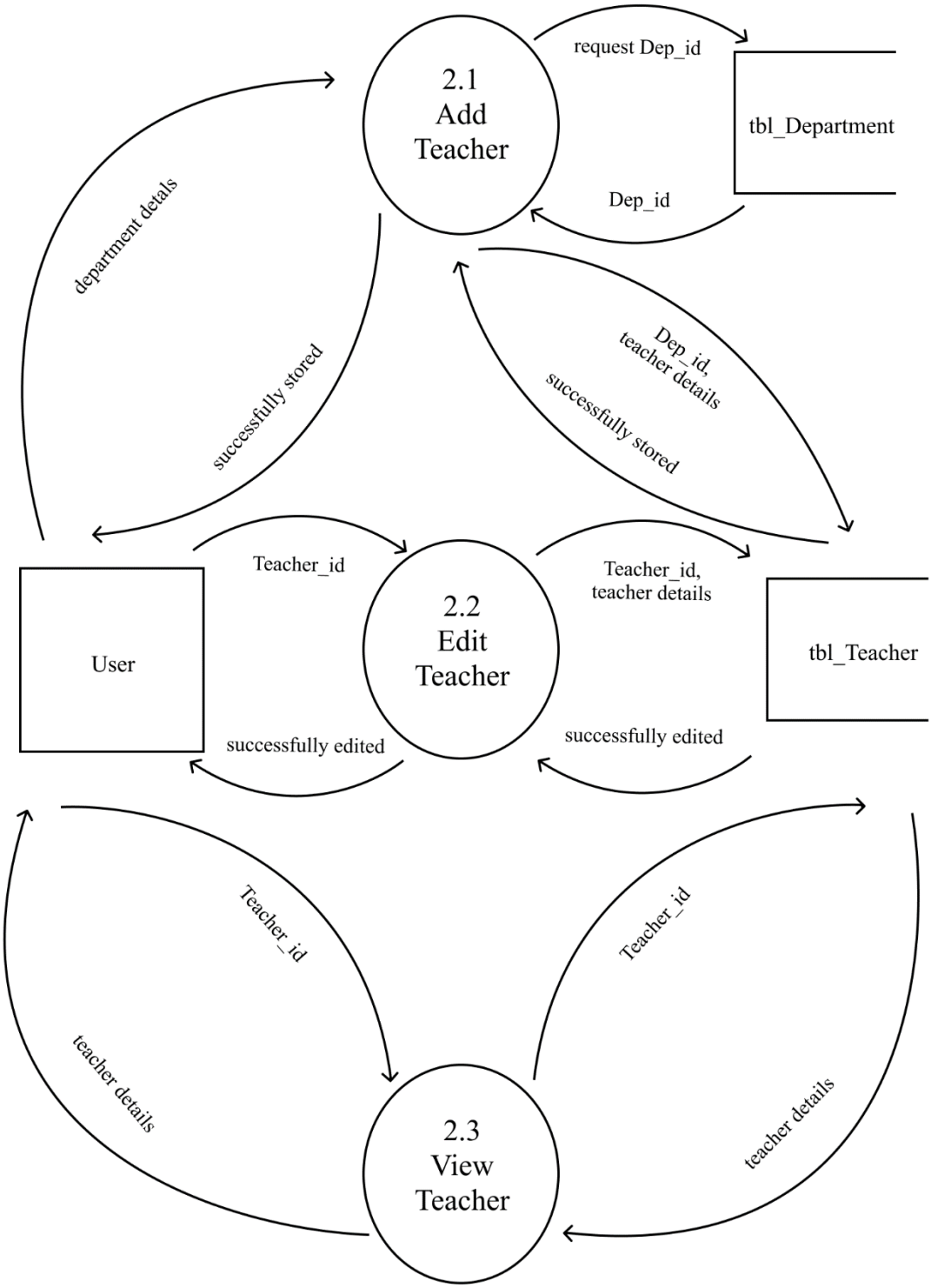
level 1 DFD showing leave management system



