

A
PROJECT REPORT ON

Leave Management System

By

ANKIT BHARANI (CE-010) (19CEUBD004)
BRIJESH CHUDASAMA (CE-026) (18CEUBD009)
YASH GARALA (CE-043) (18CEUOS078)

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Subject: System Design Practice

Guided by:

Prof.Pandav K. Patel
Assistant Professor
Dept. of Comp. Engg.



Faculty of Technology
Department of Computer Engineering
Dharmsinh Desai University



**Faculty of Technology
Department of Computer Engineering
Dharmsinh Desai University**

CERTIFICATE

This is to certify that the practical / term work carried out in the subject
of **System Design Practice** and recorded in this journal is the
bonafide work of

**ANKIT BHARANI (CE-010) (19CEUBD004)
BRIJESH CHUDASAMA (CE-026) (18CEUBD009)
YASH GARALA (CE-043) (18CEUOS078)**

of B.Tech semester **VI** in the branch of **Computer Engineering**
during the academic year **2020-2021**.

Prof. Pandav K. Patel
Assistant Professor,
Dept. of Computer Engg.,
Faculty of Technology
Dharmsinh Desai University, Nadiad

Dr. C. K. Bhensdadia,
Head,
Dept. of Computer Engg.,
Faculty of Technology
Dharmsinh Desai University, Nadiad

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Abstract

Online leave management system is an application that is of utmost importance for an organization or college. The leave management application will allow the users to apply for the leaves through the online mode by specifying a valid reason and valid type for the leave. This can also be implemented at the organization level and the college levels where the employees can apply for the leave. The user interface must be simple and easy to understand. The leave applications and the approvals are done manually. This work can be automated through the use of this application. This application can also allow the users to check the pending leaves that they have.

This application can help in avoiding the leave application that needs to be given to the higher authority with great ease. This application can also help in sending the email notifications to the users regarding the leaves that they have availed with great ease.

Chapter 1 – Introduction

1.1 Purpose

Online leave management system is a very handy tool to overcome many manual tasks related to the leave management into organization like university or company.

Authorities just have to create any leave type and it will allocated to all the employees are working inside. Any user can request for leave on the web platform without making any manual task such as going into authorities and fill the forms and etc tasks will be removed.

So, it's a bridge made of technology that manage Leave management task of users.

1.2 Technology Used

For the implementation, we have used asp.net MVC EF Core framework and C# language as a backend.

Development Tools used during complete implementation of the project is Visual Studio and Umlet.

Chapter 2 - Software Requirements Specification

2.1 Types of User:

1. Admin
2. Registrar
3. Dean
4. HOD
5. Faculty
6. Pending

2.2 System Functional Requirements

R.1 Admin

R.1.1 Login in System

Description: Admin can login to the website to perform leave related operations.

Input: Admin click on submit button.

Output: Success message.

R.1.2 Create Leave type

Description: This function allows admin to create Leave type and Number of the days of the leave.

Input: Provide proper name of the leave.

Output: Success message.

R.1.3 List out Leave type

Description: This will allow admin to List all the existing Leave type in the system and

Input: Provide proper name of the leave.

Output: Success message.

R.1.3.1 Edit Leave type

Description: It will allow to modify leave details according to the requirement.

Input: Provide Updated Details and press Update Button

Output: You can see updated data on the Leave list page.

R.1.3.2 Delete Leave type

Description: It will delete particular Leave type.

Input: press delete button for respective Leave Type.

Output: Leave Deleted Successfully.

R.1.4 Manage All user's history.

Description: This will manage all the users accounts exists in the system.

Input: press all users history button

Output: List of all users.

R.1.5 Manage All user's Leave history.

Description: This will manage all the users leave request details exists in the system.

Input: press all Leave history button

Output: List of all users Leave history.

R.1.6 Respond to the registrar Leave request

Description: This will manage all the leave request of the registrar and generate accept/reject response accordingly.

Input: Press accept/reject button

Output: List of all users Leave history.

R.1.7 Leave Operation history

Description: This will list out details regarding accept/reject responses.

Input: Press My Leave Operation button

Output: List of all leave operations made in past.

R.1.8 Role allocation

Description: This will allocate the role to newly created user when it registers and upload its profile details verification manually.

Input: Allocate Role and Department

Output: Role successfully allocated.

R.1.9 Update Self Profile Details

Description: This will Allow user to Edit self-profile details.

Input: Provide proper information and hit edit button

Output: Data updated Successfully.

R.2 Registrar

R.2.1 Login in System

Description: Registrar can login to the website to perform leave related operations.

Input: Registrar click on submit button.

Output: Success message.

R.2.2 Create Leave Request

Description: This function allows Registrar to create Leave request and send it to Admin.

Input: Provide proper leave information of the leave such as leave type, leave reason, starting date, ending date and any attachment file

Output: Leave request created successfully.

R.2.3 Respond to the Dean's Leave request

Description: This will manage all the leave request of the Deans and generate accept/reject response accordingly.

Input: Press accept/reject button

Output: Leave response created successfully.

R.2.4 Manage All Dean's remaining Leaves.

Description: This will manage all the deans remain leaves exists in the system.

Input: press Users Leaves button.

Output: List of all user's remain leaves.

R.2.5 Leave Operation history

Description: This will list out details regarding accept/reject responses.

Input: Press My Leave Operation button

Output: List of all leave operations made in past.

R.2.6 Update Self Profile Details

Description: This will Allow user to Edit self profile details.

Input: Provide proper information and hit edit button

Output: Data updated Successfully.

R.2.7 Manage Self Leave requests made to registrar.

Description: This will manage all the Leave request made to the Admin.

Input: press My Leave button.

Output: details regarding My leaves.

R.2.7.1 Edit Leave request

Description: It will allow to modify leave request and resend with proper attachments.

Input: Provide Updated Details and press Update Button

Output: You can see updated data on the Leave list page

R.2.7.2 Cancel Leave request

Description: It will allow to registrar cancel the leave requests.

Input: Select leave and hit delete button

Output: You can see updated data on the Leave list page

R.3 Dean

R.3.1 Login in System

Description: Dean can login to the website to perform leave related operations.

Input: Dean click on submit button.

Output: Success message.

R.3.2 Create Leave Request

Description: This function allows Dean to create Leave request and send it to Registrar.

Input: Provide proper leave information of the leave such as leave type, leave reason, starting date, ending date and any attachment file

Output: Leave request created successfully.

R.3.3 Respond to the HOD's Leave request

Description: This will manage all the leave request of the HODs and generate accept/reject response accordingly.

Input: Press accept/reject button

Output: Leave response created successfully.

R.3.4 Manage All HOD's remaining Leaves.

Description: This will manage all the HOD's remain leaves exists in the system.

Input: press Users Leaves button.

Output: List of all user's remain leaves.

R.3.5 Leave Operation history

Description: This will list out details regarding accept/reject responses.

Input: Press My Leave Operation button

Output: List of all leave operations made in past.

R.3.6 Update Self Profile Details

Description: This will Allow user to Edit self-profile details.

Input: Provide proper information and hit edit button.

Output: Data updated Successfully.

R.3.7 Manage Self Leave requests made to registrar.

Description: This will manage all the Leave request made to the Registrar.

Input: press My Leave button.

Output: details regarding My leaves.

R.3.7.1 Edit Leave request

Description: It will allow to modify leave request and resend with proper attachments.

Input: Provide Updated Details and press Update Button

Output: You can see updated data on the Leave list page

R.3.7.2 Cancel Leave request

Description: It will allow to Dean cancel the leave requests.

Input: Select leave and hit delete button

Output: You can see updated data on the Leave list page

R.4 HOD

R.4.1 Login in System

Description: HOD can login to the website to perform leave related operations.

Input: HOD click on submit button.

Output: Success message.

R.4.2 Create Leave Request

Description: This function allows HOD to create Leave request and send it to Dean.

Input: Provide proper leave information of the leave such as leave type, leave reason, starting date, ending date and any attachment file

Output: Leave request created successfully.

R.4.3 Respond to the Faculty's Leave request

Description: This will manage all the leave request of the Faculty's and generate accept/reject response accordingly.

Input: Press accept/reject button

Output: Leave response created successfully.

R.4.4 Manage All Faculty's remaining Leaves.

Description: This will manage all the Faculty's remain leaves exists in the system.

Input: press Users Leaves button.

Output: List of all user's remain leaves.

R.4.5 Leave Operation history

Description: This will list out details regarding accept/reject responses.

Input: Press My Leave Operation button

Output: List of all leave operations made in past.

R.4.6 Update Self Profile Details

Description: This will Allow user to Edit self-profile details.

Input: Provide proper information and hit edit button.

Output: Data updated Successfully.

R.4.7 Manage Self Leave requests made to Dean.

Description: This will manage all the Leave request made to the Dean.

Input: press My Leave button.

Output: details regarding My leaves.

