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1.Project Description

1.1 Main goals

Develop a web-based software for Daycare Management Department (DMD) registration process. The website helps to ease the process of Daycare registration for parents to insert child's information at any time and everywhere. The website provides a clear and guided easy to use interface.

1.2 Objectives

- Make the website announce the opening and closing enrollments periods.
- The website should enable the parent to fill out their children's information and submit them.
- Make the parent sign/agree on any conditions from Daycare Management Department.
- Make it easy to attach supplementary files on the website.
- After submitting to the DMD and accepting the request, the website should make a profile for the child with all his/her information.

1.3 Challenges

- Solving website technical problems.
- Lack of experience in web designing.
- No background in making website.
- Study pressure and time.
- Determining techniques and tools beforehand.
- Assigning time for intended task beforehand.

1.5 Project expected timeline

The project consists of phases and steps to work on through time. We can expect and summarize these steps throughout time in the following Figure:

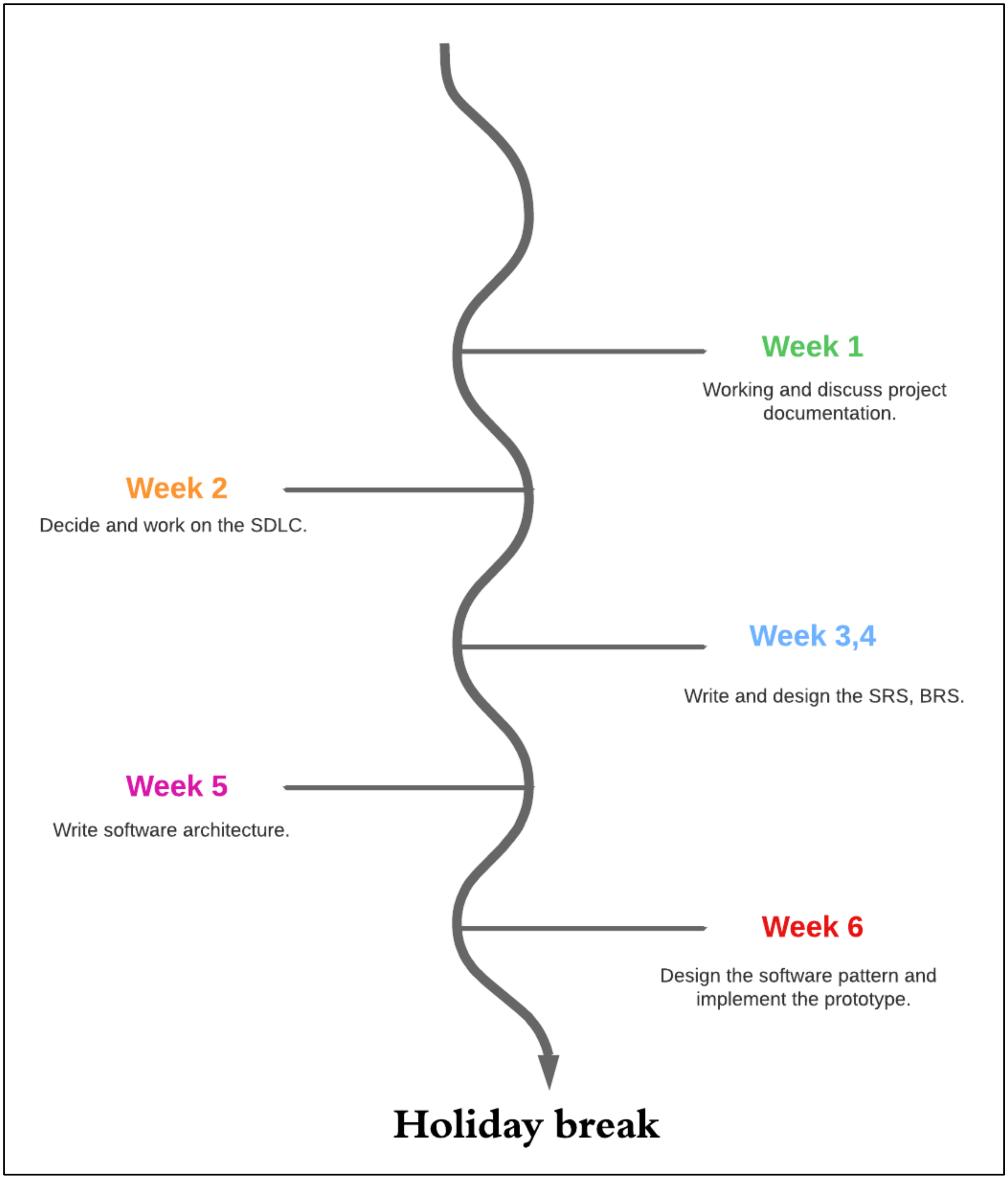

Week 1
Working and discuss project documentation.
Week 2
Decide and work on the SDLC.
Week 3,4
Write and design the SRS, BRS.
Week 5
Write software architecture.
Week 6
Design the software pattern and implement the prototype.
Holiday break

Figure 2 Project expected Timeline

2.Software Development Lifecycle

2.1 Scrum SDLC Model

The reason of selecting scrum as model for the project that it makes the team more close to each other while we all work on the same sprint together, Also group up on a scheduled time every day to review and discuss what we did, doing or need help on what we are going to do next, after we finish each sprint we group up to discuss how we could've make it better and what was hard so with each sprint we learn and do a better work than the last one [1][2][3].

