



COMSATS University Islamabad (CUI)

**Software Design Description
(SDD DOCUMENT)**

for

Work From Home HRM

Version 1.0

By

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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.

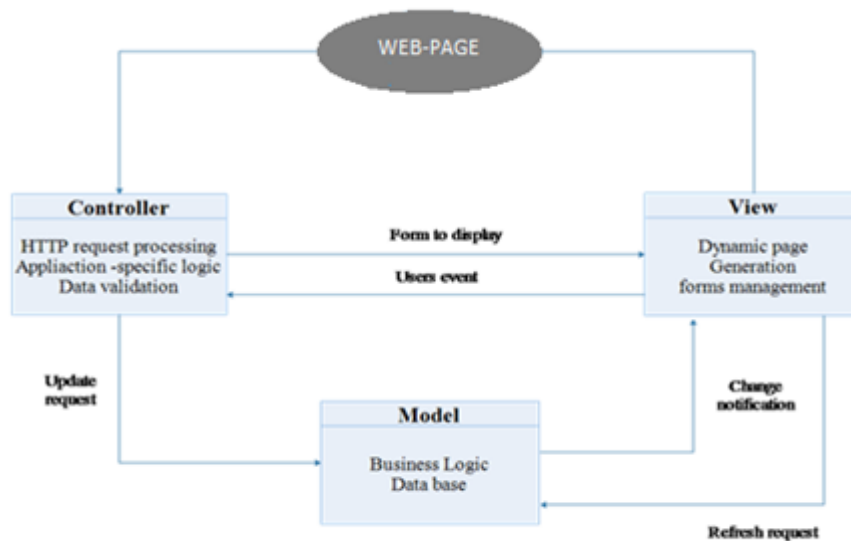
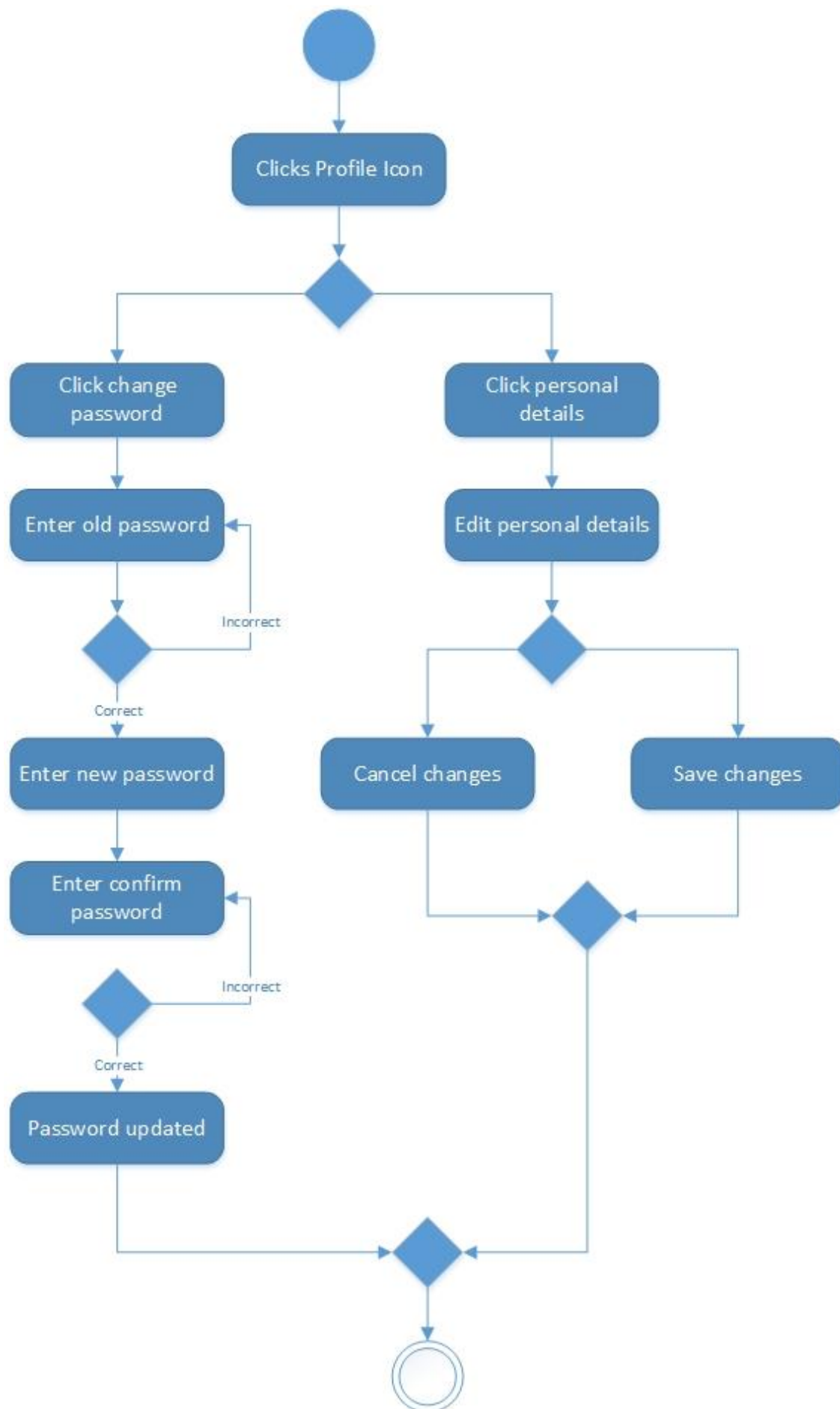


Figure 1: Project Architecture

3.2 Process flow/Representation

Activity Diagrams:



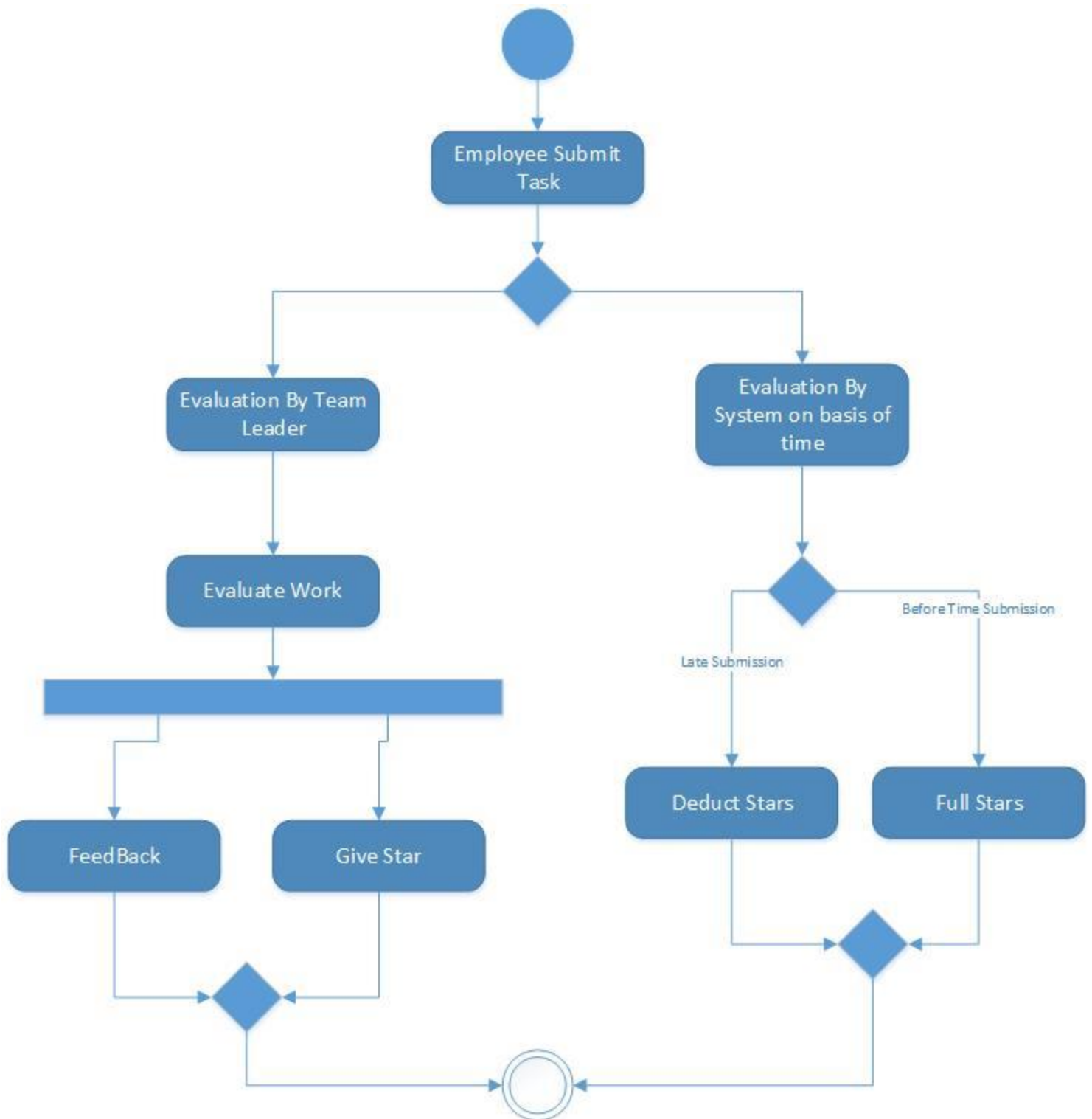
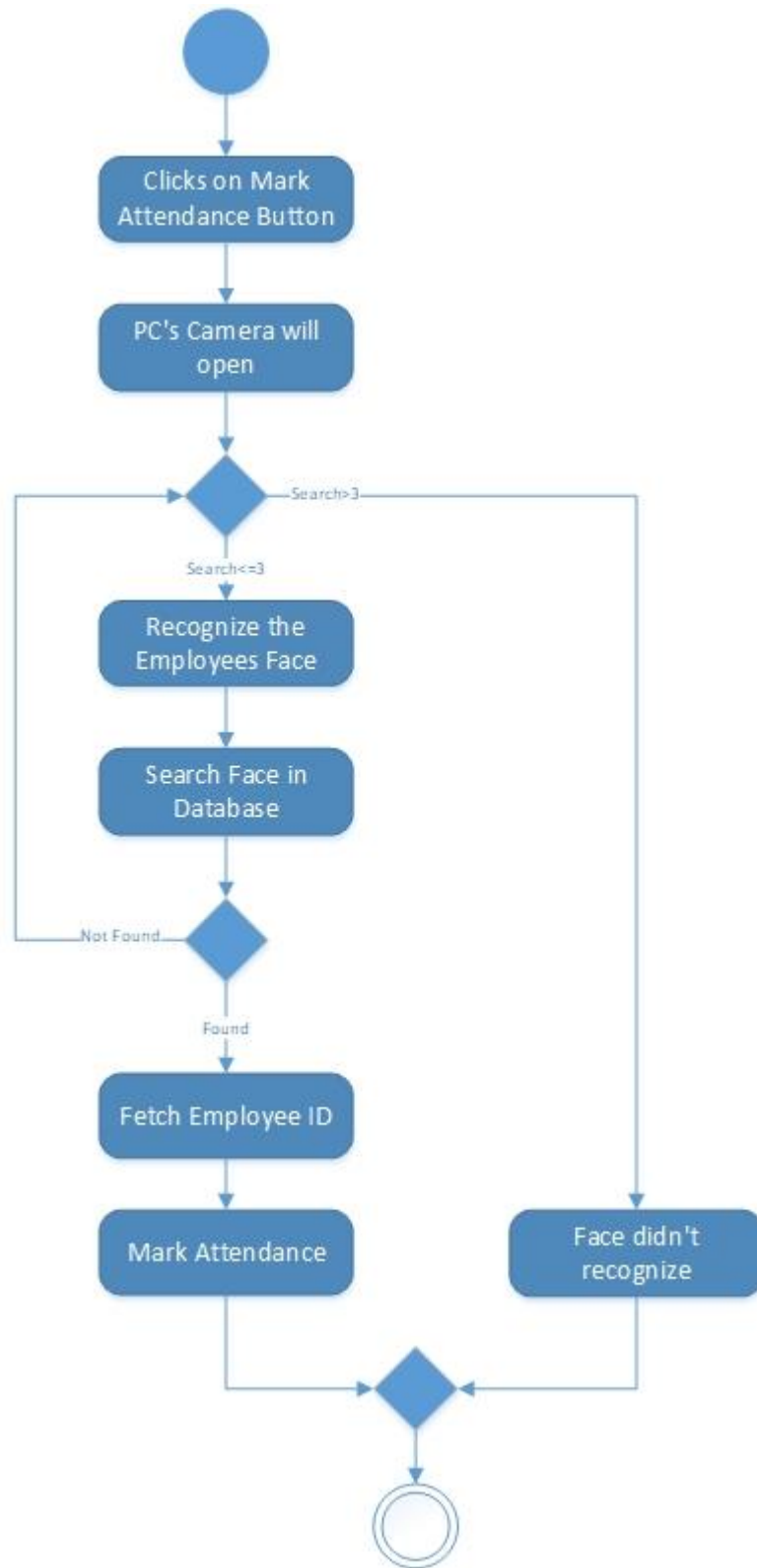