R.4.7.1 Edit Leave request

Description: It will allow to modify leave request and resend with proper attachments.

Input: Provide Updated Details and press Update Button

Output: You can see updated data on the Leave list page

R.4.7.2 Cancel Leave request

Description: It will allow to Dean cancel the leave requests.

Input: Select leave and hit delete button

Output: You can see updated data on the Leave list page

R.5 Faculty

R.5.1 Login in System

Description: Faculty can login to the website to perform leave related operations.

Input: Faculty click on submit button.

Output: Success message.

R.5.2 Create Leave Request

Description: This function allows Faculty to create Leave request and send it to HOD.

Input: Provide proper leave information of the leave such as leave type, leave reason, starting date, ending date and any attachment file

Output: Leave request created successfully.

R.5.3 List remaining Leaves.

Description: This will List all the Faculty's remaining leaves types exists in the system.

Input: press Users Leaves button.

Output: List of all users remain leaves.

R.5.4 Update Self Profile Details

Description: This will Allow user to Edit self-profile details.

Input: Provide proper information and hit edit button.

Output: Data updated Successfully.

R.5.6 Manage Self Leave requests made to HOD.

Description: This will manage all the Leave request made to the HOD.

Input: press My Leave button.

Output: details regarding My leaves.

R.5.6.1 Edit Leave request

Description: It will allow to modify leave request and resend with proper attachments.

Input: Provide Updated Details and press Update Button

Output: You can see updated data on the Leave list page

R.5.6.2 Cancel Leave request

Description: It will allow to Dean cancel the leave requests.

Input: Select leave and hit delete button

Output: You can see updated data on the Leave list page

R.6 Pending

R.6.1 Login in System

Description: Pending role user can login to the website to update the profile details for the verification.

Input: Faculty click on submit button.

Output: Success message.

R.6.2 Update Self Profile Details

Description: This will Allow user to Edit self-profile details.

Input: Provide proper information and hit edit button.

Output: Data updated Successfully.

R.6.3 Register in System

Description: Pending role user can Register to the website.

Input: User provide proper information and press register button.

Output: Success message.

2.3 Other non-functional requirements

1. Performance

The system must be interactive and the delays involved must be less. So, in every action- response of the system, there are no immediate delays. In case of opening App components, of popping error messages and saving the settings or sessions there is delay much below 3 seconds.

2. Safety

User details should be securely stored to the server. The main security concern is for user account hence proper login mechanism should be used to avoid hacking.

3. Reliability

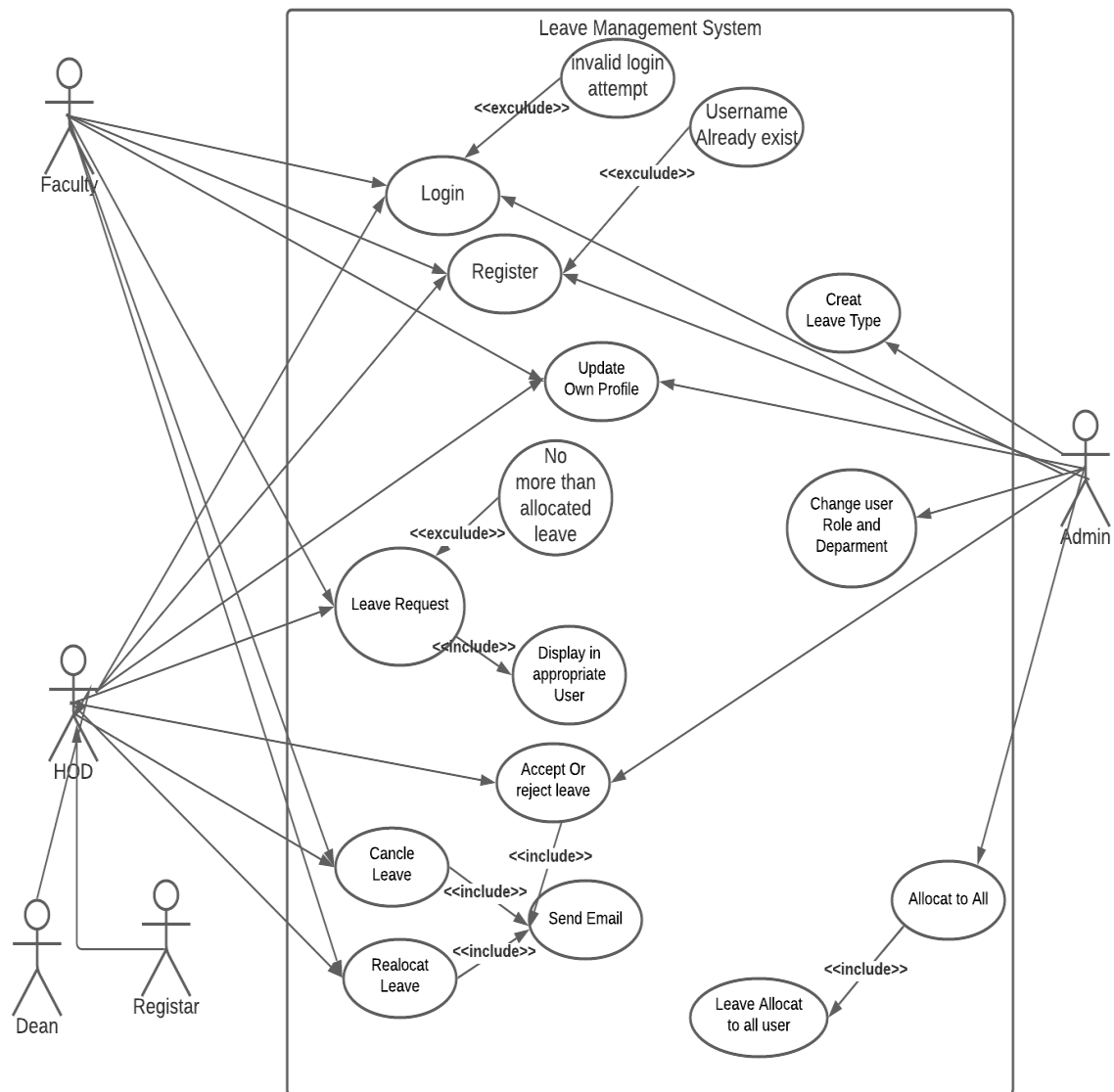
As the system provides the right tools for discussion, problem solving it must be made sure that the system is reliable in its operations and for securing the sensitive details.

4. Database

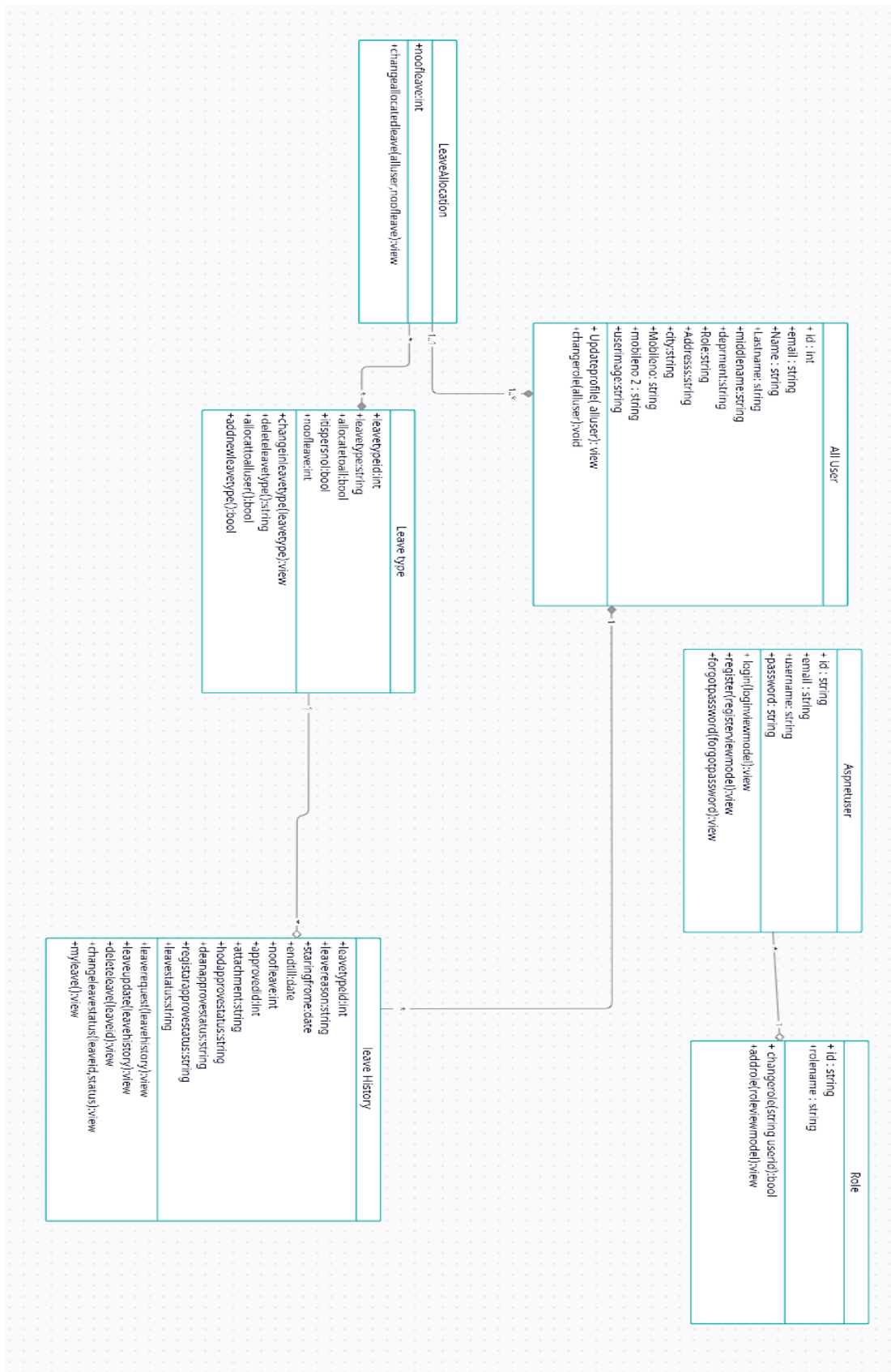
System requires to access user's data fast to maintain the performance.