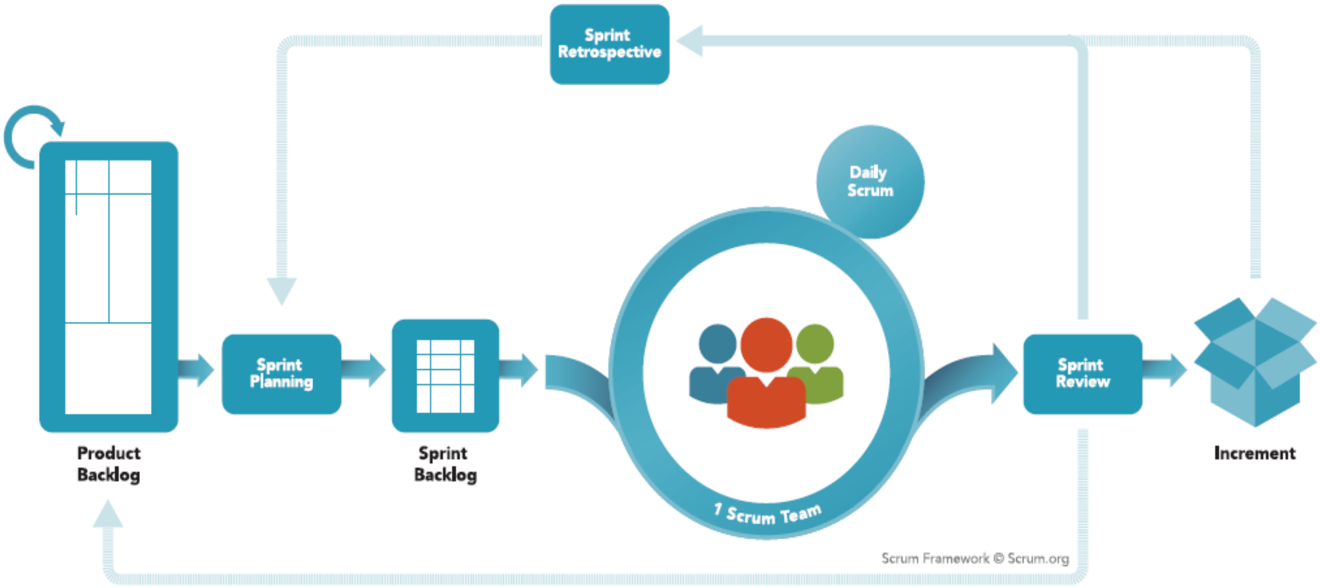


Figure 3 Scrum SDLC

2.2 User story:

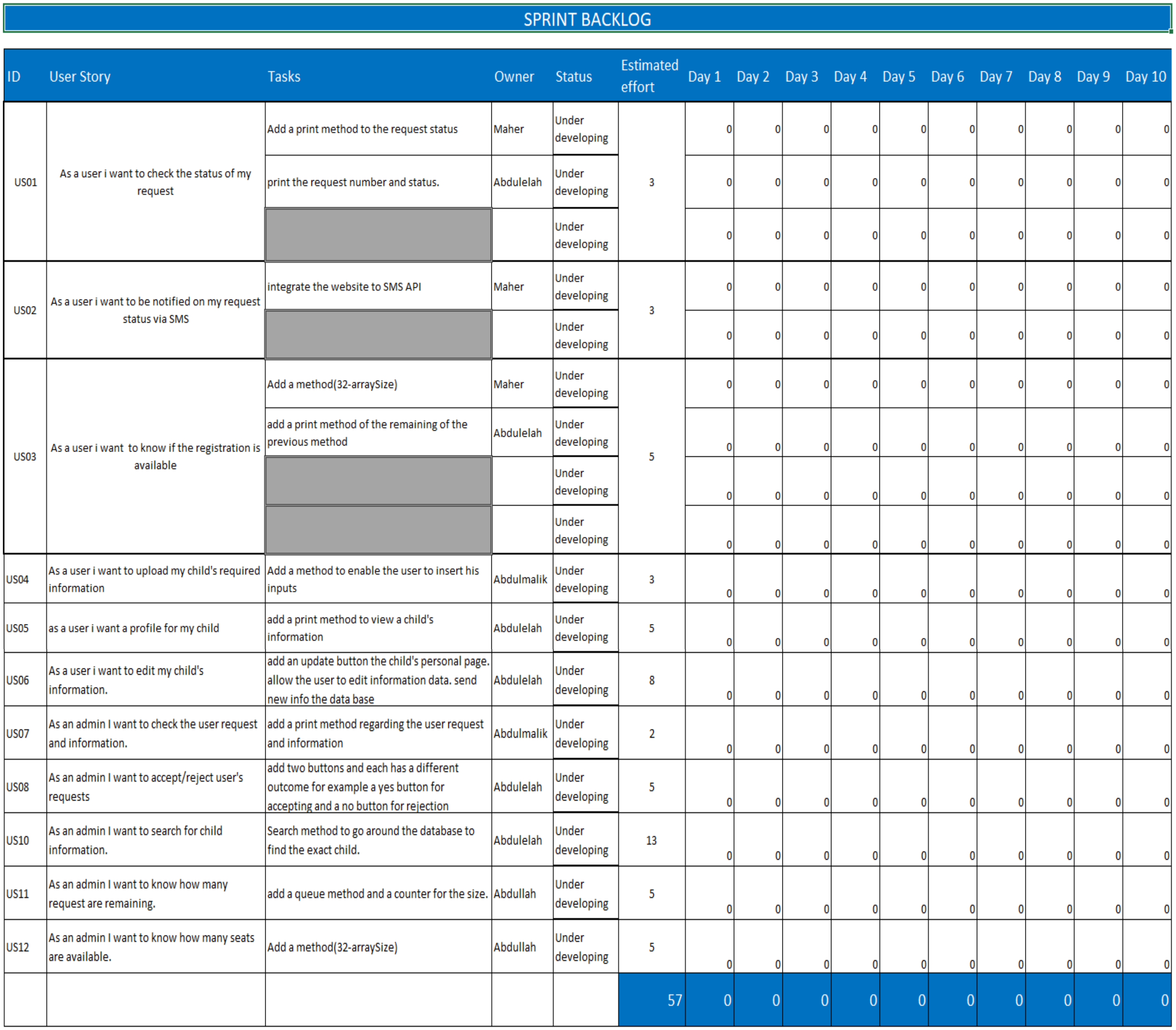
- As a user I want to check the status of my request.
- As a user I want to be notified on my request status by sending SMS.
- As a user I want to know if the registration is available.
- As a user I want to upload my child information.
- As a user I want a profile for my child.
- As an employee I want to check user request.
- As an employee I want to accept/reject user request.
- As an employee I want to check user child’s information after acceptance.
- As an employee I want to edit user’s child information.
- As an employee I want to know how many requests are remaining.
- As an employee I want to know how many seats are available.

