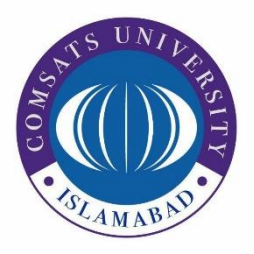


COMSATS University Islamabad (CUI)

Software Design Description
(SDD DOCUMENT)

for

Work From Home HRM

Version 1.0

By

Muhammad Jawad Nasir **CIIT/SP18-BSE-122/ISB**

Muhammad Sibtain **CIIT/SP18-BSE-125/ISB**

Supervisor

Mr. Azfar Shakeel Khan

Bachelor of Science in Software Engineering (2018-2022)

Table of Contents

Revision History

Name	Date	Reason for changes	Version

Application Evaluation History

Comments (by committee) ***include the ones given at scope time both in doc and presentation**	**Action Taken**

Supervised by

Mr. Azfar Shakeel Khan

Signature_____

1. Introduction

We are developing this system to help software house to manage their employee as employees are working remotely and it will help HR department to manage employee payrolls, leave management, employee information system, employee service and employee attendance.

Our project is basically divided into three parts.
Basic user functionalities like creating profiles, creating teams and assigning tasks, add, delete employees or record, recruiting.
Core functionality which includes activity tracking and taking screen shots of the employee's screen during the working hours and EnguCV which will be used for face recognition.
Third part is maintaining the database storing all kinds of data which profiles data, attendance, payrolls, leaves, project information, and screenshots of the employees screen.

2. Design methodology and software process model

. Incremental software process will be used to develop this system. This model makes it easy to develop the system in increments and test the system after every increment. This will also help us to add functionalities easily after testing the system at the end of every increment. We will use object-oriented design methodology for this system because this methodology provides reusing of code and also helps in security of the system through abstraction

3. System overview

The purpose of this project is to make an efficient automated Work from Home HRMS that will allow the HR to manage the employee's payroll, employee's information system, employee's recruitment, employees monitoring system, employee's attendance and leave management system, Team management and performance evaluation. The system will manage remotely working employees by keeping an eye through the monitoring system by activity tracking and screenshots of the employees screen during working hours also the attendance of the employees will be face recognition based. For face recognition we will be using EnguCV in C# and on the basis of the face recognition the attendance of the employee will be marked. Desktop app will be used to monitor and mark attendance. A database will be used for storing the records and for database Microsoft SQL server will be used.

3.1 Architectural design

In this project, the architecture followed is Model-View-Controller (MVC) which is a software architecture widely used in the development of mobile and web applications or soft wares. The MVC supports efficiency and consistency to a reasonable level. This enables for each one of the portion to be designed, implemented and tested independently from one another. It also helps keep the code organized i.e. find a portion easily, make corrections or alterations easily and add new functionality with ease. MVC is a pattern for the architecture of a software application. It separates an application into the following components:

• Models for handling data and business logic. It is responsible for holding the functions and variables that are involved with what it is representing. It functions more like a class in the OOP.

• Controllers for handling the user interface and application by taking input from the user, sending it to the model to get the appropriate output and then sending it to the view to display the response to the user

• Views for handling graphical user interface objects and presentation. It will contain the markup, CSS, HTML amongst others used in the creation of the web page.

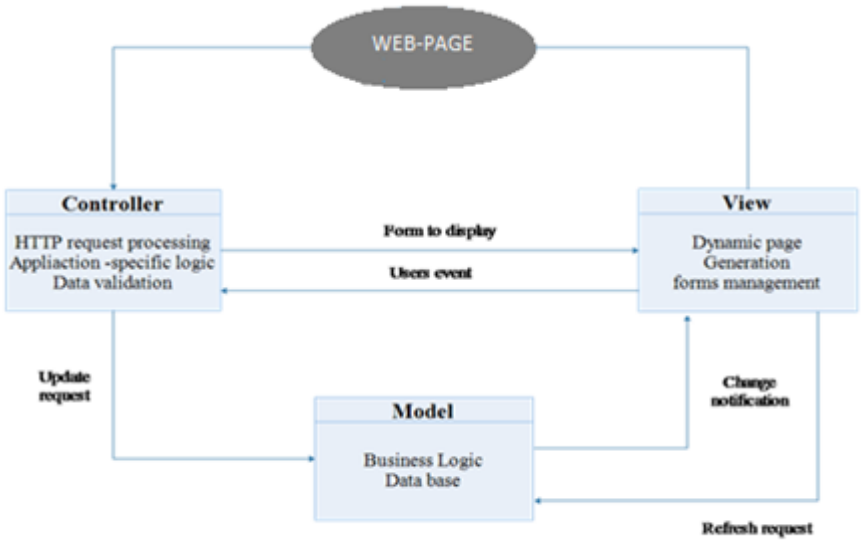
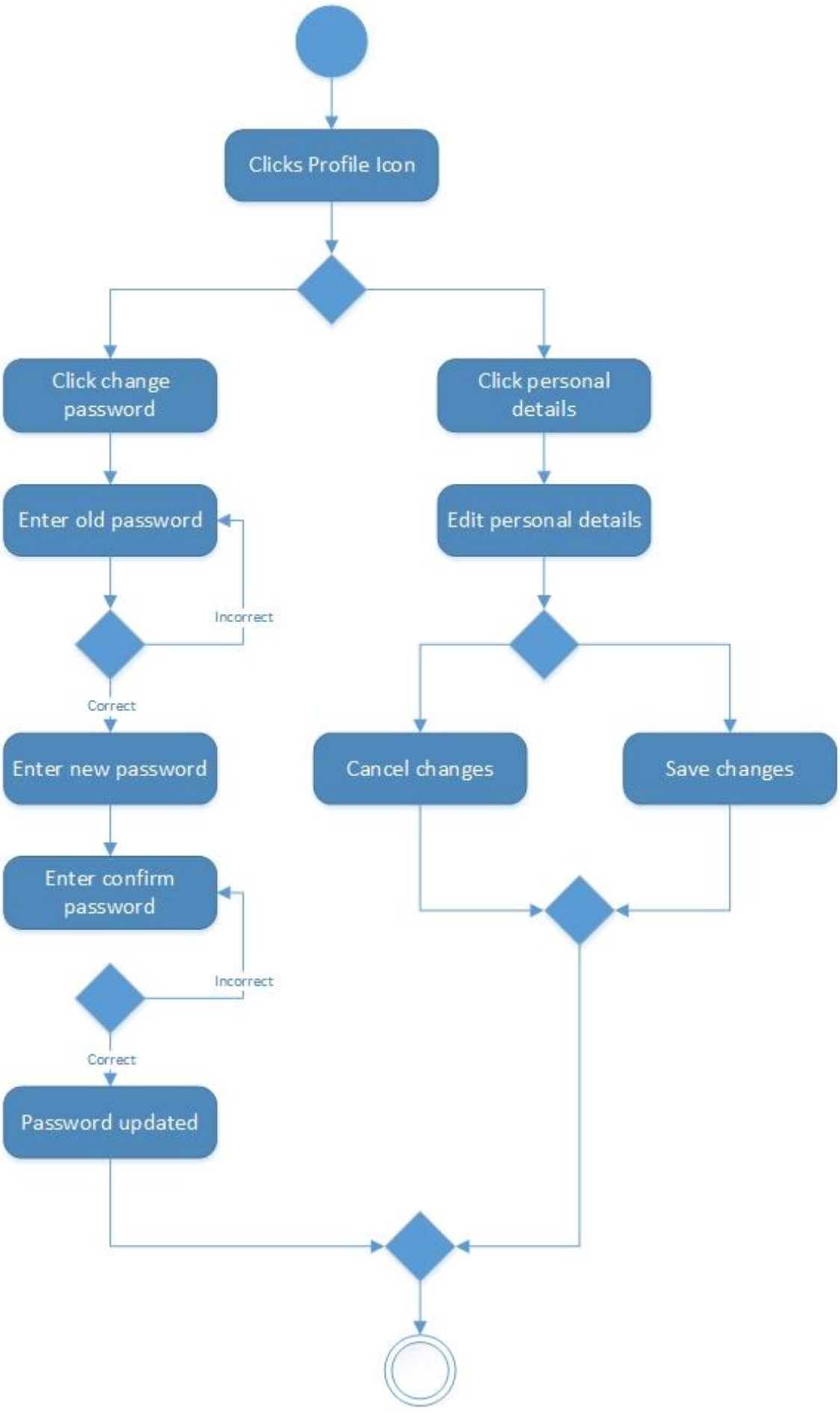