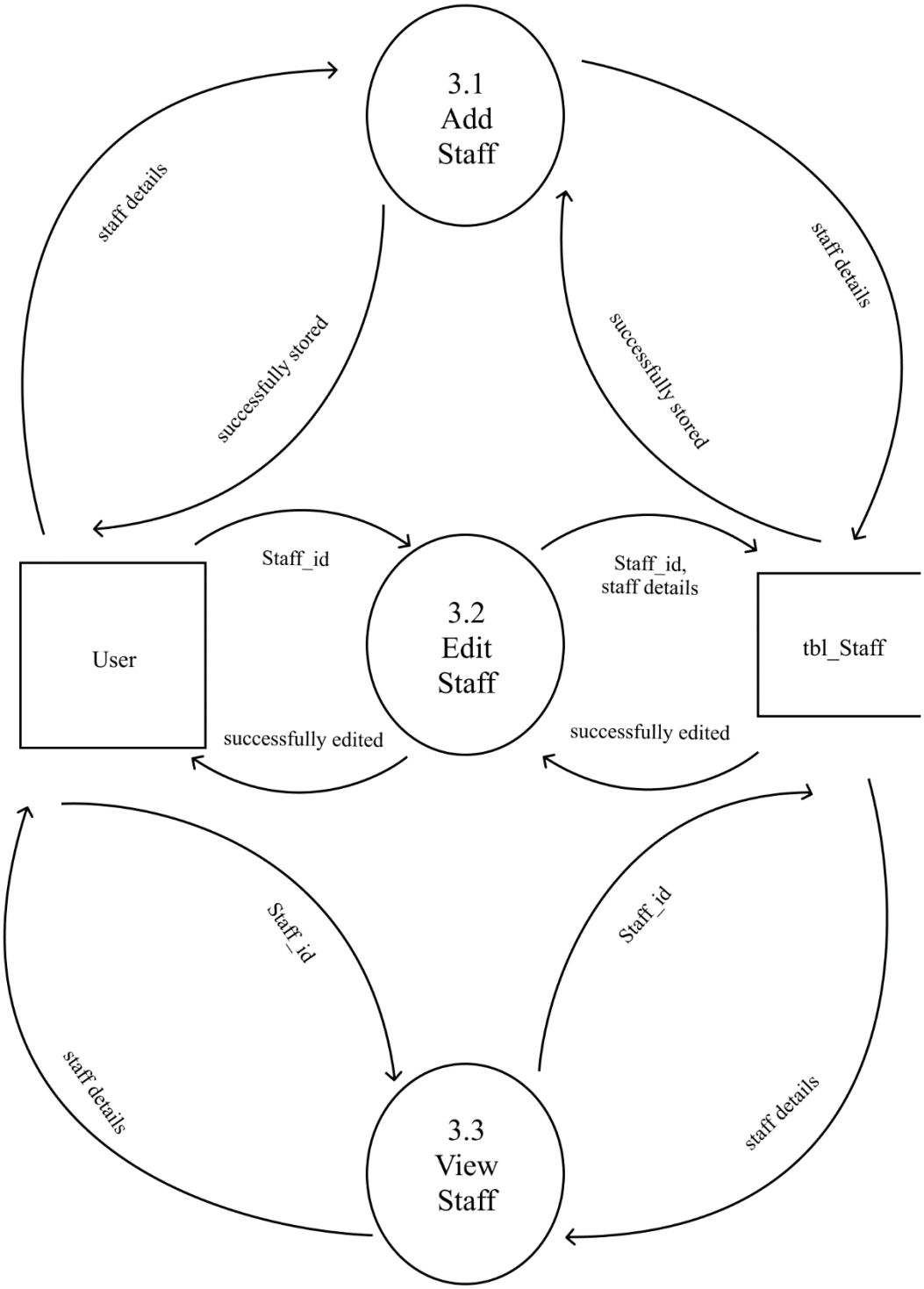
level 2 DFD showing Department management