2.3 Product Backlog

Backlog item	Estimate
As a user I want to check the status of my request.	2
As a user I want to be notified on my request status by sending SMS.	1
As a user I want to know if the registration is available.	2
As a user I want to upload my child required information.	2
As a user I want a profile for my child.	2
As an employee I want to check user request and information.	3
As an employee I want to accept/reject user request.	5
As an employee I want to check user child's information after acceptance.	3
As an employee I want to edit user's child information.	5
As an employee I want to search for child information.	8
As an employee I want to know how many requests are remaining.	3
As an employee I want to know how many seats are available.	3

[4]

2.4 Sprint backlog



SPRINT BACKLOG

ID	User Story	Tasks	Owner	Status	Estimated effort	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
US01	As a user i want to check the status of my request	Add a print method to the request status	Maher	Under developing	3	0	0	0	0	0	0	0	0	0	0
		print the request number and status.	Abdulelah	Under developing		0	0	0	0	0	0	0	0	0	0
				Under developing		0	0	0	0	0	0	0	0	0	0
US02	As a user i want to be notified on my request status via SMS	integrate the website to SMS API	Maher	Under developing	3	0	0	0	0	0	0	0	0	0	0
				Under developing		0	0	0	0	0	0	0	0	0	0
US03	As a user i want to know if the registration is available	Add a method(32-arraySize)	Maher	Under developing	5	0	0	0	0	0	0	0	0	0	0
		add a print method of the remaining of the previous method	Abdulelah	Under developing		0	0	0	0	0	0	0	0	0	0
				Under developing		0	0	0	0	0	0	0	0	0	0
				Under developing		0	0	0	0	0	0	0	0	0	0
US04	As a user i want to upload my child's required information	Add a method to enable the user to insert his inputs	Abdulmalik	Under developing	3	0	0	0	0	0	0	0	0	0	0
US05	as a user i want a profile for my child	add a print method to view a child's information	Abdulelah	Under developing	5	0	0	0	0	0	0	0	0	0	0
US06	As a user i want to edit my child's information.	add an update button the child's personal page. allow the user to edit information data. send new info the data base	Abdulelah	Under developing	8	0	0	0	0	0	0	0	0	0	0
US07	As an admin I want to check the user request and information.	add a print method regarding the user request and information	Abdulmalik	Under developing	2	0	0	0	0	0	0	0	0	0	0
US08	As an admin I want to accept/reject user's requests	add two buttons and each has a different outcome for example a yes button for accepting and a no button for rejection	Abdulelah	Under developing	5	0	0	0	0	0	0	0	0	0	0
US10	As an admin I want to search for child information.	Search method to go around the database to find the exact child.	Abdulelah	Under developing	13	0	0	0	0	0	0	0	0	0	0
US11	As an admin I want to know how many request are remaining.	add a queue method and a counter for the size.	Abdullah	Under developing	5	0	0	0	0	0	0	0	0	0	0
US12	As an admin I want to know how many seats are available.	Add a method(32-arraySize)	Abdullah	Under developing	5	0	0	0	0	0	0	0	0	0	0
					57	0	0	0	0	0	0	0	0	0	0

3.Project Requirements: BRS and SRS

3.1 Requirement process and activities

Requirement elicitation: First, we attended the Daycare Management Department (DMD) meeting. After the meeting we discussed the requirements with each one of the team members.

Requirement analysis: We categorize the requirements into functional and non-functional categories, then specify each user's accessibility needs and how they will benefit from the system. Finally, we prioritize each requirement in the product backlog, giving the highest priority requirements a score of 8 points and the lowest priority requirements a score of 1.

Requirement validation: Before defining the risks and issues that can arise throughout the development process, we verified that the requirements satisfied user needs. Additionally, we confirm that the requirements can be implemented with the help of the technologies we previously identified.

Requirement management: We examined the circumstances, then made an effort to envision that we had a face-to-face meeting with the client to obtain approval for the requirements.

3.2 Main functionality and characteristic

- Register the child from home
- Give the children profile has their information that the parent could check
- Auto reject for children that don’t fit the rules
- Make the accept/reject easier and faster
- Count how many available seat
- Recorrect the information easier

3.3 Intended user and key usability goals

Here we will talk about the requirements for each one of the stockholders, what he have and what he does, and there is the requirement for each one of them:

Employee	User
Log in/out	Log in/out
Mange user information	Add a request
Mange user request	View request
Mange user child’s profile	View child profile
Accept/reject request	View information
change password	Change phone number

What we scope to is to make the registration as easy as possible by:

- Taking all the paperwork and put it in database.
- No more queue and wait to register the child.
- Save lots of time and work.
- Less miss information.

3.4 Business Requirements Specification BRS

3.4.1 What is BRS:

Business Requirements Specification is a high-level document usually created at the start of the project to include list of all the client requirement that demanded by the client [5][6][7][8].