Figure 1: Project Architecture

3.2 Process flow/Representation

Activity Diagrams: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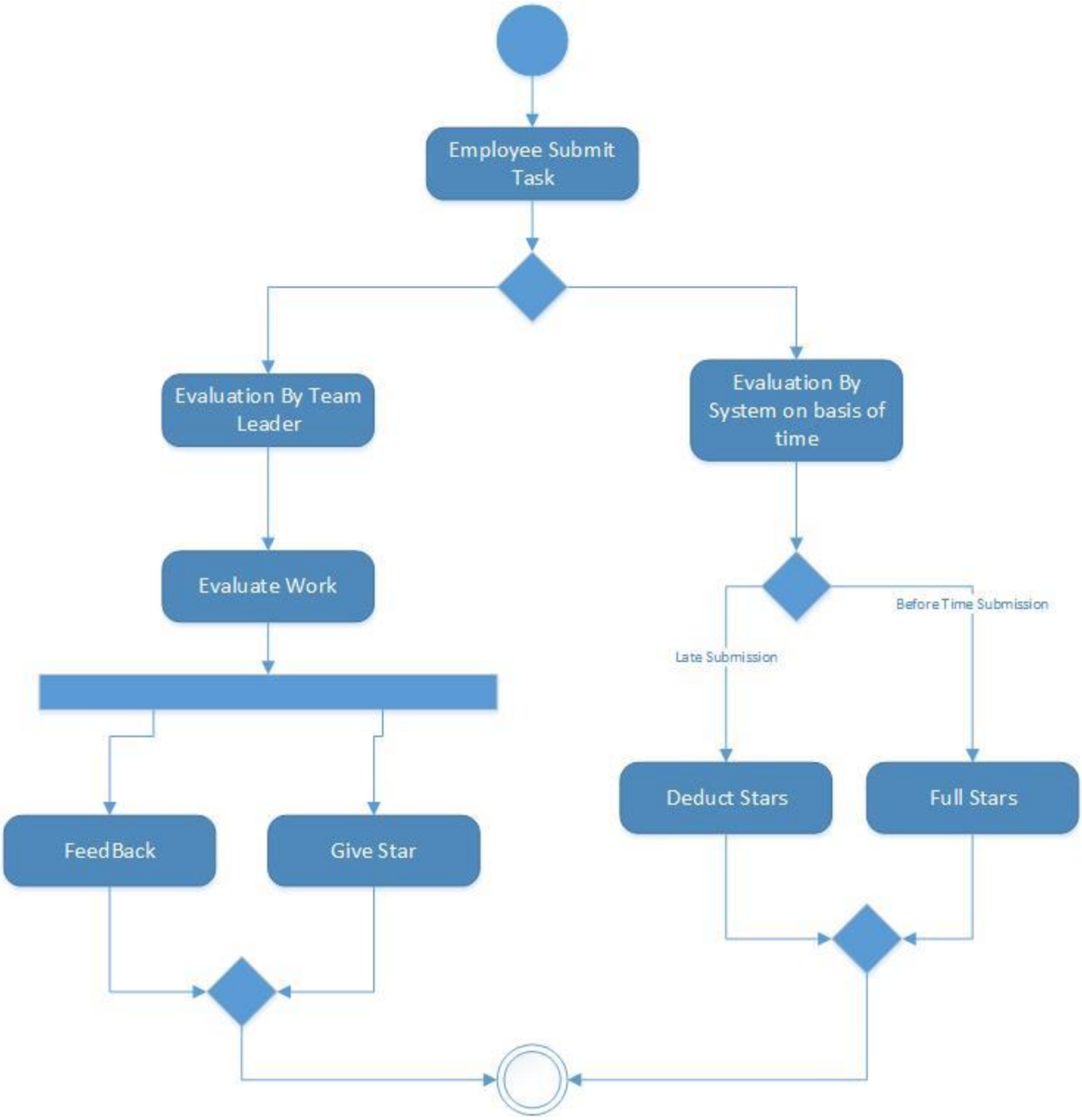