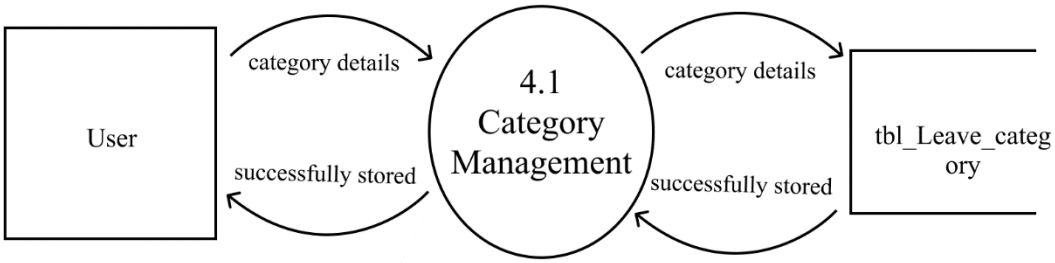
level 2 DFD showing teacher management



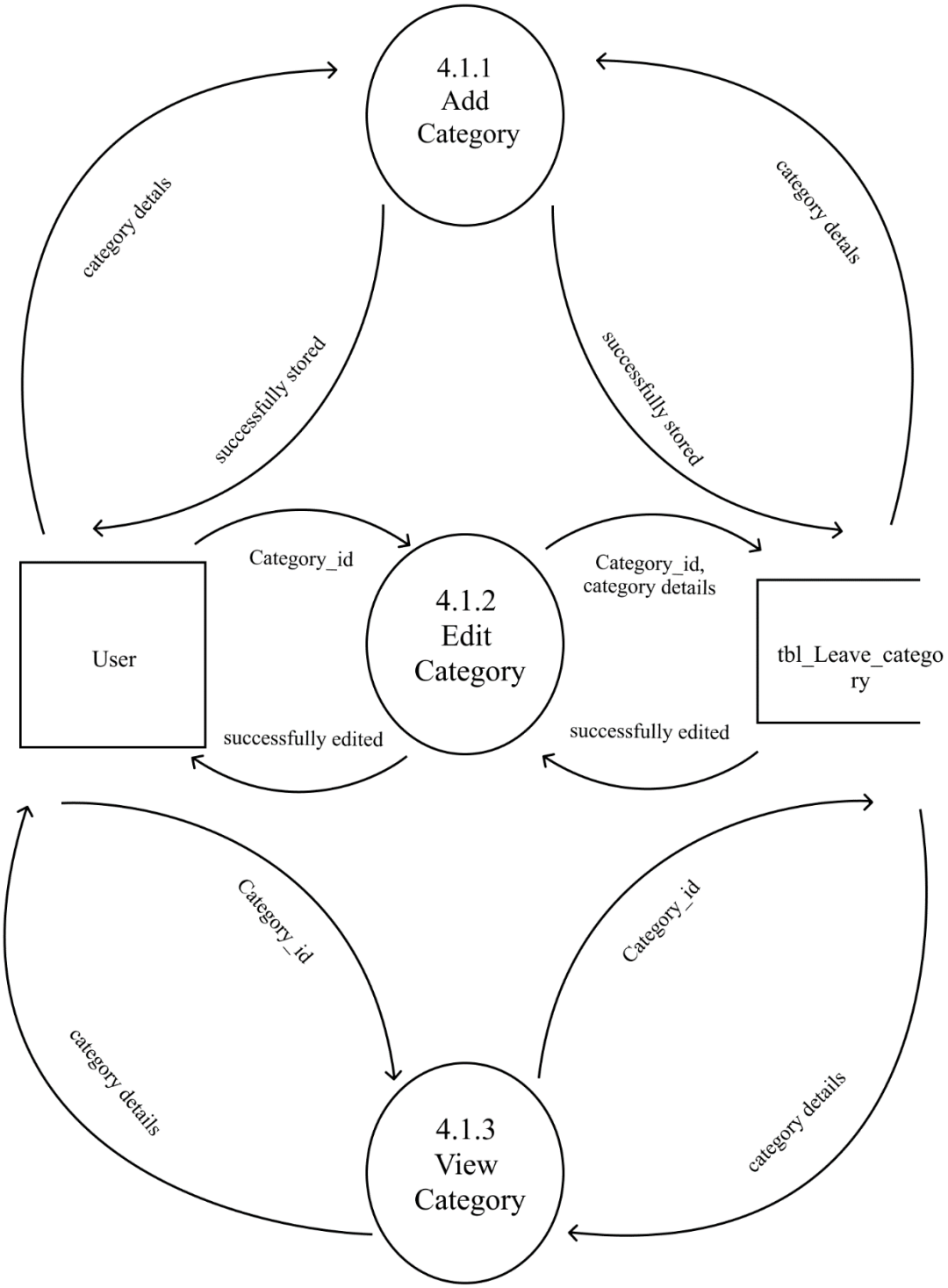
level 2 DFD showing staff management



level 2 DFD showing leave management



level 3 DFD showing category management



4.3 DATABASE DESIGN

Table Name: tbl_Login

Description: stores the login details of users in the system.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Username	Varchar (255)	Primary Key	User email
User_type	Varchar (8)	Not null	User type
Password	Varchar (72)	Not null	Password
Added_date	Date	Not null	Added date
User_status	Varchar (7)	Not null	User status

Table Name: tbl_Department

Description: stores the details of department.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Dep_id	Int	Primary Key	Unique id of department
Dep_name	Varchar (255)	Not null	Department name
Dep_head	Int	Foreign key	Head of the department
Dep_status	Varchar (7)	Not null	Department status

Table Name: tbl_Teacher

Description: stores the details of customer**.**

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Teacher_id	Int	Primary Key	Unique id of teacher
Username	Varchar (255)	Foreign key	Teacher email
Dep_id	Int	Foreign key	Department id
Teacher_firstname	Varchar (30)	Not null	Teacher first name
Teacher_lastname	Varchar (30)	Not null	Teacher first name
Teacher_contactno	Varchar (10)	Not null	Teacher contact number
Teacher_join_date	Date	Not null	Teacher join date
Teacher_designation	Varchar (30)	Not null	Teacher designation
Teacher_status	Varchar (7)	Not null	Teacher status