Figure 3: Performance Evaluation

**Figure 4: Mark Attendance**

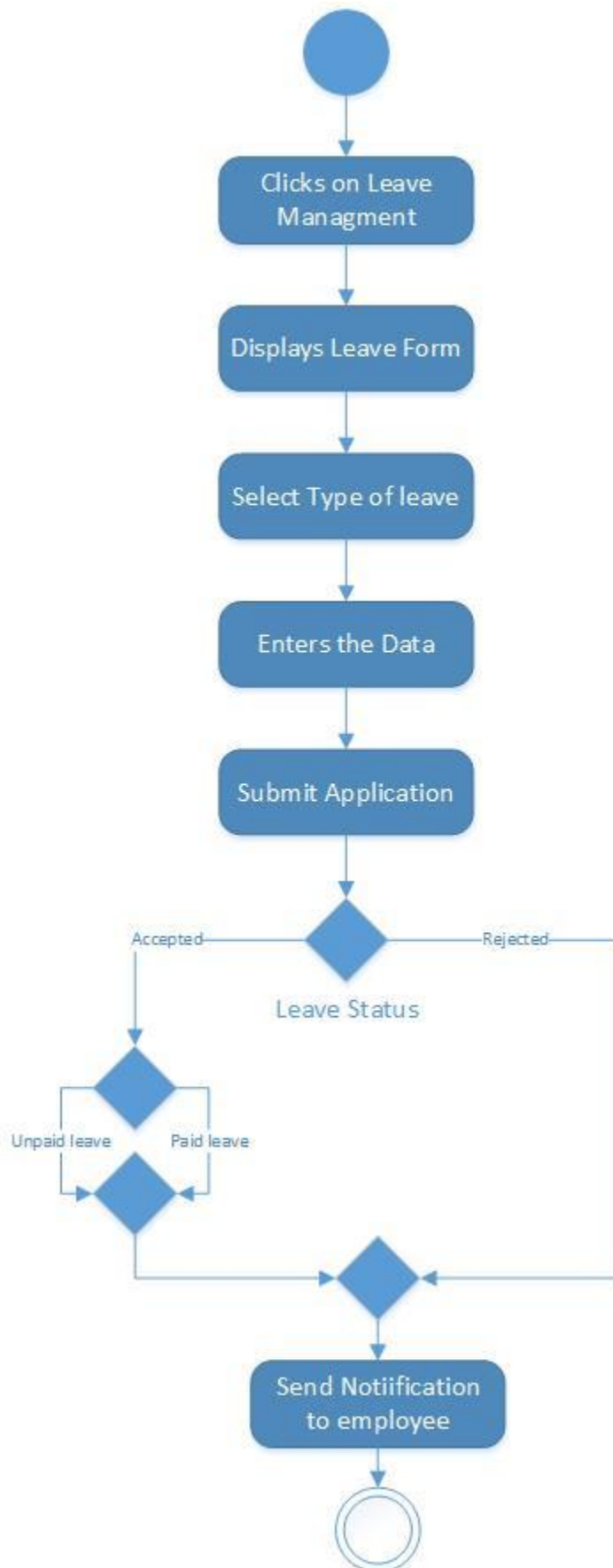


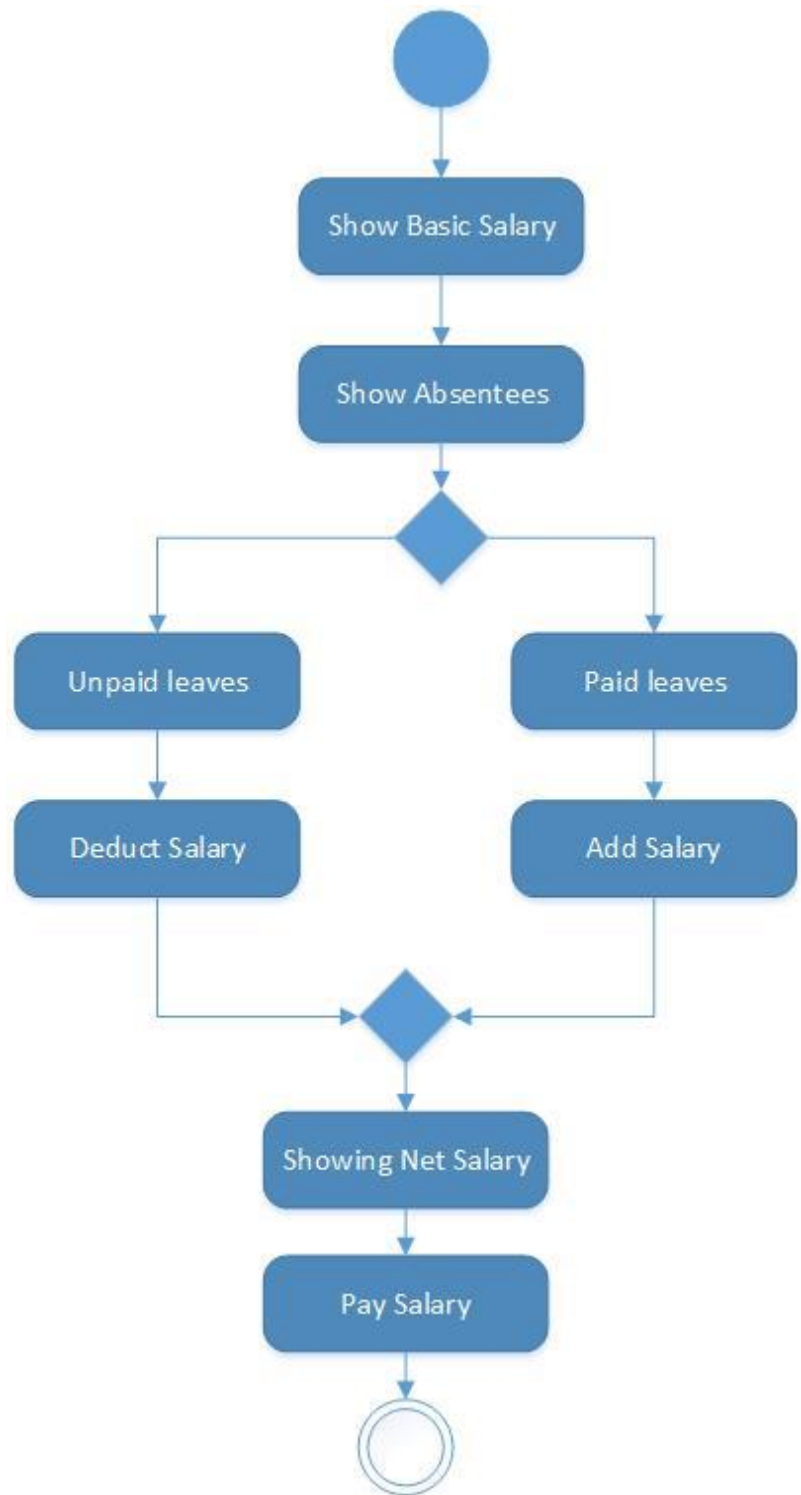
Figure 5: Apply For Leave



Figure 6: Assign Project



Figure 7: Apply For Job

**Figure 8: Pay Salary**

Sequence Diagrams:

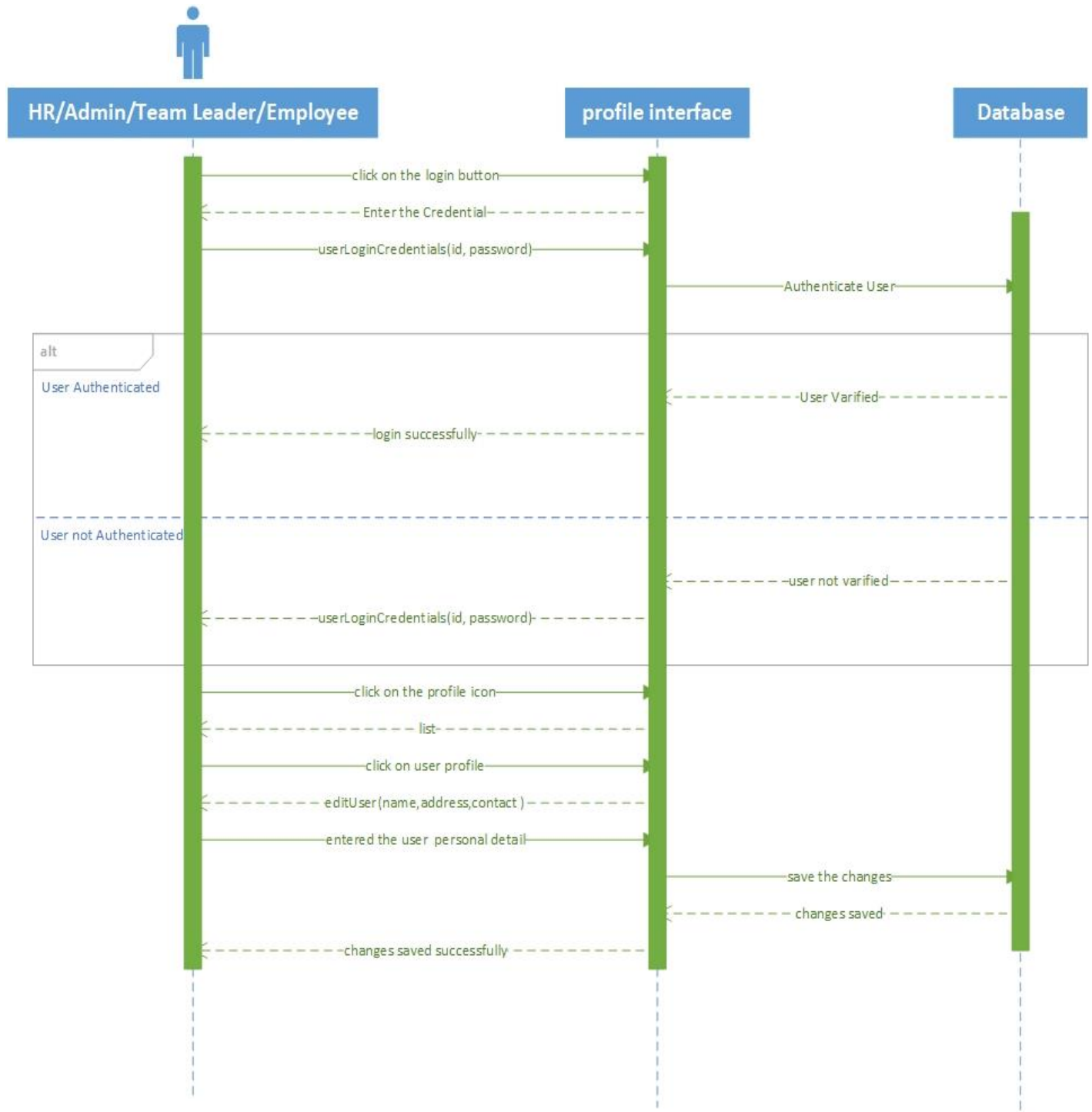


Figure 10: Update Profile