Figure 3: Performance Evaluation

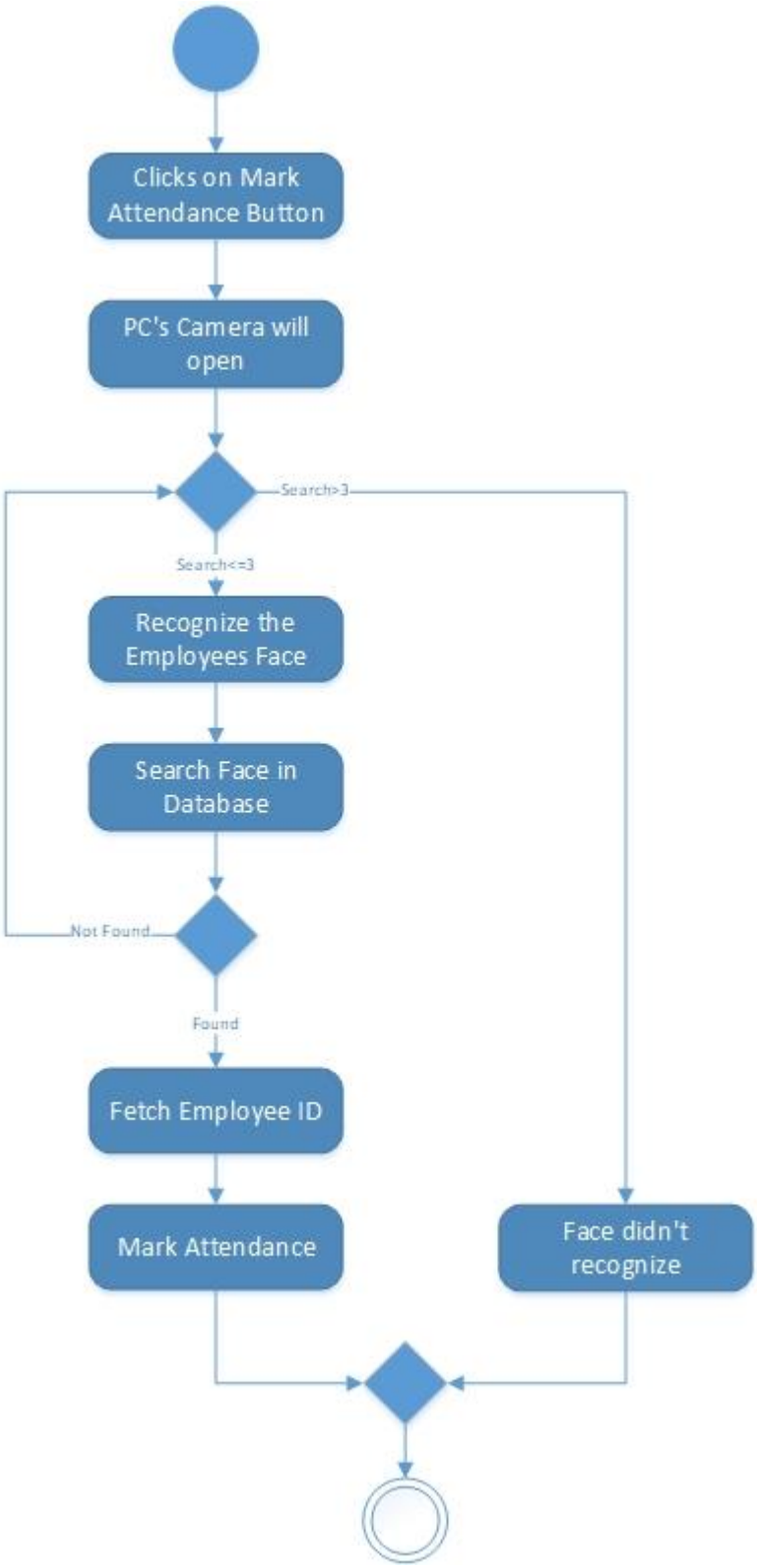


Figure 4: Mark Attendance

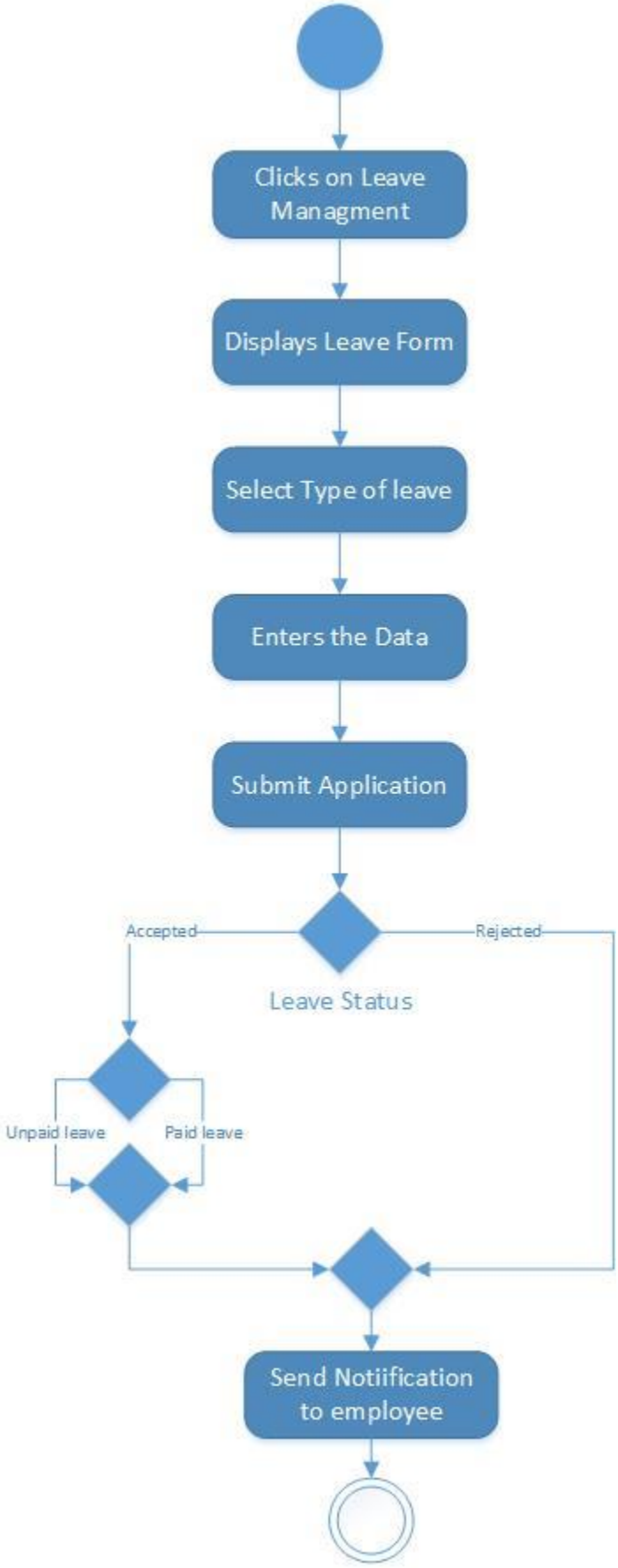


Figure 5: Apply For Leave

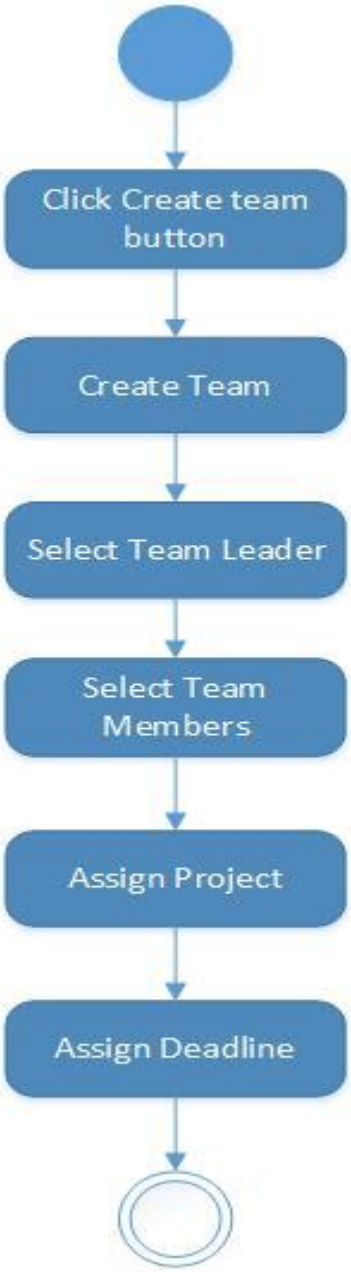


Figure 6: Assign Project

Figure 7: Apply For Job

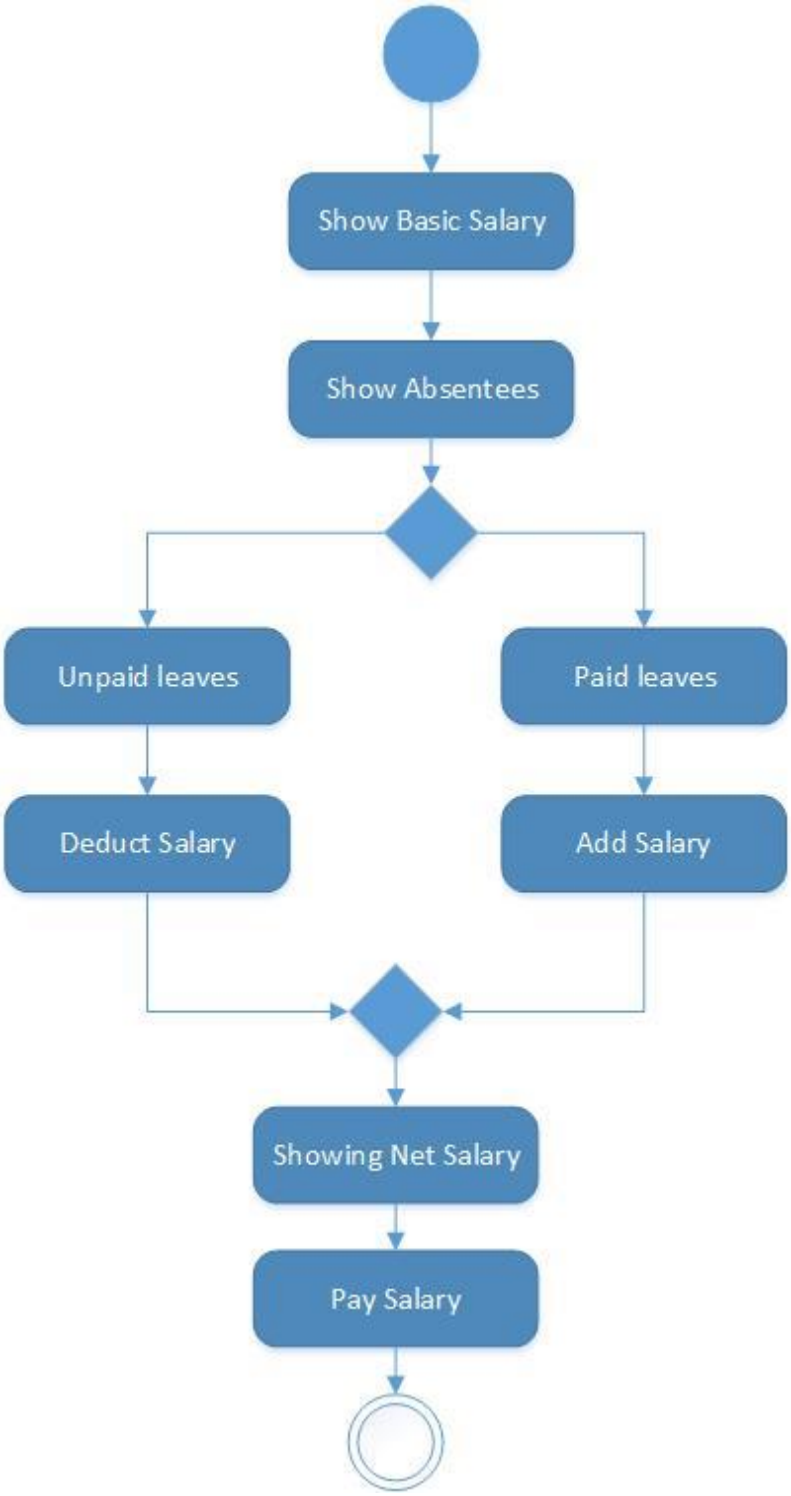


Figure 8: Pay Salary

Sequence Diagrams:

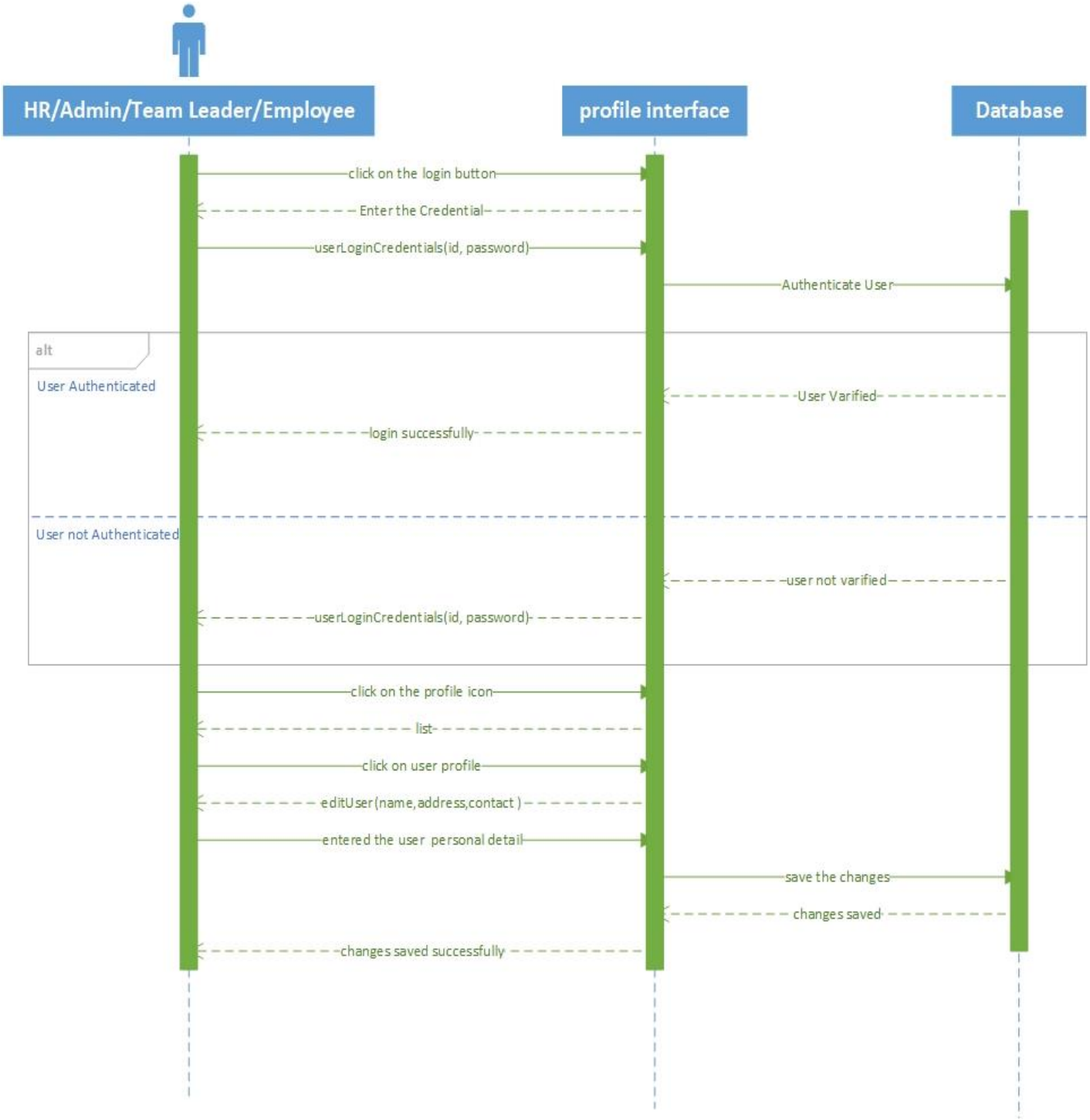


Figure 10: Update Profile

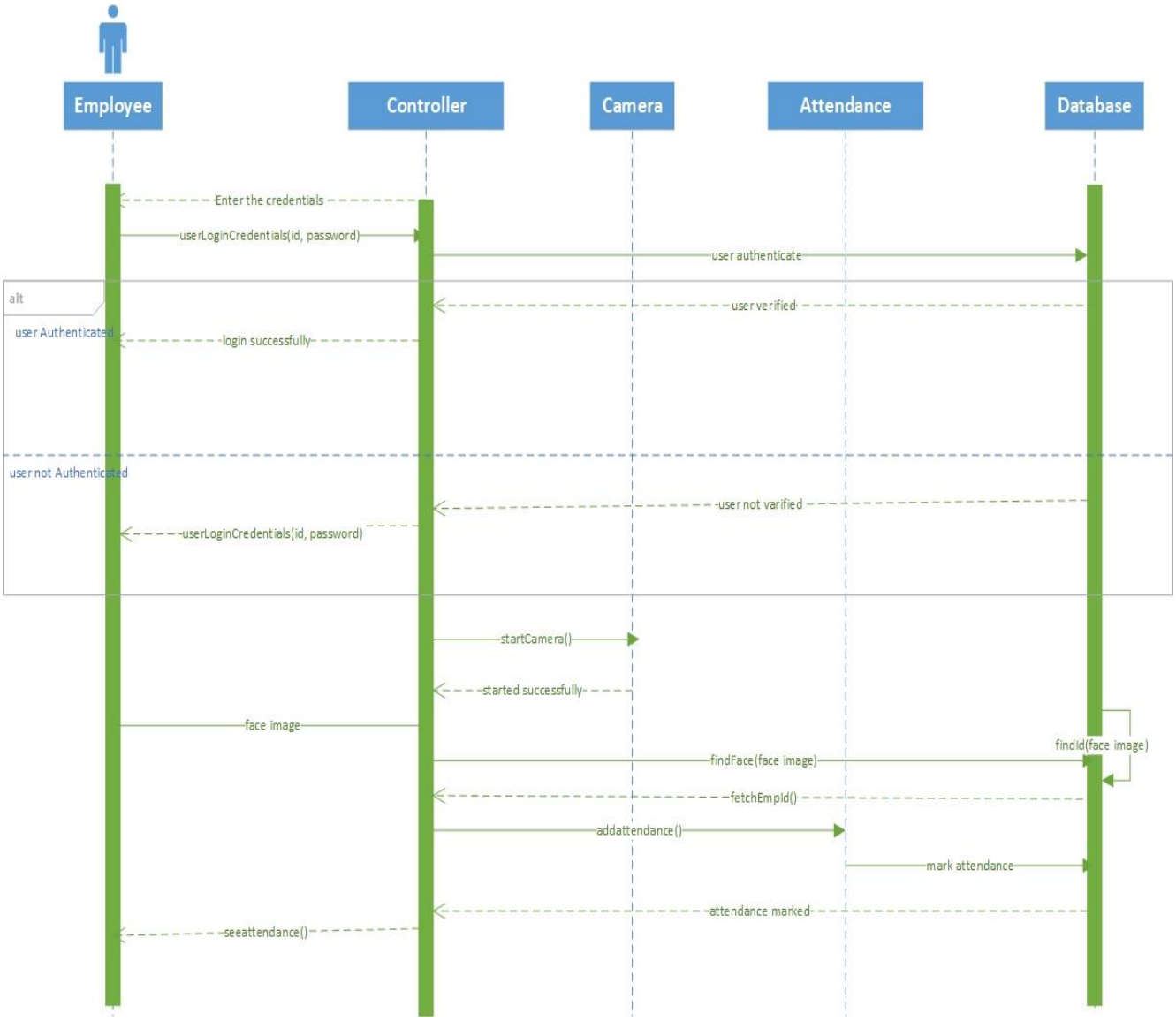


Figure 14: Mark Attendance