Chapter 3 – Design

3.1. Use-Case Diagram:

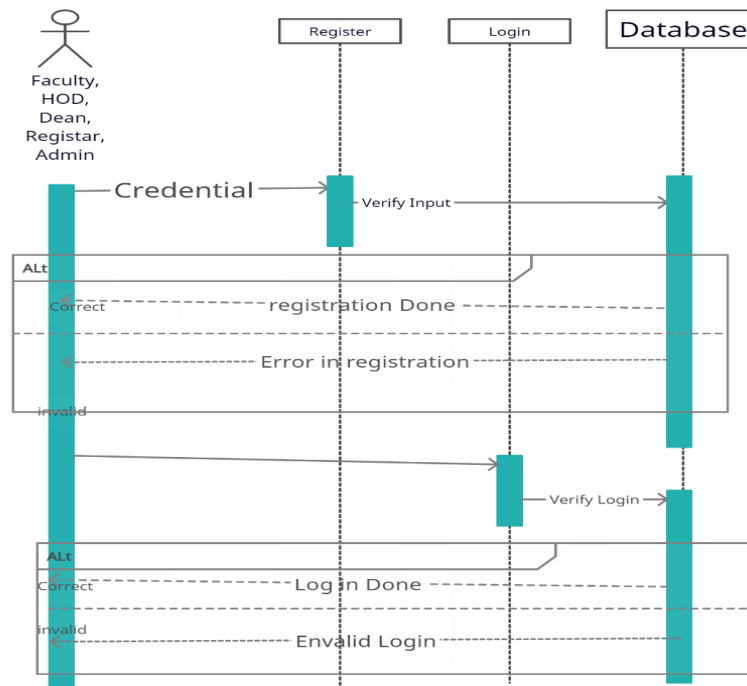


3.2. Class Diagram

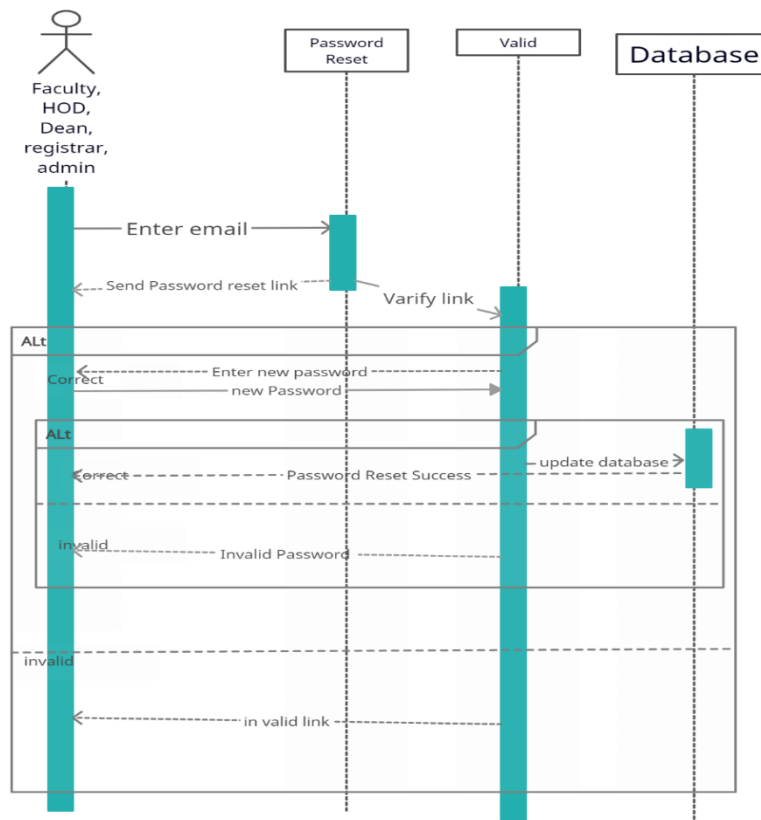


3.3. Sequence Diagram:

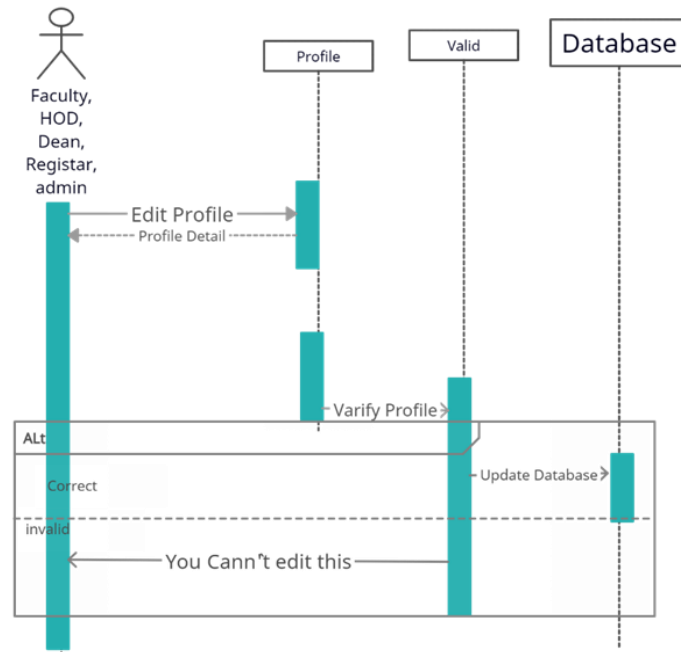
Login and Register



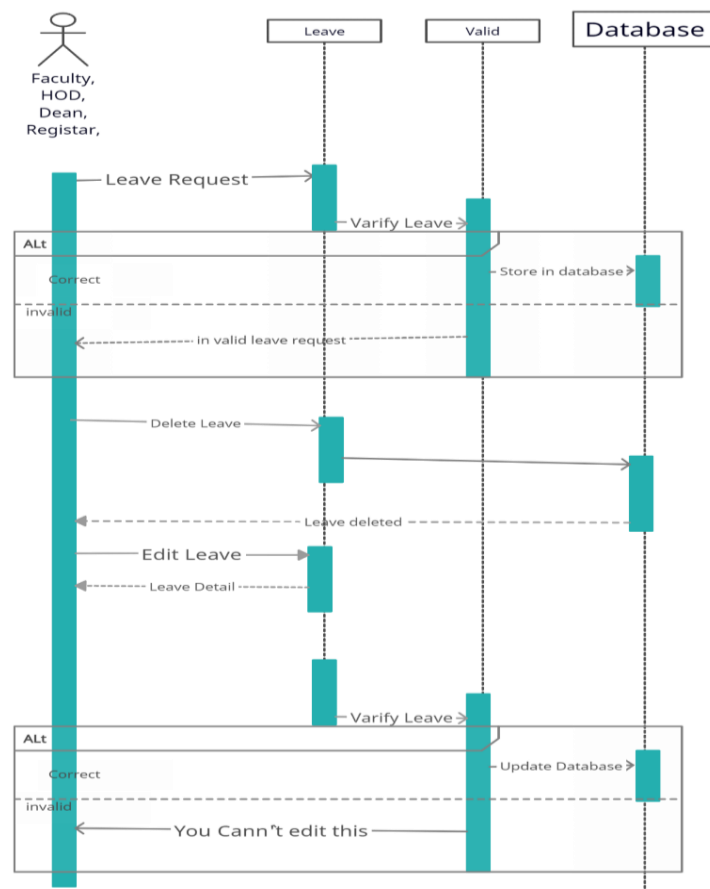
Forgot Password



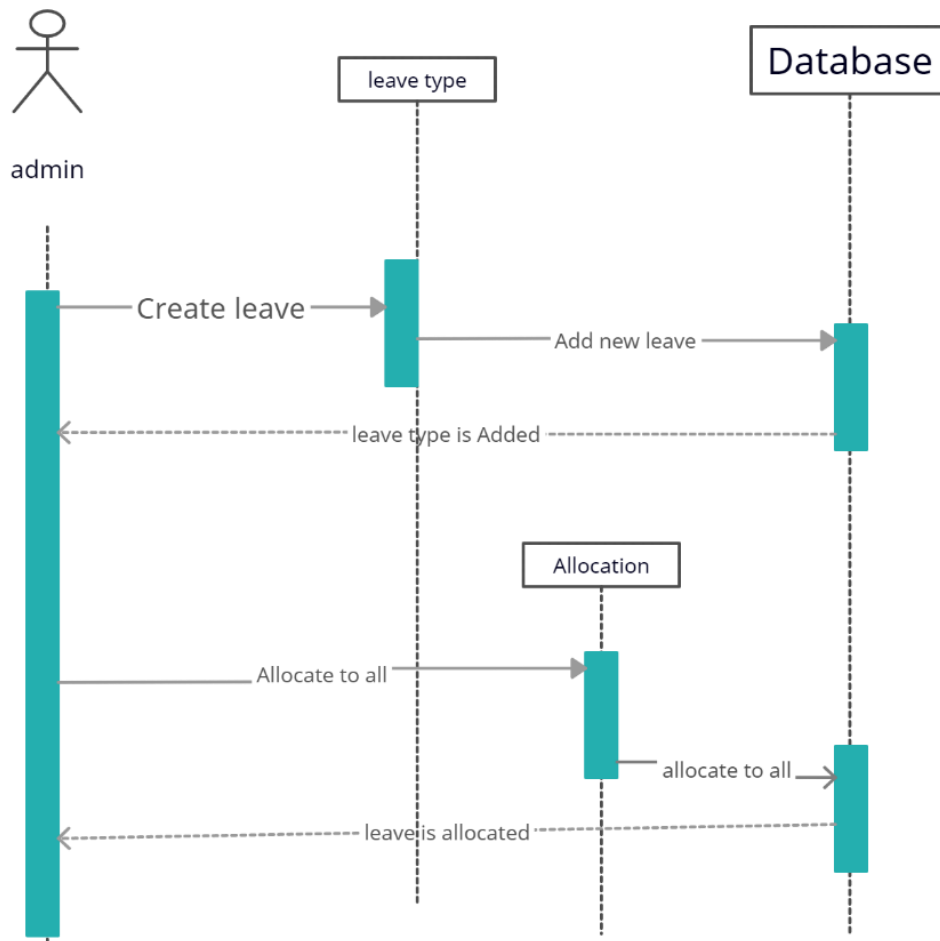
Edit Profile



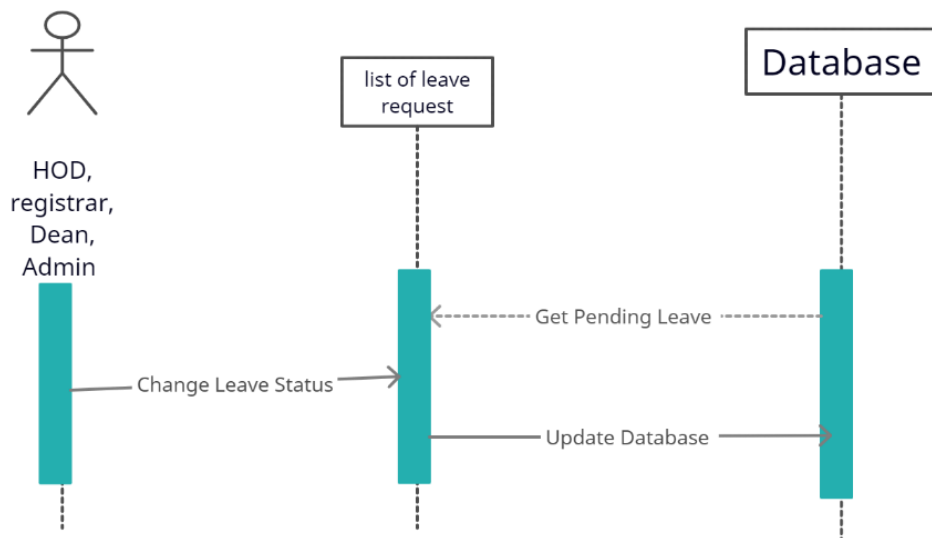
Leave Request



Leave allocation

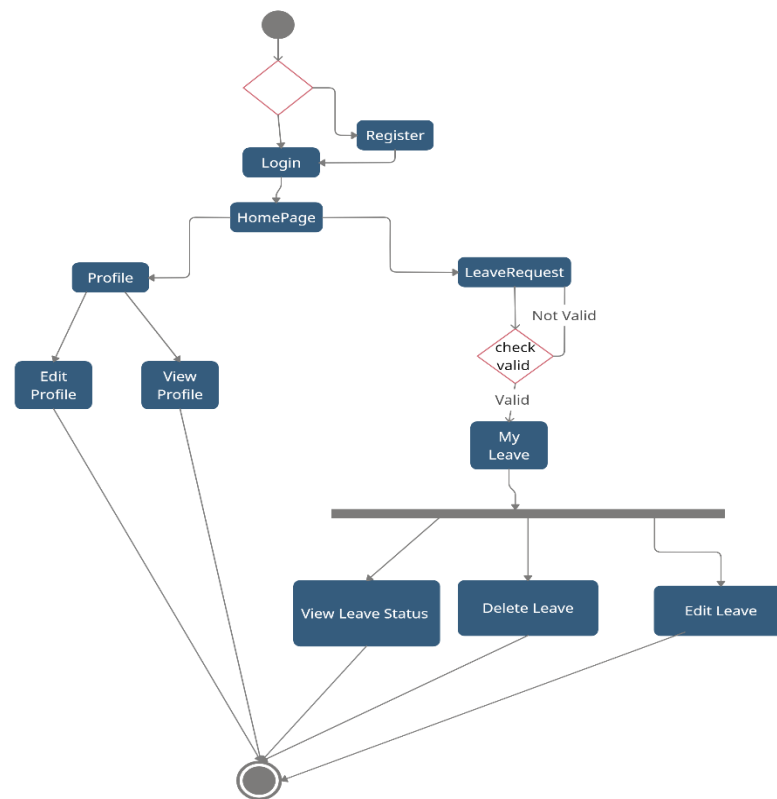


Leave Status change

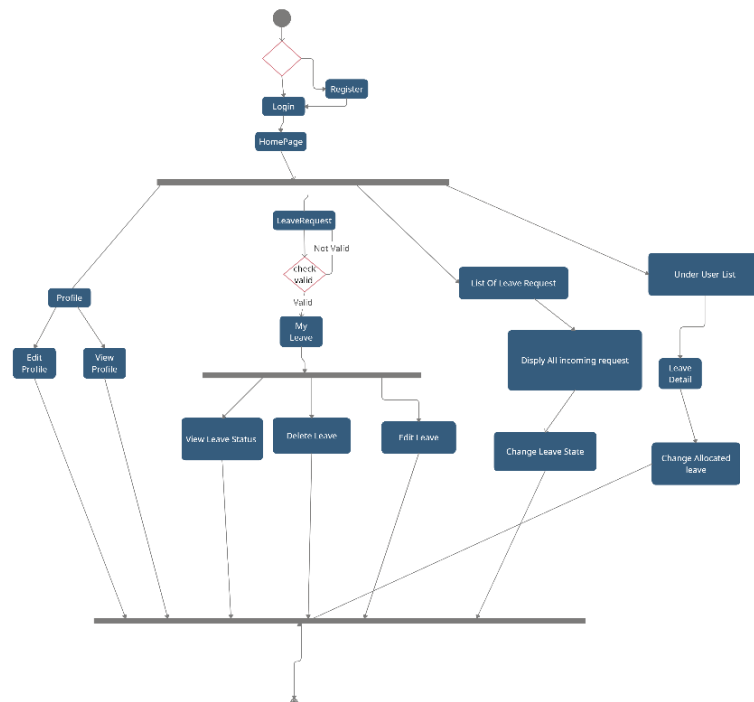


3.4. State Diagram

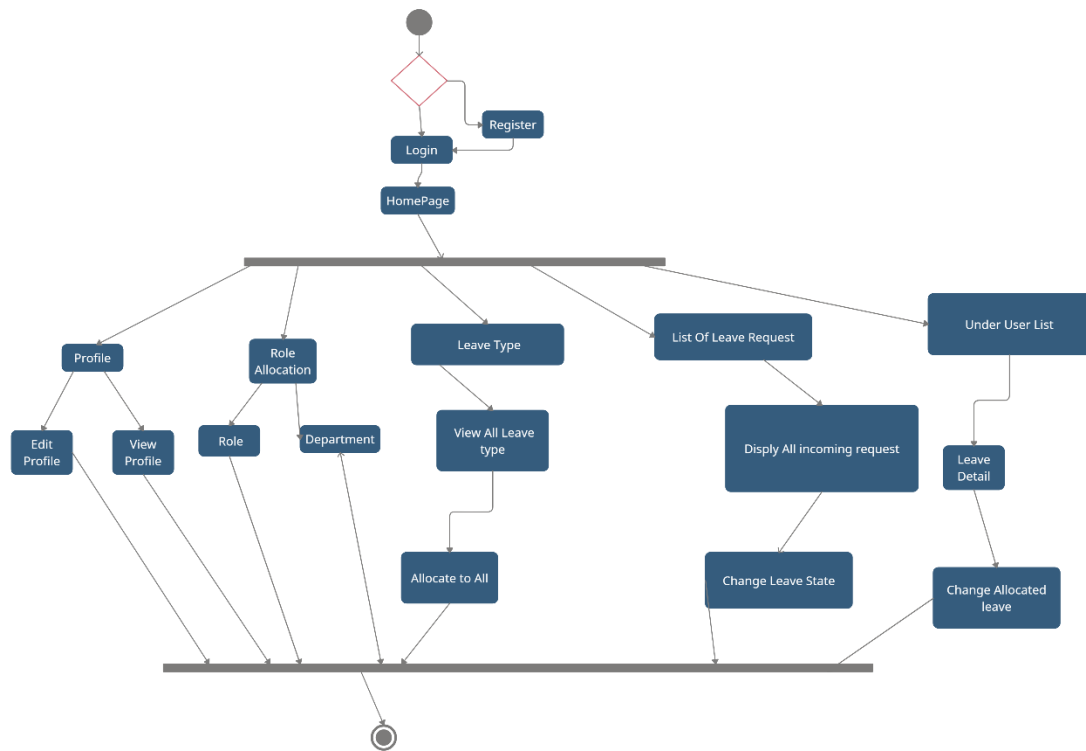
3.4.1 Faculty



3.4.2 HOD Dean Register