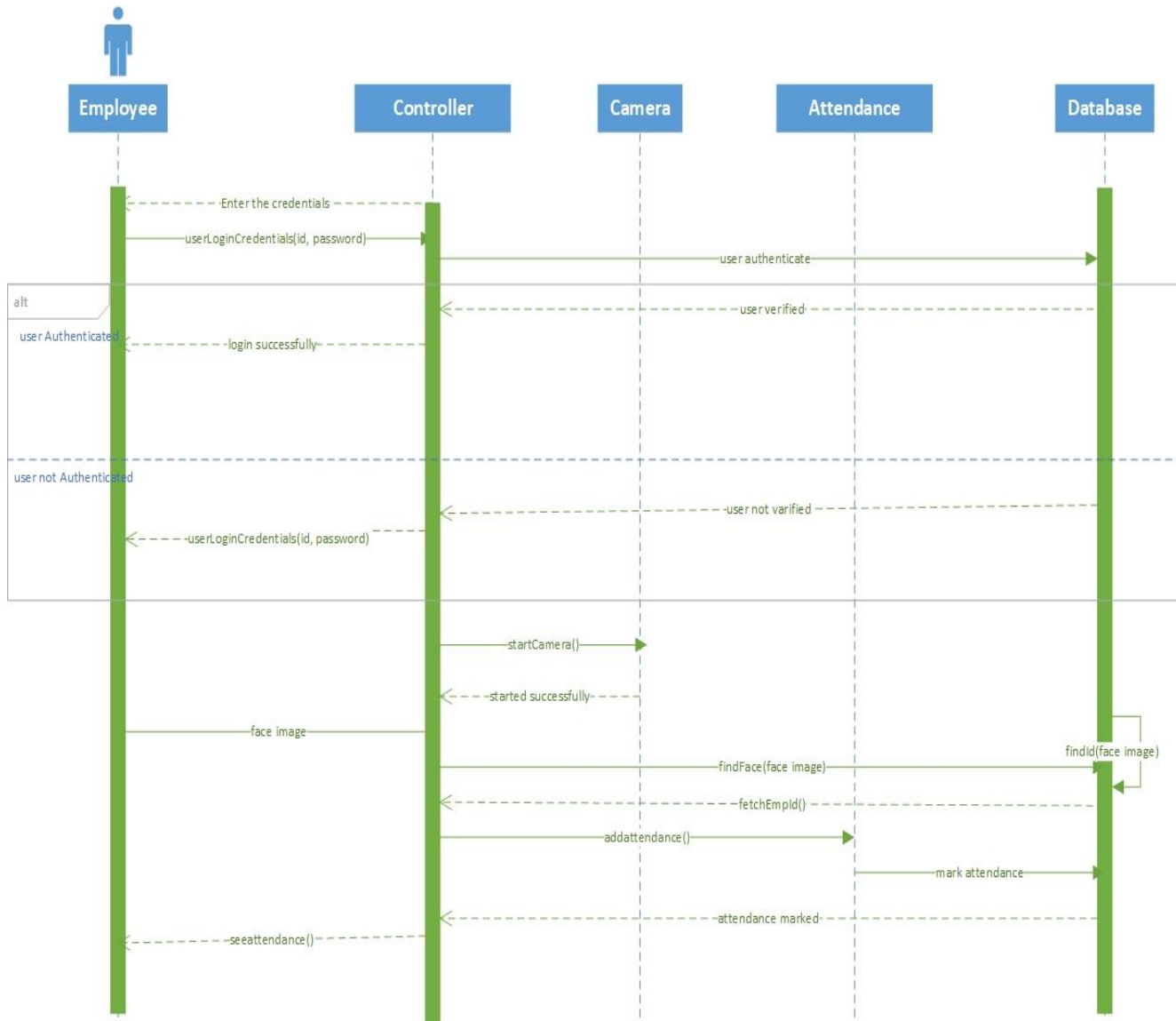


Figure 14: Mark Attendance

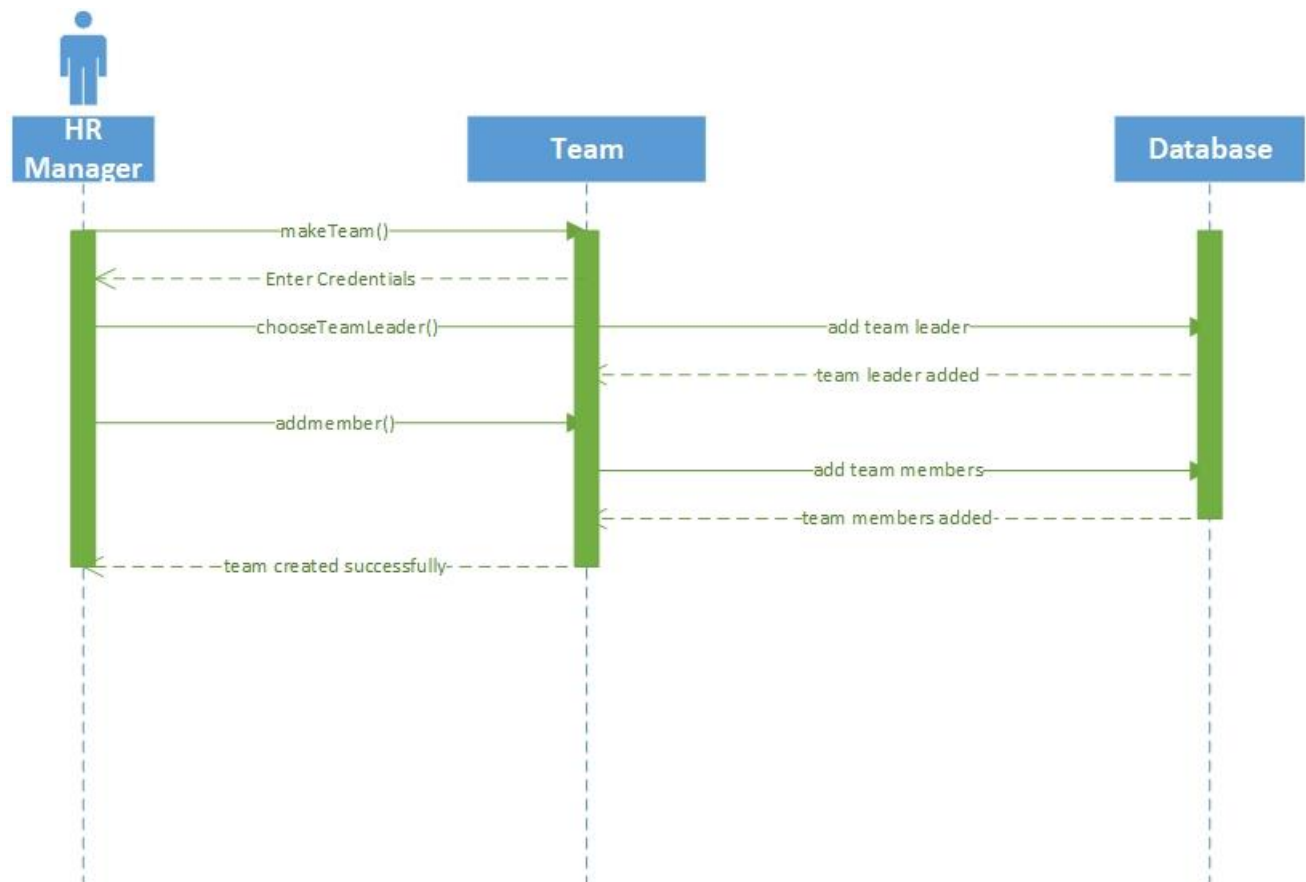