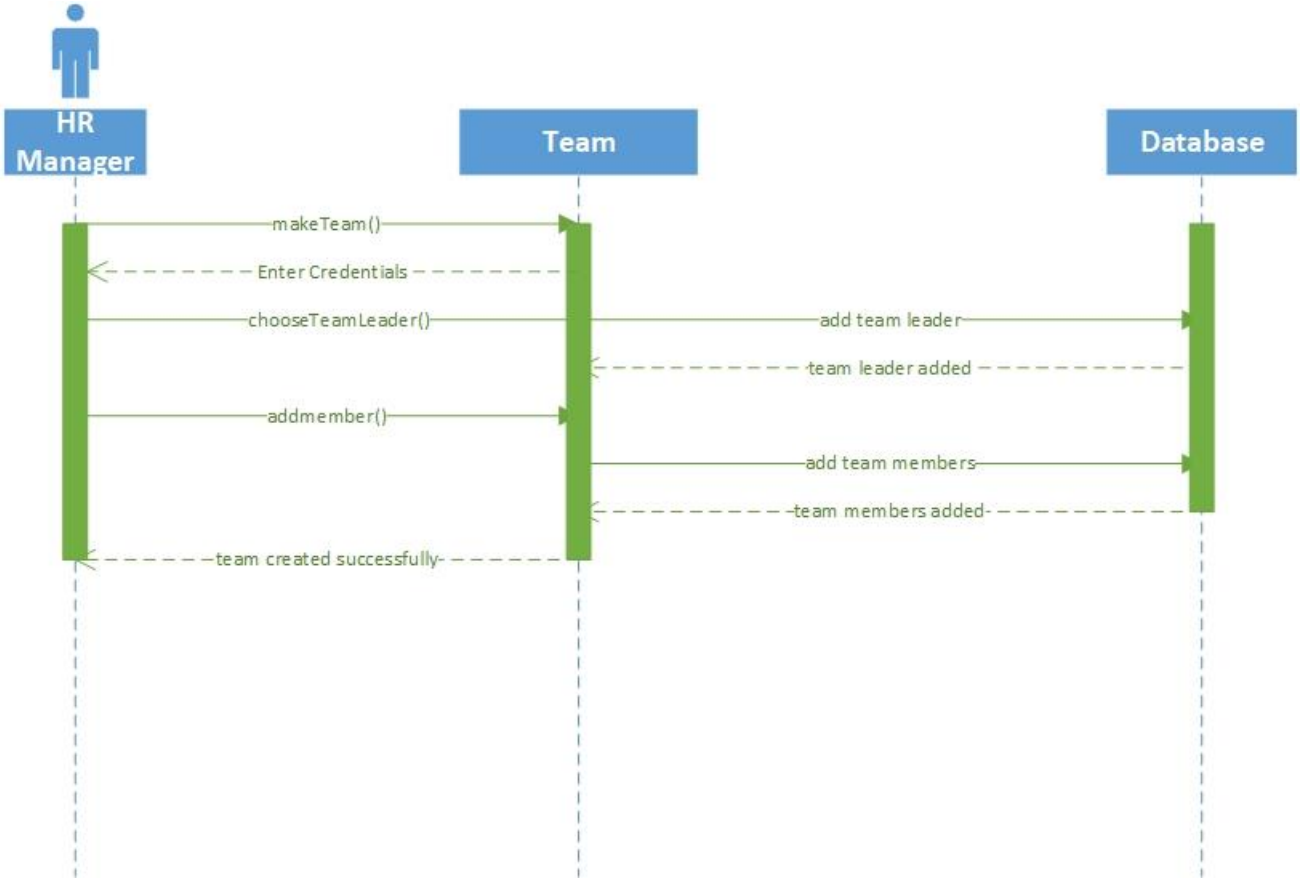


Figure 15:Create Team

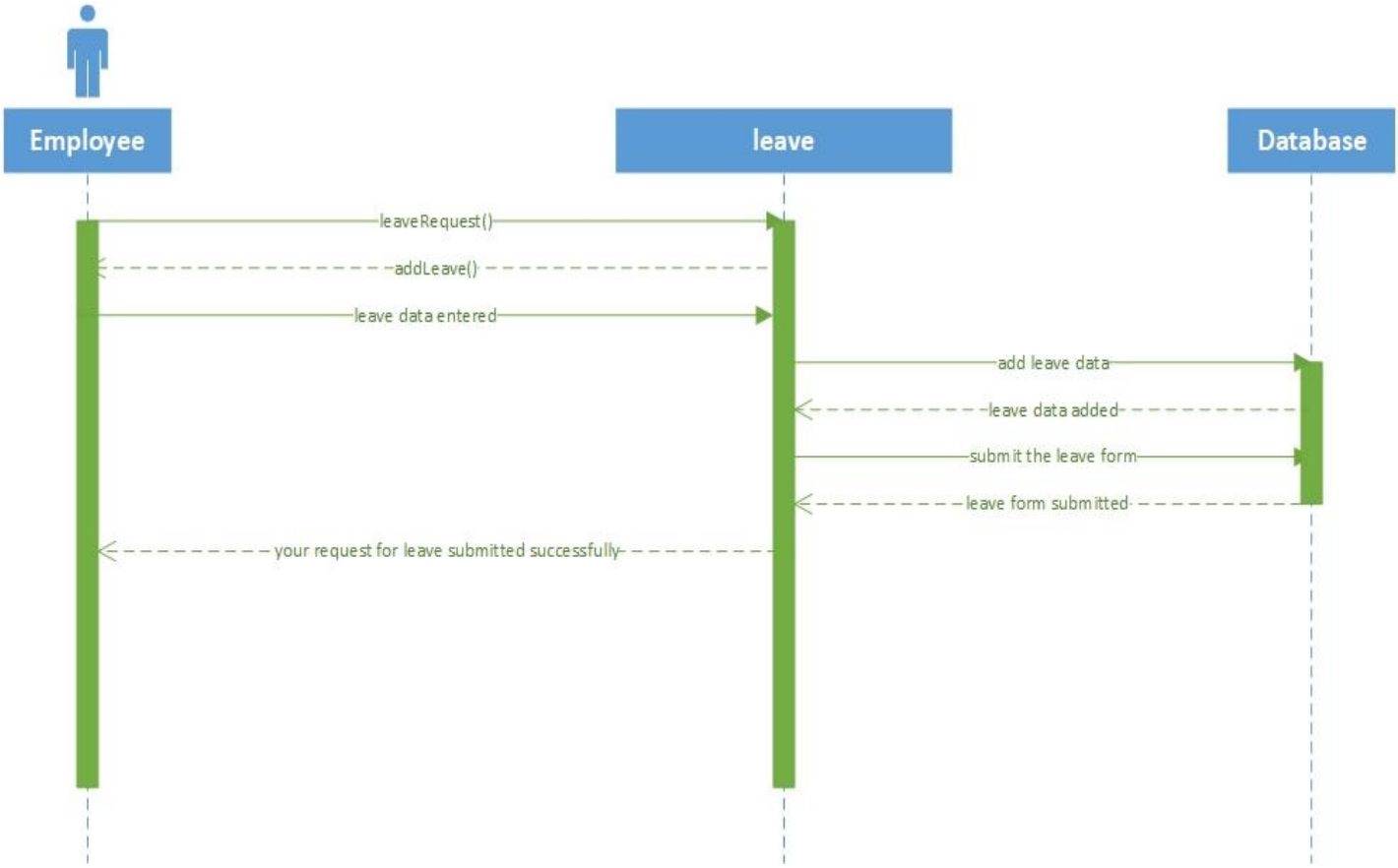
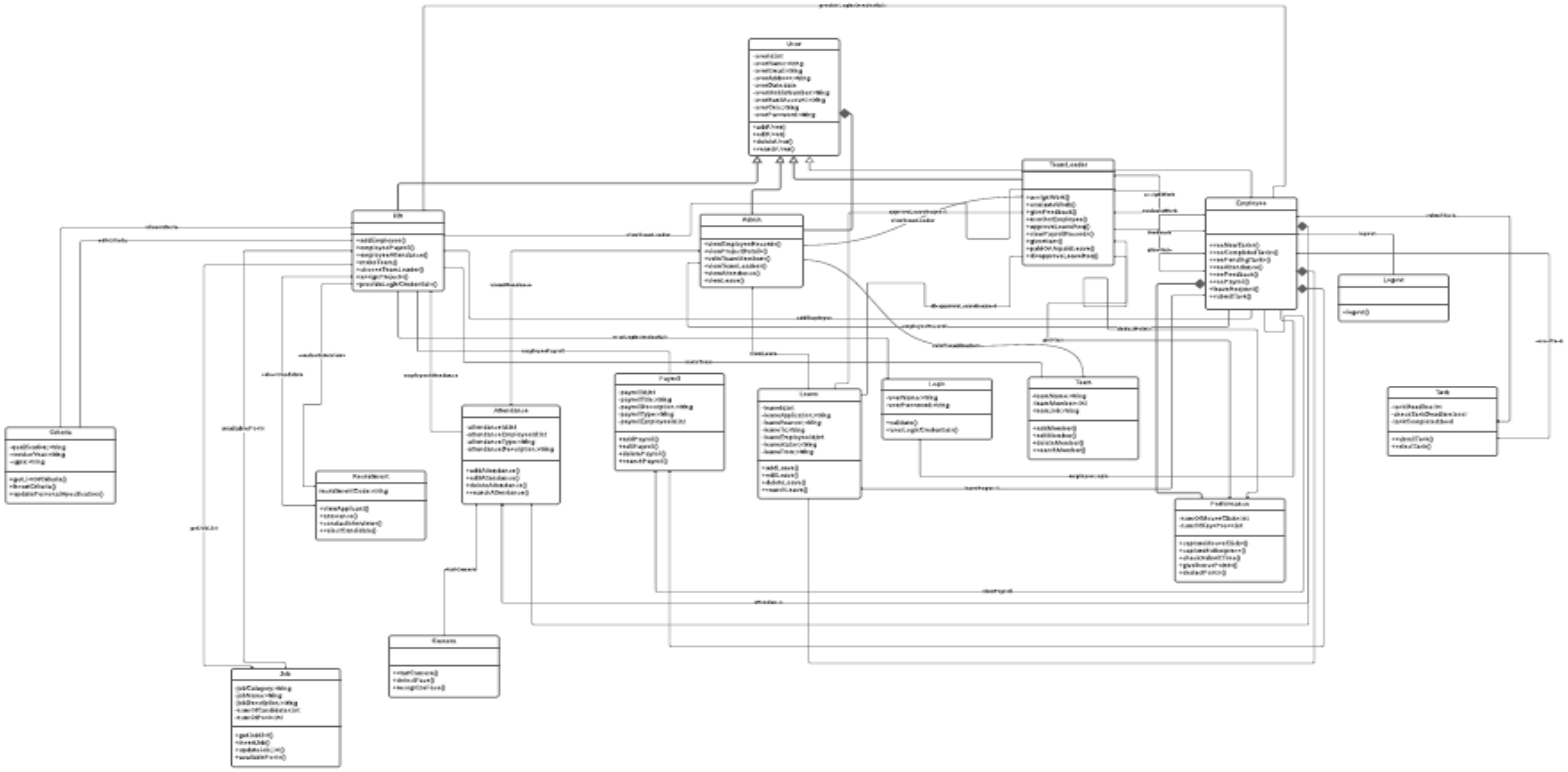