Table Name: tbl_Staff

Description: stores the details of staff.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Staff_id	Int	Primary Key	Staff ID
Username	Varchar (255)	Foreign key	Staff email
Staff_firstname	Varchar (30)	Not null	Staff first name
Staff_lastname	Varchar (30)	Not null	Staff last name
Staff_contactno	Varchar (10)	Not null	Staff contact number
Staff_join_date	Date	Not null	Staff join date
Staff_status	Varchar (7)	Not null	Staff status

Table Name: tbl_Leave

Description: stores the details of the leaves

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Leave_id	Int	Primary Key	Leave ID
Teacher_id	Int	Foreign key	Teacher ID
Leave_categoryId	Int	Foreign key	Leave category ID
Leave_application_date	Date	Not null	Leave application date
Leave_startDate	Date	Not null	Leave start date
Leave_endDate	Date	Not null	Leave end date
Leave_approval_status	Varchar (10)	Not null	Leave approval status
Leave_approval_date	Date	Not null	Leave approval date
Leave_slip	Varchar (50)	Not null	Leave slip
Leave_remarks	Varchar (255)	Not null	Leave remarks
Leave_status	Varchar (7)	Not null	Leave status

Table Name: tbl_Leave_category

Description: stores the details of category.

FIELD	DATA TYPE	CONSTRAINT	DESCRIPTION
Category_id	Int	Primary Key	Category ID
Category_name	Varchar (30)	Not null	Category Name
User_type	Varchar (10)	Not null	User type that the category applies to
Max_days	Int	Not null	Maximum days of leave
Category_status	Varchar (7)	Not null	Category status