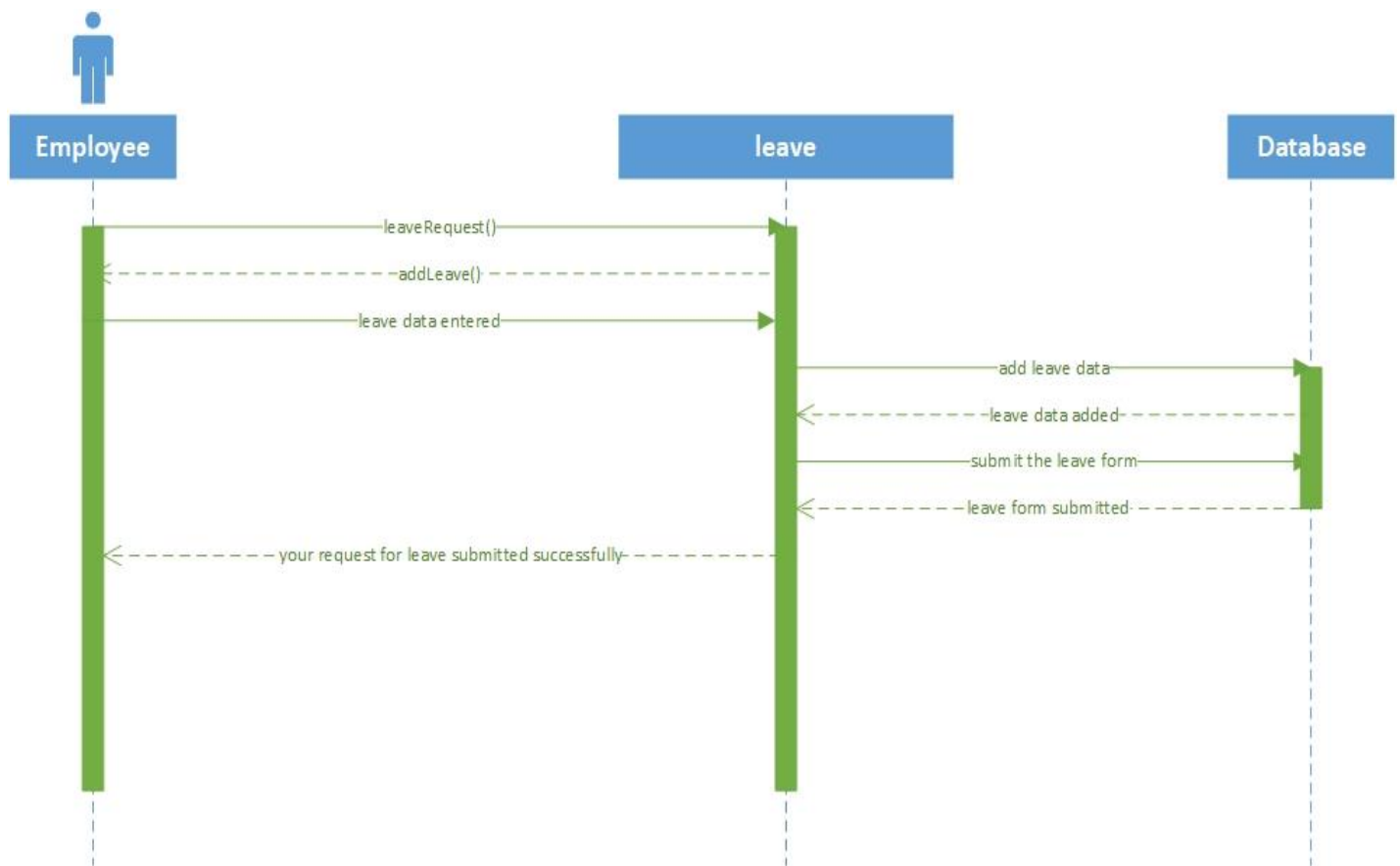
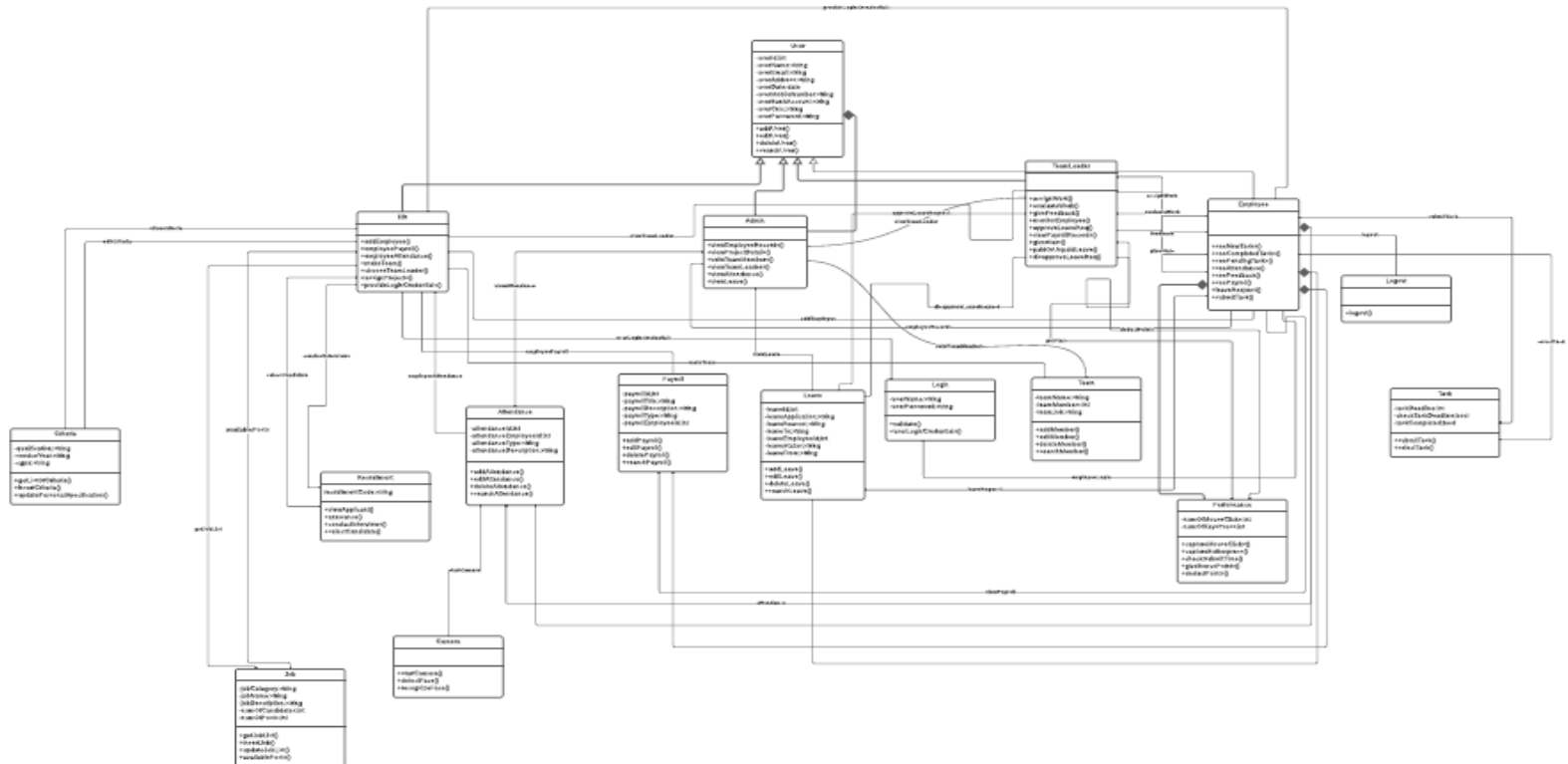