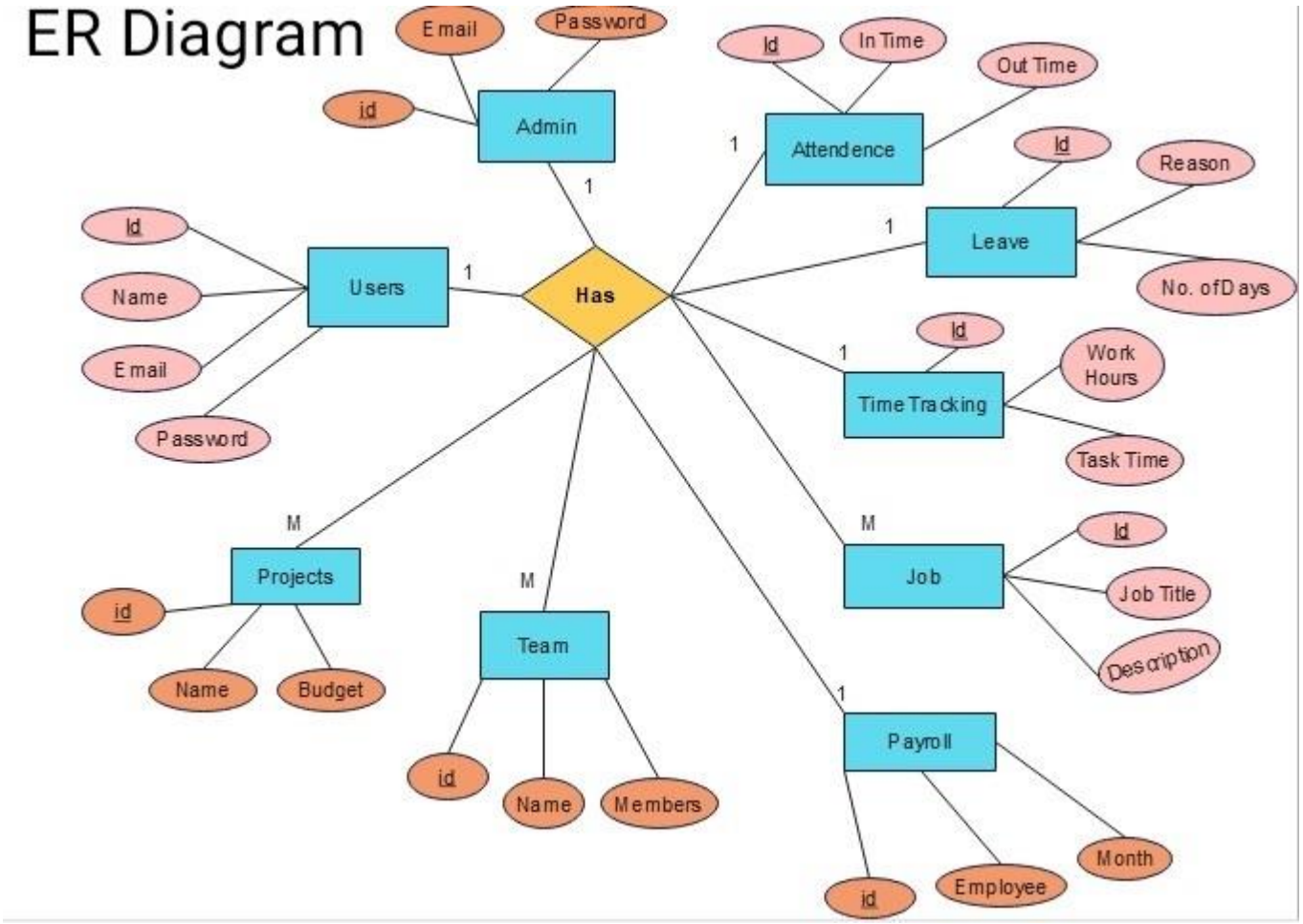
Figure 16: Submit Leave

4. Design models [along with descriptions]

Class Diagram



5. Data design



6. Human interface design

As our system is designed for software houses so we are assuming that our users will be of some technical background. But still we try our best to design interfaces of our system as interactive as we can to provide usability to our users. Some of the main features are:

- On Login page user will be able to choose his/her category.
- On signup page when user clicks on signup system validates data and if data is wrong then system shows message and moves to the text box of wrong input.
- System blinks when notification arrives of violation, which will allow management to act.
- Interfaces are simple, users can perform functionality with simple steps.
- Interface theme is constant.
- Interfaces are designed which supports the idea of project.