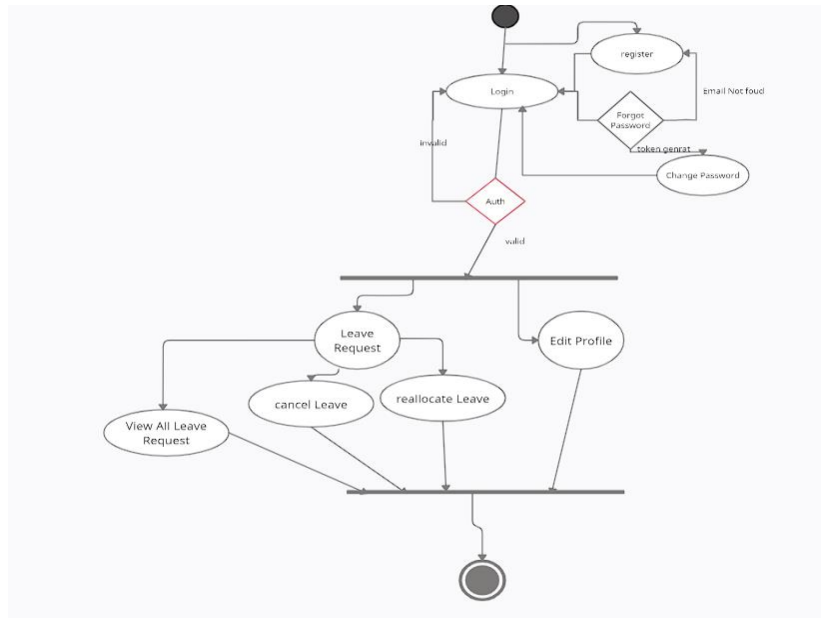


3.4.3 Admin

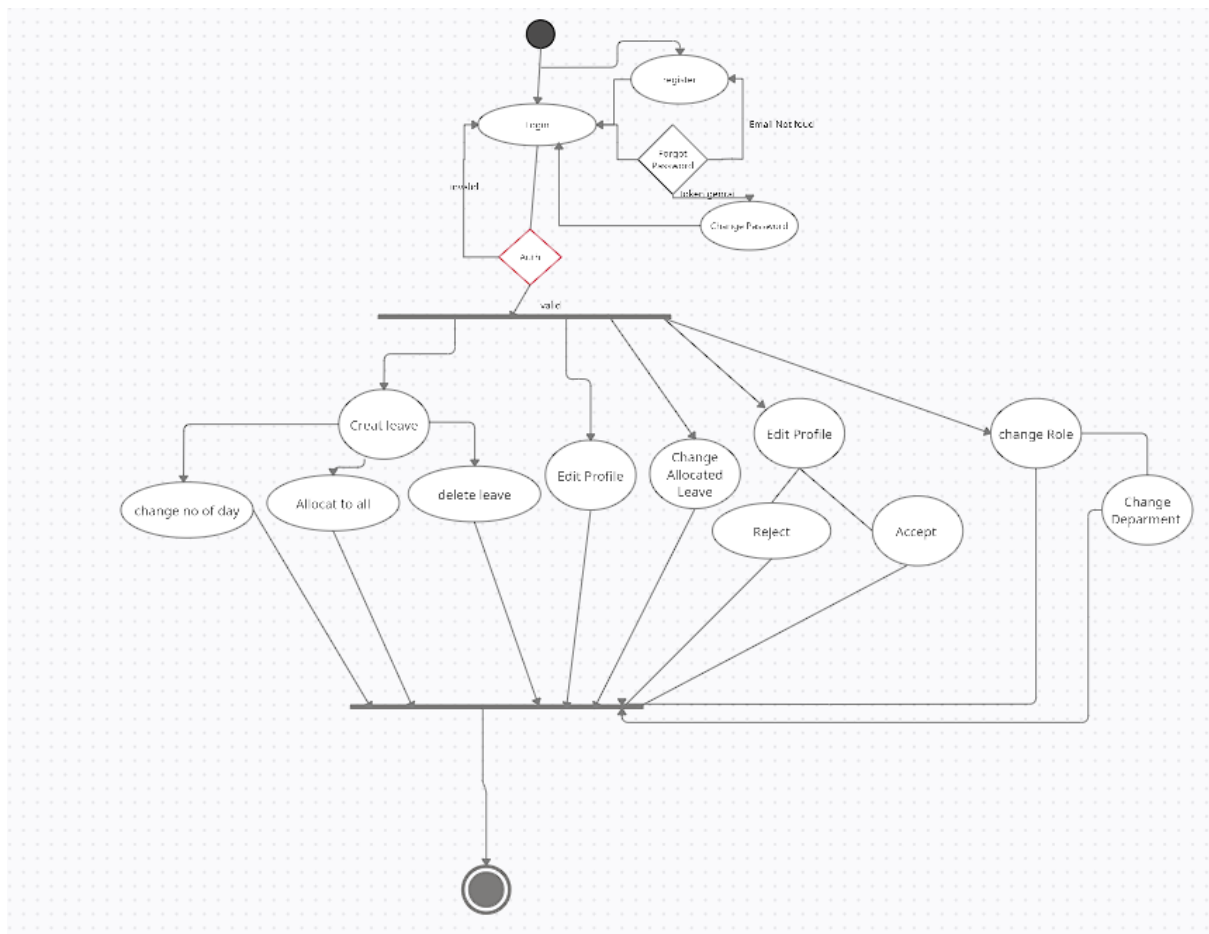


3.5. Activity Diagram

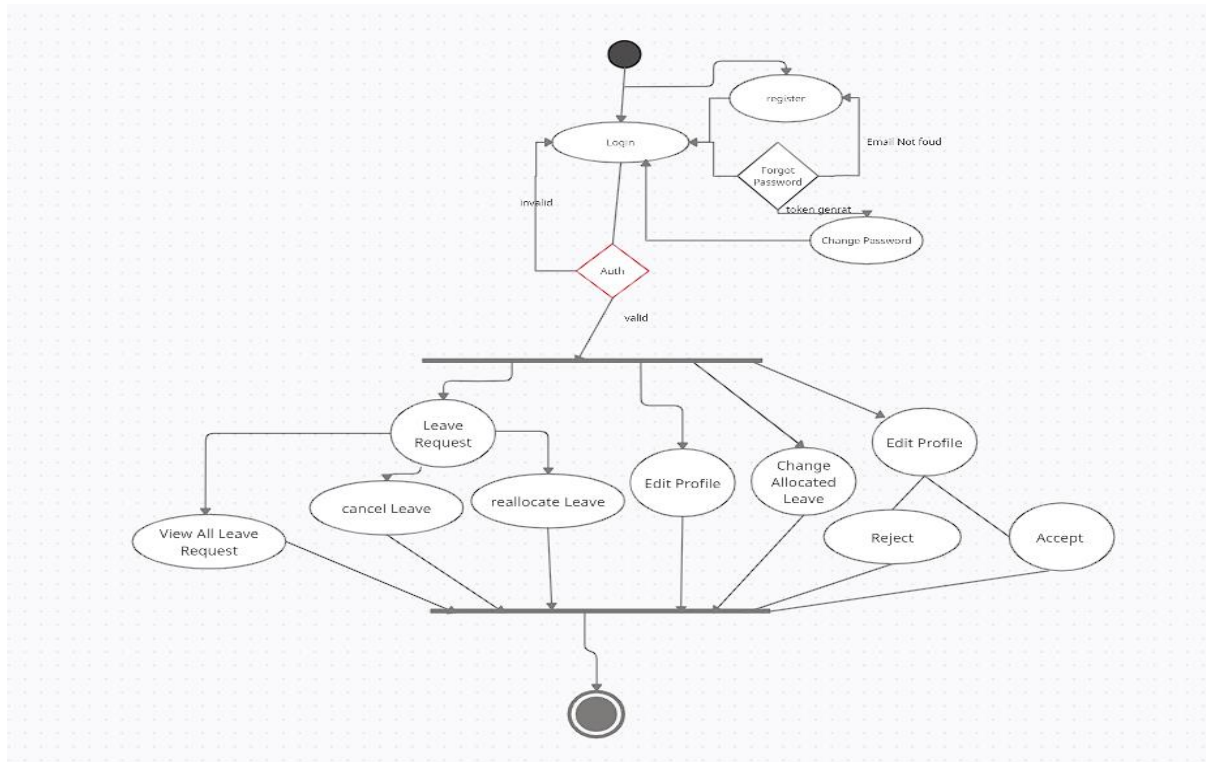
3.5.1 Faculty



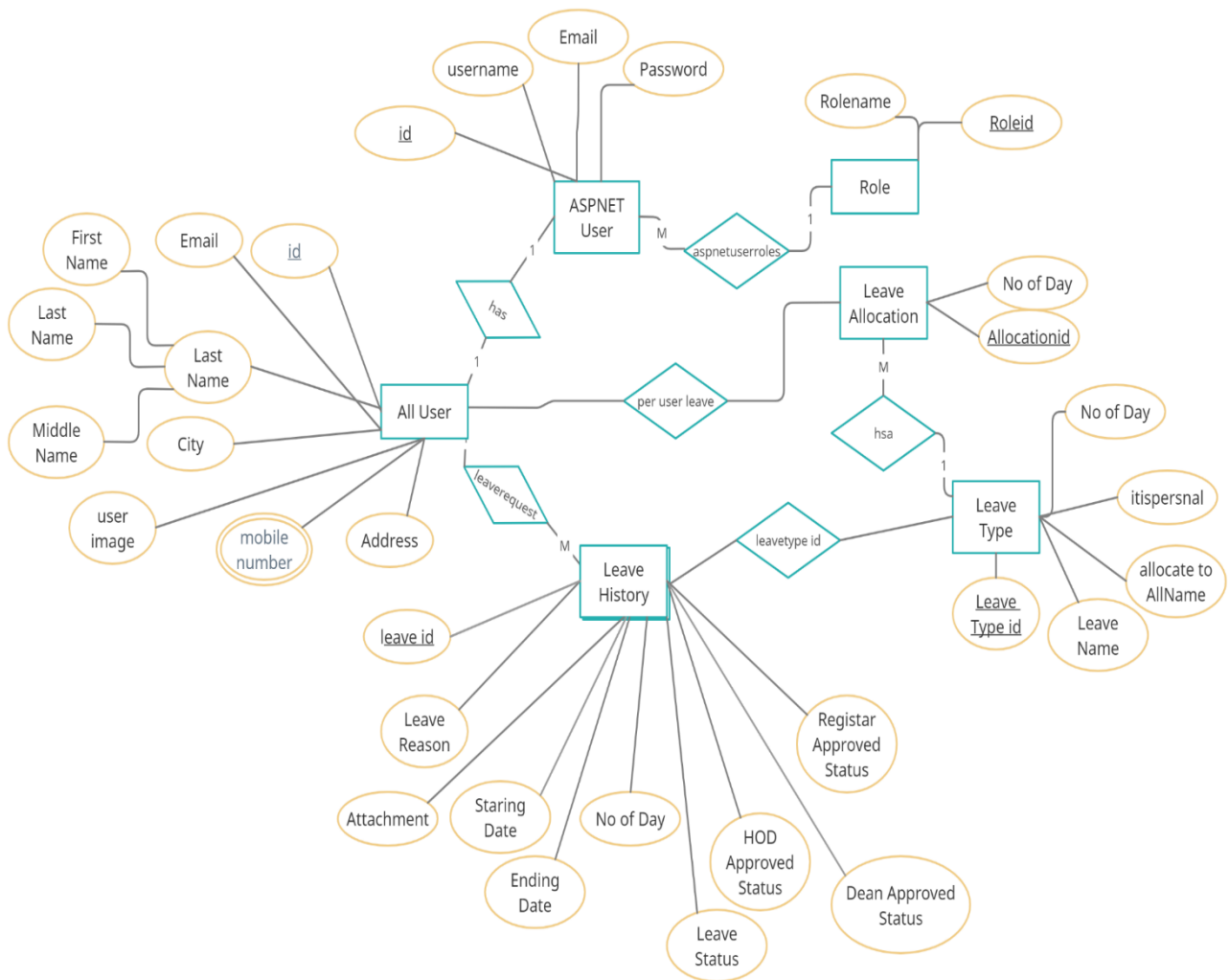
3.5.2 Admin



3.5.3 HOD Dean Registrar



3.6. E-R Diagram



3.7. Data Dictionary

The system Database consists of the following Table Schema:

1. dbo.AllUser

Field	Data Type	Size	Constraint	Reference
Id	int		PK	
Email	nvarchar	(MAX)		
MobileNo	nvarchar	(MAX)		
MobileNo2	nvarchar	(MAX)		
Name	nvarchar	(MAX)		
LastName	nvarchar	(MAX)		
MiddleName	nvarchar	(MAX)		
Department	nvarchar	(MAX)		
Role	nvarchar	(MAX)	,	
Addreaddress	nvarchar	(MAX)		