Figure 15:Create Team

**Figure 16: Submit Leave**

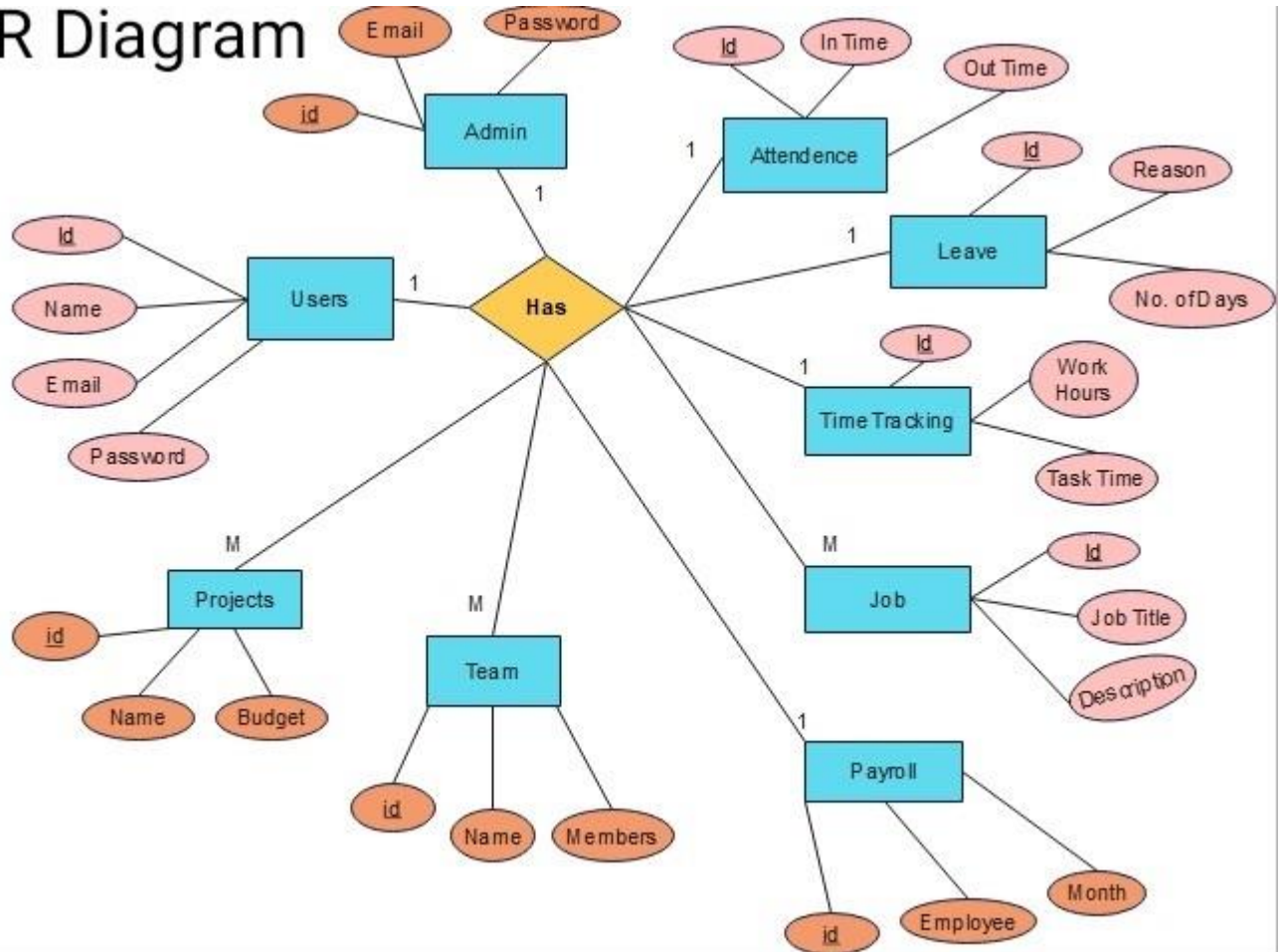
4. Design models [along with descriptions]