6.1Screen images

Figure 17: Sign Up

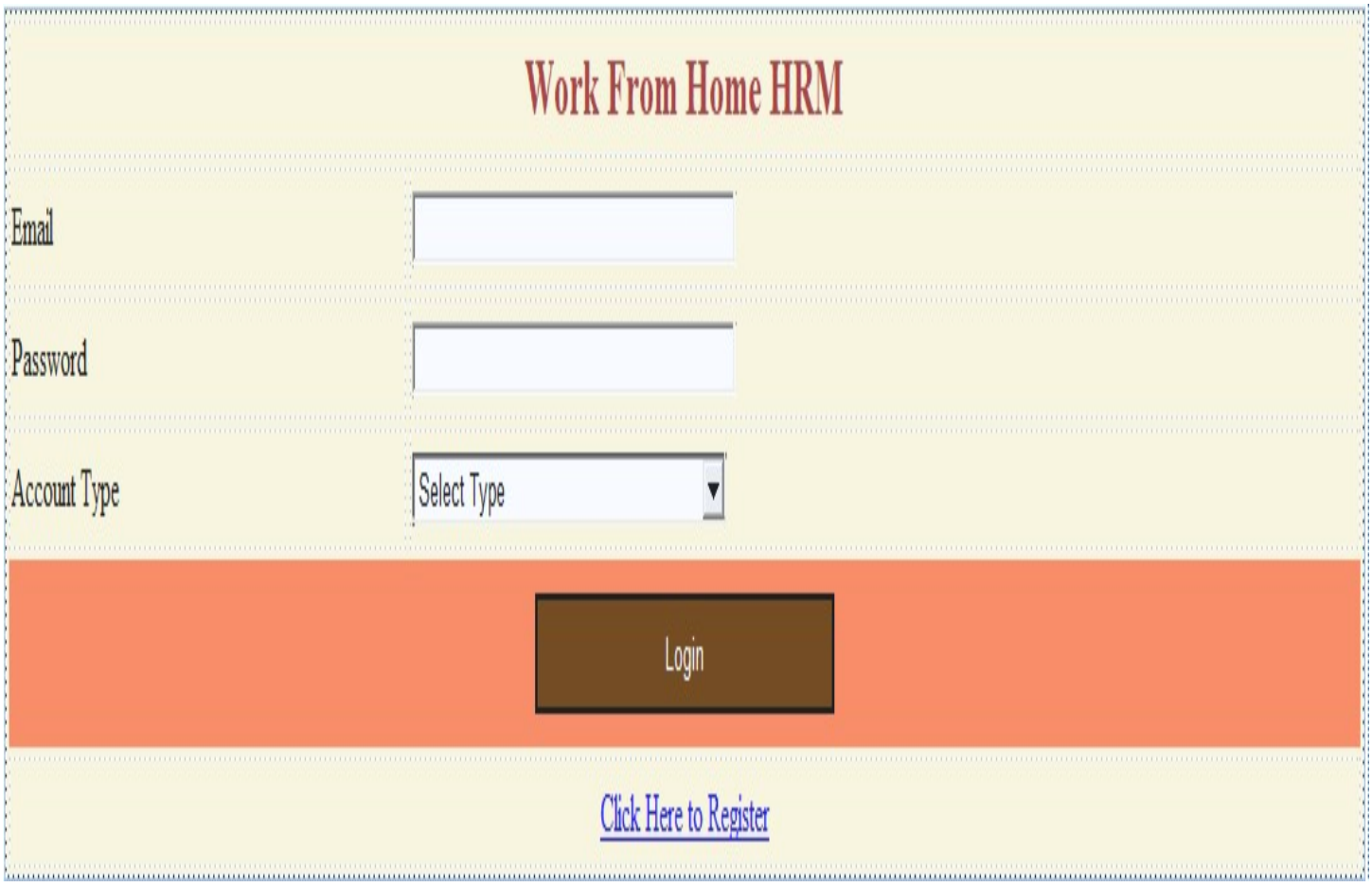


Figure 18: Login Page

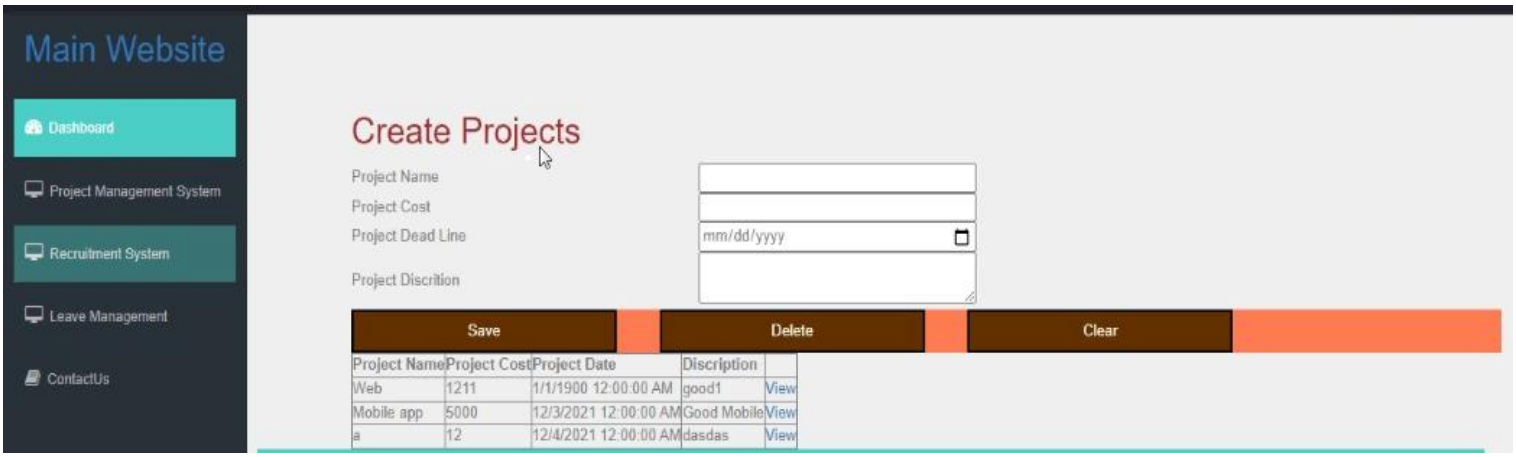


Figure 19: create project

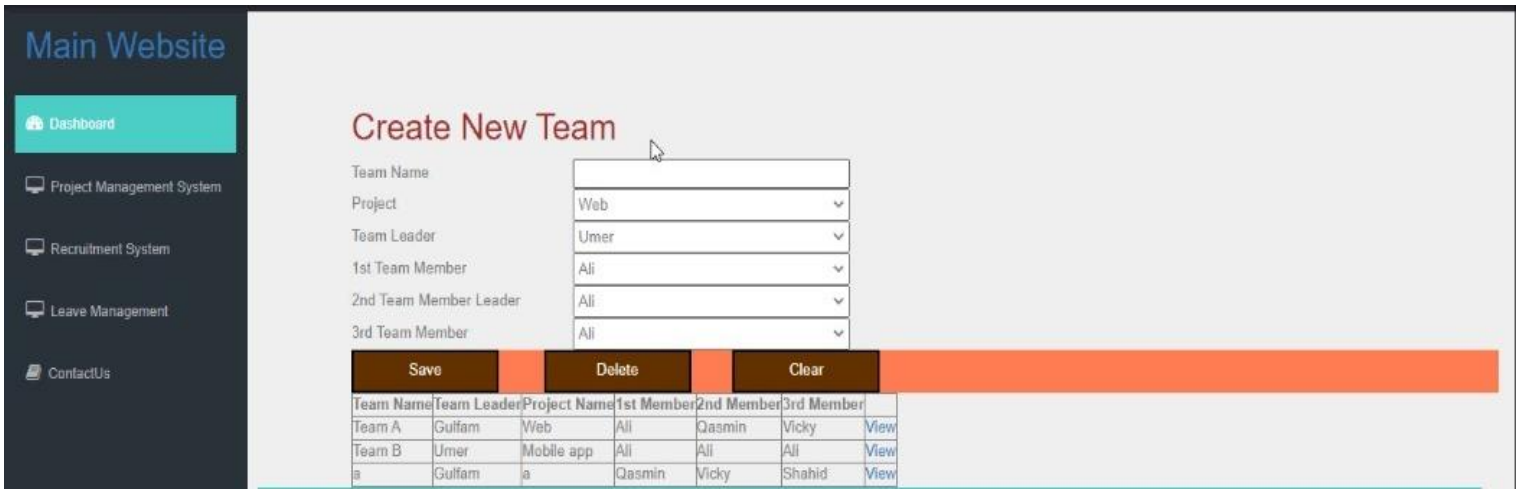


Figure 20: Create Team

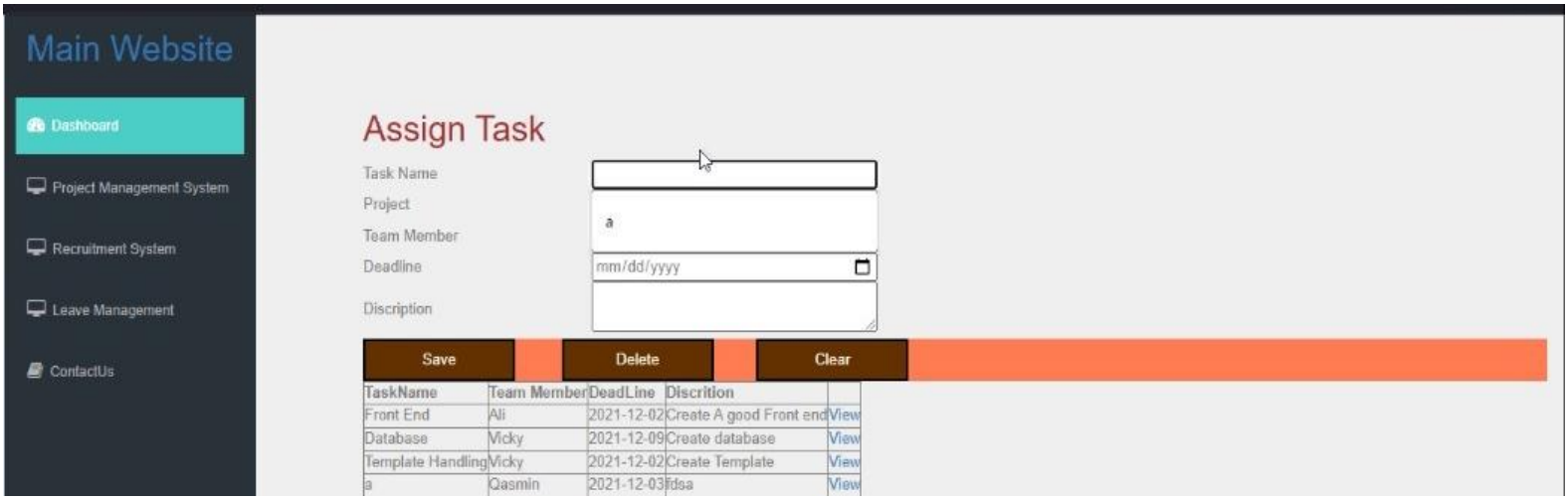


Figure 21: Assign Task

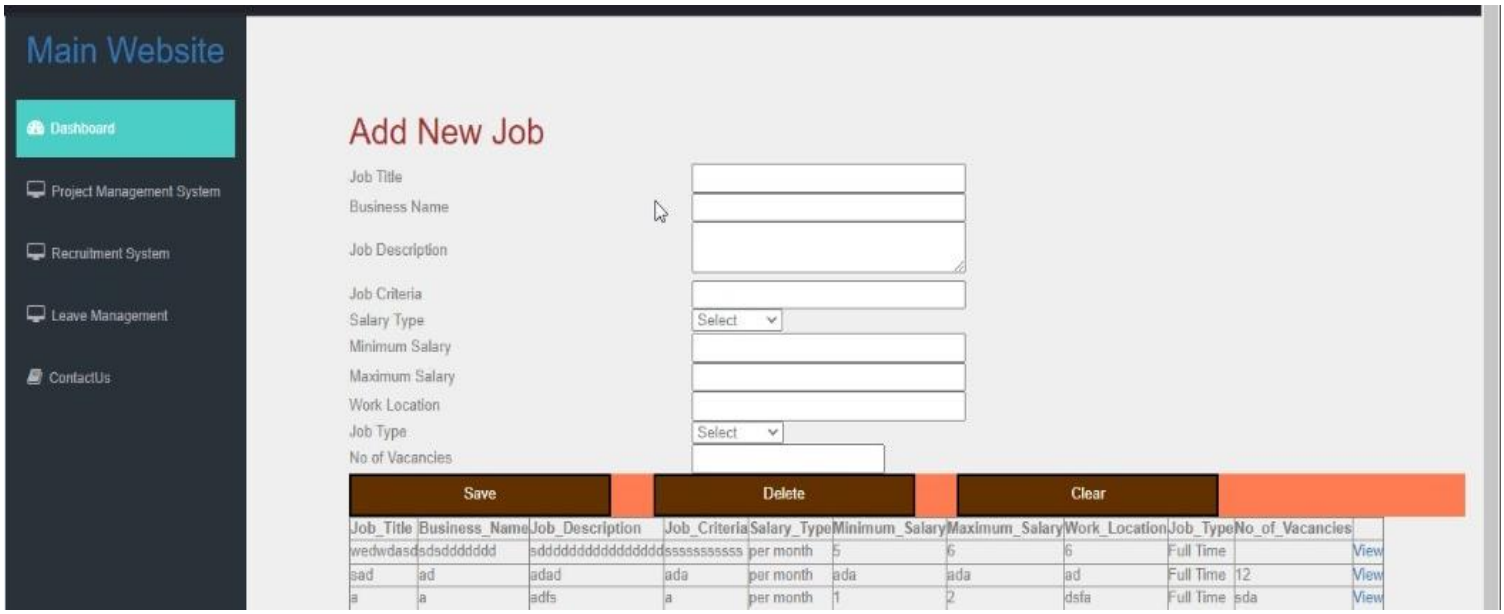


Figure 22: Add job

Figure 23: Apply for leave

6.2 Screen objects and actions

Fig 17: user will sign up
Fig 18: user will login the system
Fig 19: HR will create project
Fig 20: HR will create team
Fig 21: HR will assign task
Fig 22: HR will add job
Fig 23: Employee can apply for leave

7. Appendix I

- How to design using UML (OOP): For guidance please follow the instructions mentioned in the link: http://agilemodeling.com/artifacts/

- How and when to design ER diagrams: For guidance please follow the instructions mentioned in the link:
  http://people.inf.elte.hu/nikovits/DB2/Ullman_The_Complete_Book.pdf

- Data flow diagrams: For guidance please follow the instructions mentioned in the link and book:
  - http://www.agilemodeling.com/artifacts/dataFlowDiagram.htm
  - Software Engineering –A Practitioner's approach by Roger Pressman
- Architecture diagram: For guidance please follow the instructions mentioned in the link and book:
  - Ian Sommerville – Software Engineering 9th Edition– Chapter 6

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SOFTWARE DESIGN DESCRIPTION (SDD DOCUMENT) for < Work From Home HRMS> Version 1.0 By Muhammad Jawad Nasir CIIT/SP18-BSE-122/ISB Muhammad Sibtain CIIT/SP18-BSE-125/ISB 1. Introduction We are developing this system to help software house to manage their employee as employees are working remotely and it will help HR department to manage employee payrolls, leave management, employee information system, employee service and employee attendance. Our project is basically divided into three parts. ? Basic user functionalities like creating profiles, creating teams and assigning tasks, add, delete employees or record, recruiting. ? Core functionality which includes activity tracking and taking screen shots of the employee's screen during the working hours and OpenCV which will be used for face recognition. ? Third part is maintaining the database storing all kinds of data which profiles data, attendance,