City	nvarchar	(MAX)		
UserImage	nvarchar	(MAX)		

2. dbo.AspNetRoles

Field	Data Type	Size	Constraint	Reference
Id	nvarchar	450	PK	
Name	nvarchar	256		
NormalizedName	nvarchar	256		
ConcurrencyStamp	nvarchar	MAX		

3. dbo.AspNetUserRoles

Field	Data Type	Size	Constraint	Reference
UserId	nvarchar	450	PK,FK	dbo. AspNetRoles
RoleId	nvarchar	450	FK	dbo. AspNetRoles

4. dbo.AspNetUserTokens

Field	Data Type	Size	Constraint	Reference
UserId	nvarchar	450	PK,FK	dbo. AspNetUsers
LoginProvider	nvarchar	450		
Name	nvarchar	450		
Value	nvarchar	MAX		

5. dbo.leaveAllocation

Field	Data Type	Size	Constraint	Reference
AllocationID	int		PK	
NoOfLeave	int	MAX		
id	int	MAX	FK	dbo.AllUser.id
leaveTypeID	int	7	FK	dbo.leaveType

6. dbo.LeaveHistory

Field	Data Type	Size	Constraint	Reference
leave_id	int		PK	
DeanApproveStatus	nvarchar	MAX		
EndTill	datetime 2	7		
HODApproveStatus	int	MAX		
LeaveReason	nvarchar	MAX		
LeaveStatus	nvarchar	MAX		
NoOfDay	int			
RegistrarApproveStatus	nvarchar	MAX		
StartFrome	Datetime 2	7		
id	Int		FK	dbo.AllUser
Attachment	nvarchar	MAX		
leaveTypeID	int		FK	dbo.LeaveType
approved_id	int			

7. dbo.leaveType

Field	Data Type	Size	Constraint	Reference
leaveTypeID	int		PK	
LeaveType	nvarchar	MAX		
allcatoToAll	bit			
itispersonal	bit			
noofday	int			