Class Diagram



5. Data design

ER Diagram

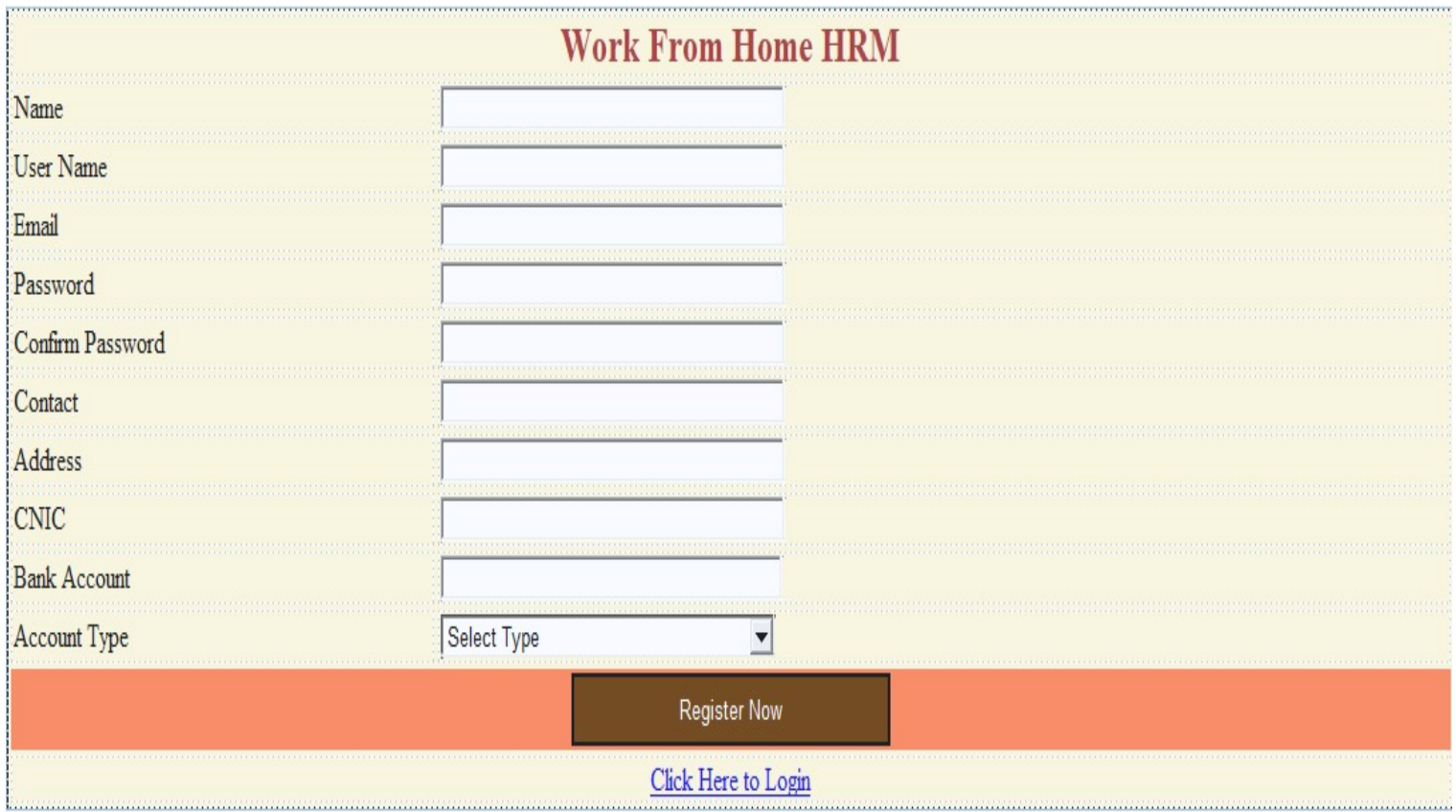


6. Human interface design

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.

6.1 Screen images



The image shows a web form titled "Work From Home HRM" for user registration. The form is set against a light yellow background with a dotted border. It contains several input fields for personal and contact information, followed by a "Register Now" button and a "Click Here to Login" link.

Work From Home HRM	
Name	<input type="text"/>
User Name	<input type="text"/>
Email	<input type="text"/>
Password	<input type="password"/>
Confirm Password	<input type="password"/>
Contact	<input type="text"/>
Address	<input type="text"/>
CNIC	<input type="text"/>
Bank Account	<input type="text"/>
Account Type	<input type="text" value="Select Type"/>
<input type="button" value="Register Now"/>	
Click Here to Login	

Figure 17: Sign Up



The image shows a login page for a system titled "Work From Home HRM". The page has a light yellow background. At the top, the title "Work From Home HRM" is displayed in a large, bold, red serif font. Below the title, there are three input fields arranged vertically. The first field is labeled "Email" in a black serif font and is a white rectangular box. The second field is labeled "Password" in a black serif font and is a white rectangular box. The third field is labeled "Account Type" in a black serif font and is a white dropdown menu with the text "Select Type" and a small downward arrow. Below these fields, there is a large orange rectangular button with the word "Login" in a white serif font. At the bottom of the page, there is a blue underlined link that says "Click Here to Register".

Work From Home HRM

Email

Password

Account Type

Login

[Click Here to Register](#)

Figure 18: Login Page

Main Website

- Dashboard
- Project Management System
- Recruitment System
- Leave Management
- ContactUs

Create Projects

Project Name

Project Cost

Project Dead Line

Project Discription

Save

Delete

Clear

Project Name	Project Cost	Project Date	Discription	
Web	1211	1/1/1900 12:00:00 AM	good1	View
Mobile app	5000	12/3/2021 12:00:00 AM	Good Mobile	View
a	12	12/4/2021 12:00:00 AM	dasdas	View

Figure 19: create project

Main Website

Dashboard

Project Management System

Recruitment System

Leave Management

ContactUs

Create New Team

Team Name

Project

Web

▼

Team Leader

Umer

▼

1st Team Member

Ali

▼

2nd Team Member Leader

Ali

▼

3rd Team Member

Ali

▼

Save

Delete

Clear

Team Name	Team Leader	Project Name	1st Member	2nd Member	3rd Member	
Team A	Gulfam	Web	Ali	Qasmin	Vicky	View
Team B	Umer	Mobile app	Ali	Ali	Ali	View
a	Gulfam	a	Qasmin	Vicky	Shahid	View

Figure 20: Create Team

Main Website

Dashboard

Project Management System

Recruitment System

Leave Management

ContactUs

Assign Task

Task Name

Project

Team Member

Deadline

Discription

a

mm/dd/yyyy

Save

Delete

Clear

TaskName	Team Member	DeadLine	Discription	
Front End	Ali	2021-12-02	Create A good Front end	View
Database	Vicky	2021-12-09	Create database	View
Template Handling	Vicky	2021-12-02	Create Template	View
a	Qasmin	2021-12-03	fdsa	View

Figure 21: Assign Task

Main Website

Dashboard
Project Management System
Recruitment System
Leave Management
ContactUs

Add New Job

Job Title
Business Name
Job Description
Job Criteria
Salary Type
Minimum Salary
Maximum Salary
Work Location
Job Type
No. of Vacancies

Select

Select

Save
Delete
Clear

Job Title	Business Name	Job Description	Job Criteria	Salary Type	Minimum Salary	Maximum Salary	Work Location	Job Type	No. of Vacancies	
wedwdsd	sdsd	sd	ssssssssss	per month	5	6	6	Full Time		View
ead	ad	adad	ada	per month	ada	ada	ad	Full Time	12	View
a	a	adfs	a	per month	1	2	dsfa	Full Time	sda	View

Figure 22: Add job

The screenshot displays the 'Apply for Leave' form within a web application. On the left is a dark sidebar with the title 'Main Website' and a menu containing 'Dashboard', 'Project Management System', 'Recruitment System', 'Leave Management', and 'ContactUs'. The main content area has a light gray background and features the form title 'Apply for Leave' in red. The form fields are as follows: 'UserEmail' with the value 'l@gmail.com'; 'Type of Leave' as a dropdown menu; 'Leave Required From' and 'To' as date pickers with the format 'mm/dd/yyyy'; 'No. of Days' as a dropdown menu; 'Purpose of Leave' as a text area; 'I will report back on' as a date picker; 'Form Submission Date' as a date range picker with the format 'mm/dd/yyyy --:-- --'; 'Status' as a dropdown menu; and 'Leave_Status' as a dropdown menu. An 'Insert' button is located at the bottom of the form.

Apply for Leave

UserEmail: l@gmail.com

Type of Leave: select

Leave Required From: mm/dd/yyyy

To: mm/dd/yyyy

No. of Days: select

Purpose of Leave:

I will report back on: mm/dd/yyyy

Form Submission Date: mm/dd/yyyy --:-- --

Status: select

Leave_Status: Select

Insert

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,