Chapter 4 - Implementation Details

Brief Description of Modules

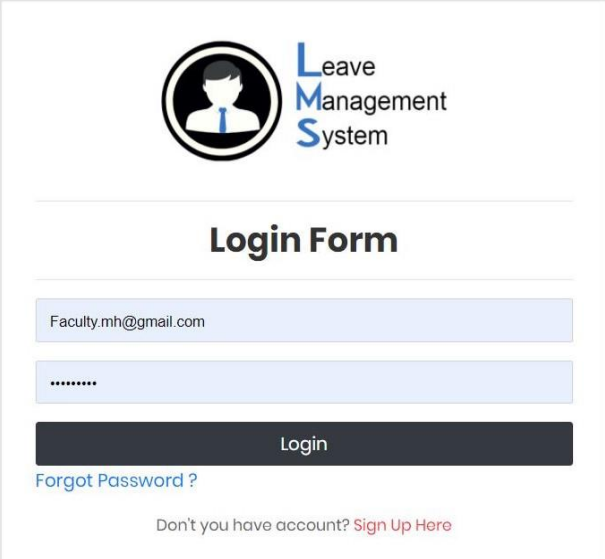
- The system consists of 17 basic modules namely
 1. All User Module
 2. Leave Allocation Module
 3. Leave History Module
 4. Leave Type Module
 5. Leave Request Module
 6. My Leave Module.
 7. Status Module
 8. Delete Leave Module
 9. Edit Image Module
 - 10.Forgot Password Module
 - 11.Leave Request Module
 - 12.Login Module
 - 13.Register Module
 - 14.Role Creation Module
 - 15.Role Allocation Module
 - 16.SMTP Module
 - 17.Upload PDF Module

Each module consists of several methods to implement the required functionality. Implementation is done using, **Net5.0 Core MVC**. Database used in these modules is **MSSQLLocalDB**.

Chapter 5 - Test case Design

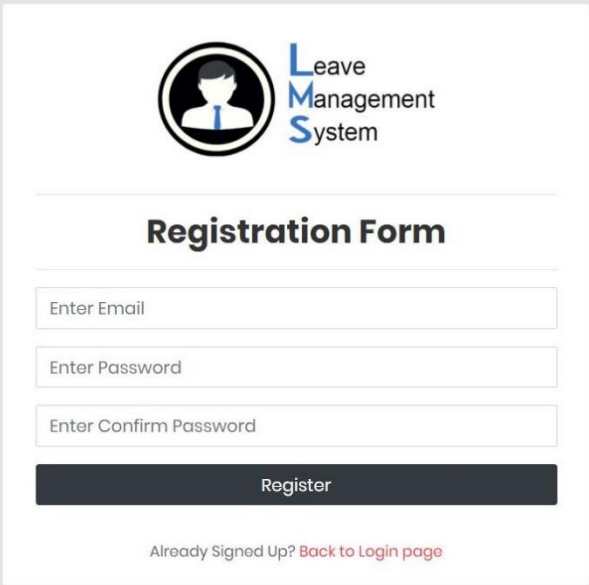
Manual testing was performed in order to find and fix the bugs in development process.

Chapter 6 – Screenshots



The screenshot shows the login interface of the Leave Management System. At the top, there is a logo consisting of a circular icon with a person silhouette and the text "Leave Management System" to its right. Below the logo, the title "Login Form" is centered. The form contains two input fields: the first is for the email address, with "Faculty.mh@gmail.com" entered, and the second is for the password, represented by a series of dots. A dark "Login" button is positioned below the password field. To the left of the button is a link "Forgot Password ?". At the bottom, there is a link "Don't you have account? Sign Up Here" in red text.

Figure 1: Login Page



The screenshot shows the registration interface of the Leave Management System. At the top, there is a logo consisting of a circular icon with a person silhouette and the text "Leave Management System" to its right. Below the logo, the title "Registration Form" is centered. The form contains three input fields: "Enter Email", "Enter Password", and "Enter Confirm Password". A dark "Register" button is positioned below the third field. At the bottom, there is a link "Already Signed Up? Back to Login page" in red text.

Figure 2: Registration Form

Leave Request Form

Leave Type: test leave

Leave Reason:

Start From: mm/dd/yyyy

End Till: mm/dd/yyyy

File Name: Choose File No file chosen

Make Request

Figure 3: Create leave request Form Faculty Side.


My Leave

LeaveStatus	Leave Reason	NoOfDay	Leave Start From	Leave End Till	Attachment	Operations
Accepted	dssdv	3	3/5/2021	3/8/2021		
Accepted	sadd	13	3/6/2021	3/19/2021		
Accepted	dsad	1	3/6/2021	3/7/2021		
Rejected	csc	1	3/6/2021	3/7/2021		
Accepted	trt	3	3/6/2021	3/9/2021		
Rejected	xsxs	3	3/7/2021	3/10/2021		
Pending	63	10	3/7/2021	3/17/2021		User Document

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Figure 4: Requested Leave (My Leave) Page Faculty side

Profile Details



Email: Faculty.mh@gmail.com

Mobile Number 1: sscscscsc

Mobile Number 2: scssdsd

First Name: scs

Last Name:

Figure 5: Profile Details Page Faculty Side

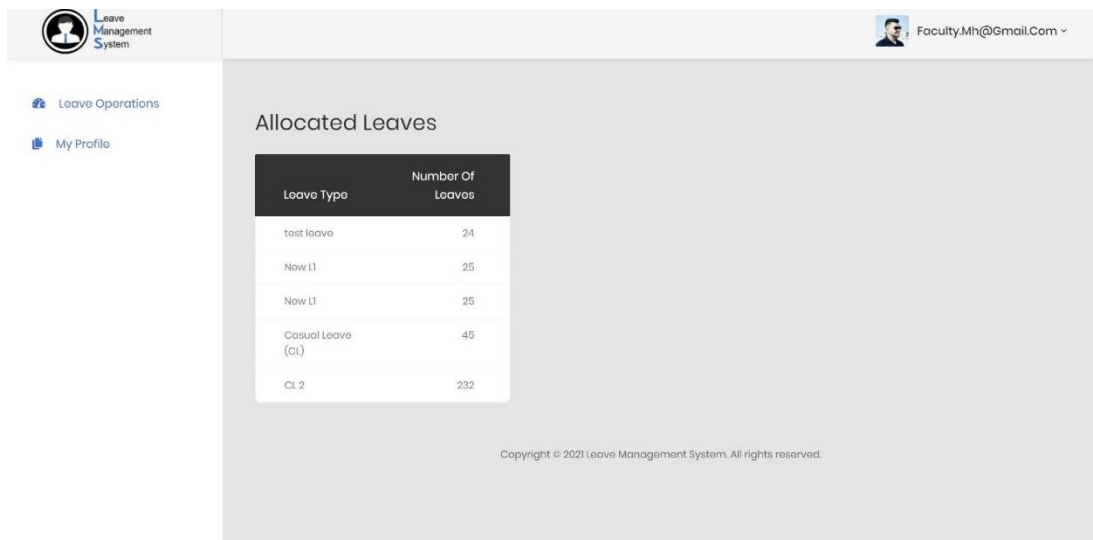


Figure 6: List of available Leave Faculty Side

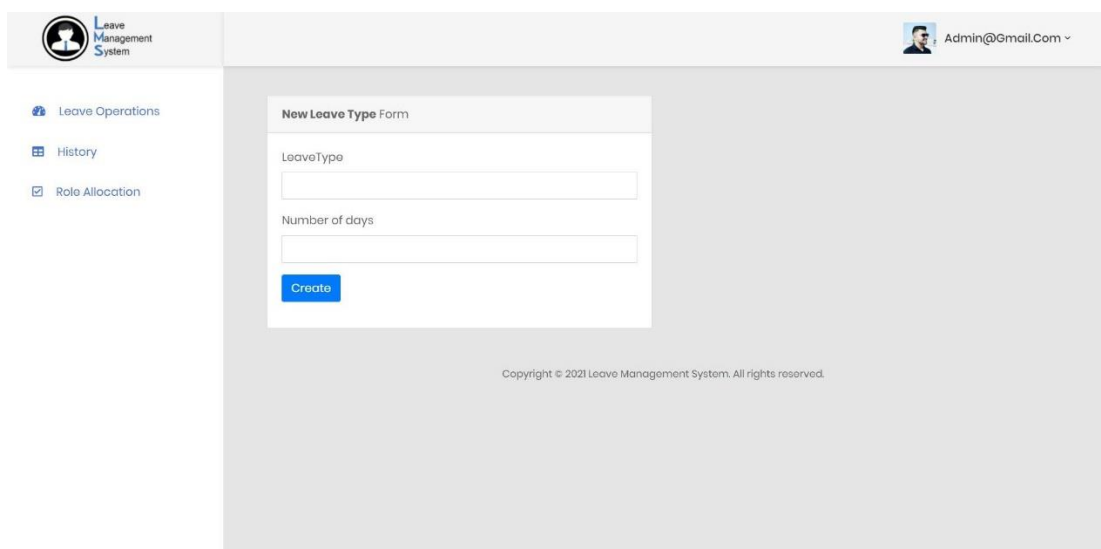


Figure 7: Leave Type Create Page Admin Side

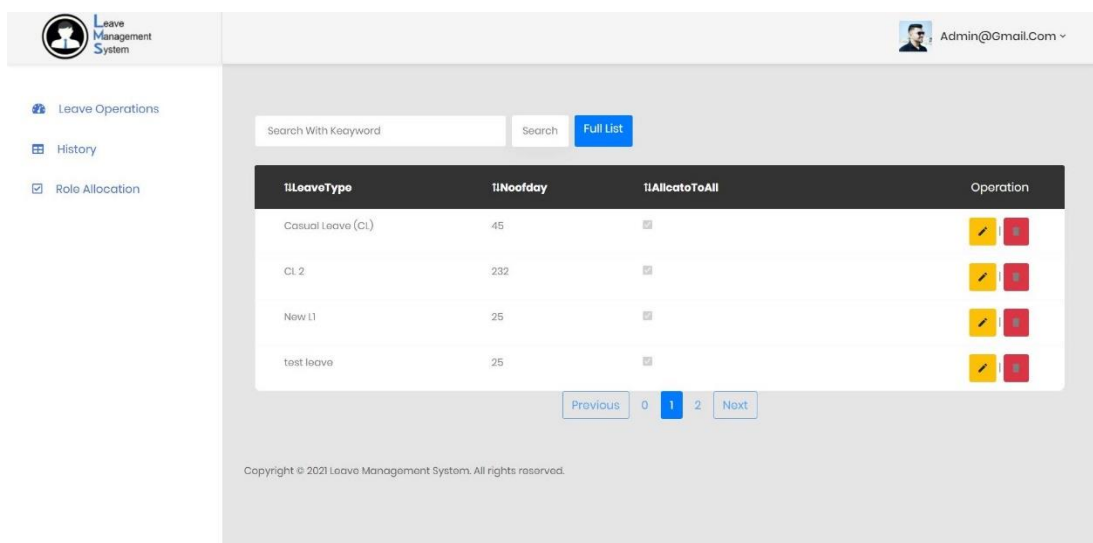


Figure 8: List of leave type Admin Side

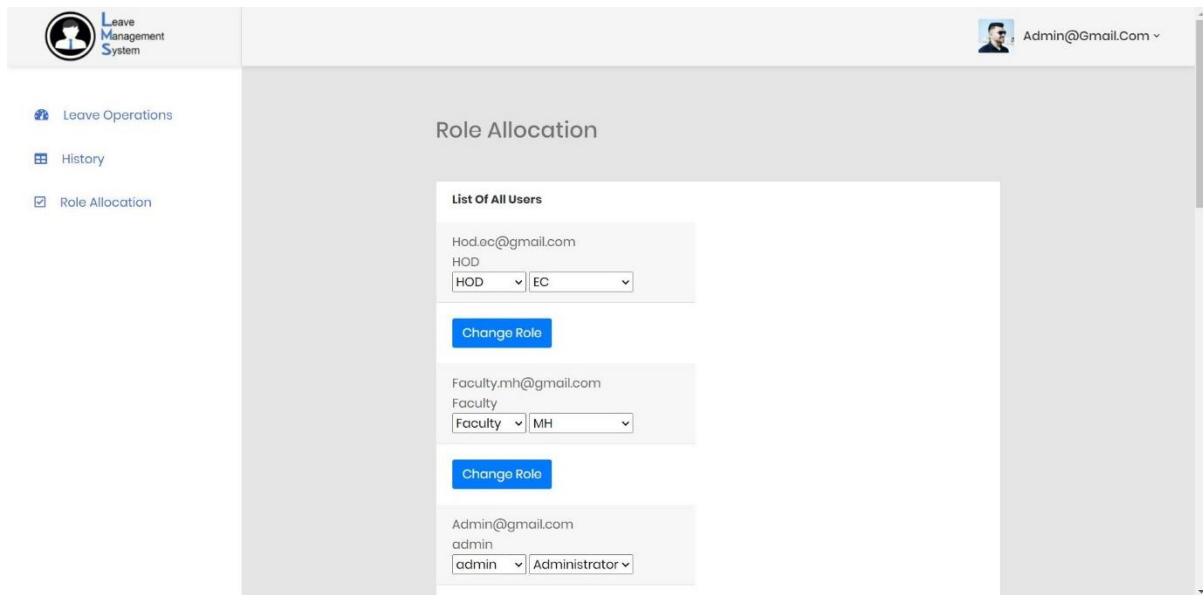


Figure 9 : Role Allocation Module Admin Side

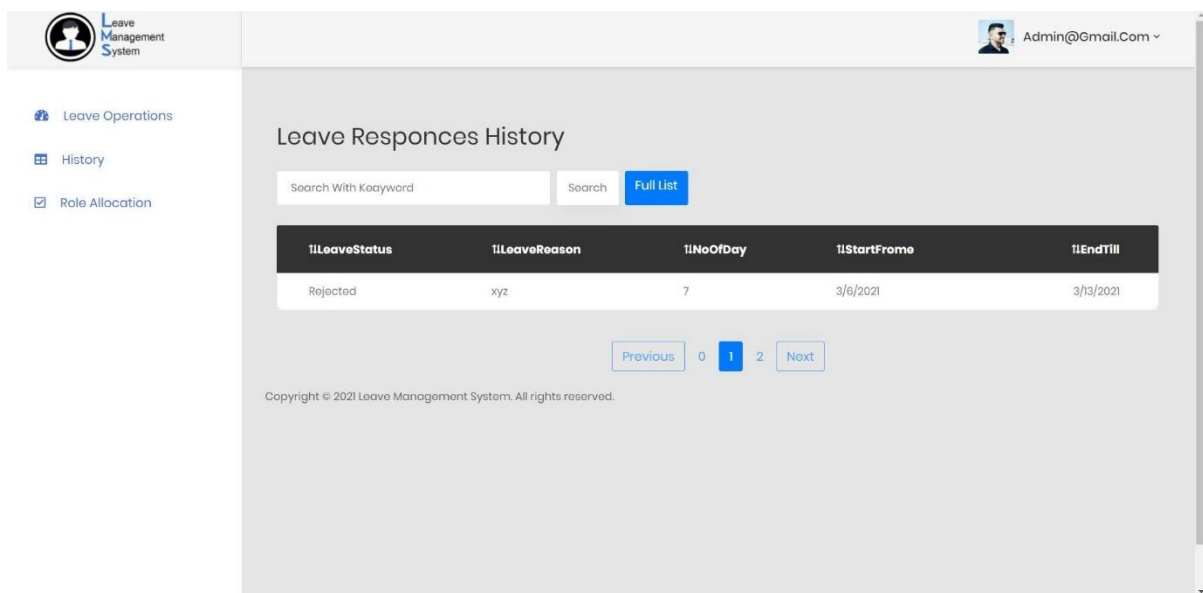


Figure 10 : Leave Responses history Admin Side

Chapter 7 - Conclusion and further extensions

7.1 Conclusion:

The functionalities are implemented in system after understanding all the system modules according to the requirements. Functionalities that are successfully implemented in the system are:

- **User Sign Up**
- **User Sign In (Pending user, Faculty, HOD, Dean, Registrar, Admin)**
- **User Profile Details Updating.**
- **Create New Leave Type**
- **Leave Allocation**
- **Create Leave Requests (Faculty, HOD, Dean, Registrar)**
- **Attachment Upload in Leave Request.**
- **Respond to Leave Requests (HOD, Dean, Registrar, Admin)**
- **Edit Allocated Leaves (HOD, Dean, Registrar, Admin)**
- **List Available Remaining Leaves of their under users.(HOD, Dean, Registrar, Admin).**
- **All Leave History.**
- **All Leave Response history.**
- **Leave Updates sends in Email.**
- **Forgot password using sending Email**
- **Role Allocation**

After the implementation and coding of system, comprehensive testing was performed on the system to determine the errors and possible flaws in the system.

7.2 Further Extension

As this is a Leave Management platform the extensions are limitless Google Calendar is the latest technology which can be implemented in our system which will make product sync with google service and data retrieval will be very efficient and fast.

Lately we are have planned to integrate My Calendar which and lead our task very easy and manageable for all the users.

Chapter 8 - Reference / Bibliography

1. <https://docs.microsoft.com/en-us/aspnet/core/data/ef-mvc/sort-filter-page?view=aspnetcore-5.0>
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3. <https://docs.microsoft.com/en-us/dotnet/api/system.net.mail.smtpclient?view=net-5.0>
4. <https://github.com/puikinsh/CoolAdmin>
5. <https://www.w3schools.com/css/>
6. <https://getbootstrap.com/>
7. <https://www.freecodecamp.org/news/asp-net-core-mvc-course-net-5/>
8. <https://www.youtube.com/watch?v=P3shzPde8Eg>