3.4.2 Business Requirements Specification:

After listening to the client demands we got a better understanding of the requirements that needed in the registration system. The Daycare goal is to ensure most convenient and easy way to help parents to register their children and toddlers through an online website that would help them with the registration process and monitoring their child information through the website. The main function of the system is illustrated as follow:

- Each child will have a personal profile.
- parent receive an SMS display the registration status.
- parent can check his child's profile online.
- parent can register their child online.
- parent will be able to upload their children document.

3.5 Software Requirements Specification SRS

3.5.1 What is SRS:

Software Requirements Specification is also known as System Requirement Specification it’s a document that describe the main functionality and purpose of the entire system flow, SRS is also include the Functional/non- Functional requirement and the use cases diagram [5][6][7][8].

3.5.2 Functional requirements:

Functional Requirements-ID	Description
FR-1	The system shall be able to open and close register periods. 1.1 The system shall display if it is open or closed.
FR-2	The system shall provide request enrollment. 2.1 The system employee shall be able to display request information. 2.2 The system employee shall be able to accept or reject requests.
FR-3	The system shall provide a timer for the requests. 3.1 The system shall be able to set a timer for user request to be paid.
FR-4	The system shall provide a queue service. 4.1 The system shall be able to put the requests as a queue to prevent from reviewing requests randomly. 4.2 If the request is accepted it should be moved to the database. If the request was rejected it should be removed from the queue.
FR-5	The system shall provide a database for the requests. 5.1 The system shall have a database for accepted requests.

3.5.3 Functional requirements:

Functional Requirements-ID	Description
FR-6	The system shall provide an SMS service. 6.1 The user shall be able to receive a message if the request is accepted or rejected.
FR-7	The system shall provide search engine. 7.1 The system employee shall be able to search for child information in the database.
FR-8	The user shall be able to log in to their account. 8.1 The system check if the entered information matches with its database, if not, it will print an error message "The entered information is invalid.". 8.2 The system shall open user account page.
FR-9	The users shall be able to contact with technical support. 9.1 The users shall be able to explain the problem and get the solution from the experts.
FR-10	The system employee shall be able to edit user information. 10.1 The system employee shall be able to edit user information (misspelling, wrong phone number, etc.).
FR-11	The system shall provide child profile information page. 11.1 The system shall be able to display the child information (name, age, etc.).
FR-12	The system shall have limited seats for the children.
FR-13	The system employee shall be able to delete user request. 13.1 The employee shall be able to delete user's request if the user didn't pay the fees.

[6]

3.5.3 Non-Functional requirements:

Non-Functional Requirements-ID	Description
NFR-1	The website must offer a clear and simple method for entering child information.
NFR-2	The user must have internet access to use the website.
NFR-3	The system must be adaptable and simple to use so that anyone can utilize it.
NFR-4	The system shall be able to allow users to log in at any time
NFR-5	All users shall login within seconds
NFR-6	The requests must be delivered immediately.
NFR-7	The system shall have option to change account password.
NFR-8	The system shall be secure enough to prevent any external attacks.
NFR-9	The system shall support any operation systems (windows, mac, etc.).
NFR-10	The system shall support any device (computer, phone, etc.).
NFR-11	The system shall not exceed 5 seconds when opening a page.
NFR-12	The system shall make the profile child in less than 4 seconds.

[9]

3.6 Effort/time estimation method

Requirement	Estimate
Account registration	5
Request service	8
Employee page	5
User page	5
Child profile page	3
Accept/reject	5
SMS notification	3
Save information	8
Search for information	8
Update information	5
Delete information	3

3.7 Intended technology

For Database, we use:

- MySQL

For Effort estimation, we use:

- Poker planning

For Software development, we use:

- Agile, Scrum

For Programming languages, we use:

- JavaScript, CSS, HTML

For Writing and organize documents, we use:

- Microsoft office

For editing and writing image, we use:

- Photoshop

For creating diagrams, we use:

- Lucid

For creating prototype, we use:

- Figma

3.8 Requirements expectation plan and timeline

Scrum is using 4 ceremonies for planning, each one of them has its own job. these ceremonies are:

1. **Daily scrum:** meeting every day to discuss the sprint and next spring.
2. **Spring planning:** planning for the Spring before started.
3. **Spring review:** share what everyone did and learn.
4. **Spring retrospective:** review the work to talk about what we could make better so next spring be better.

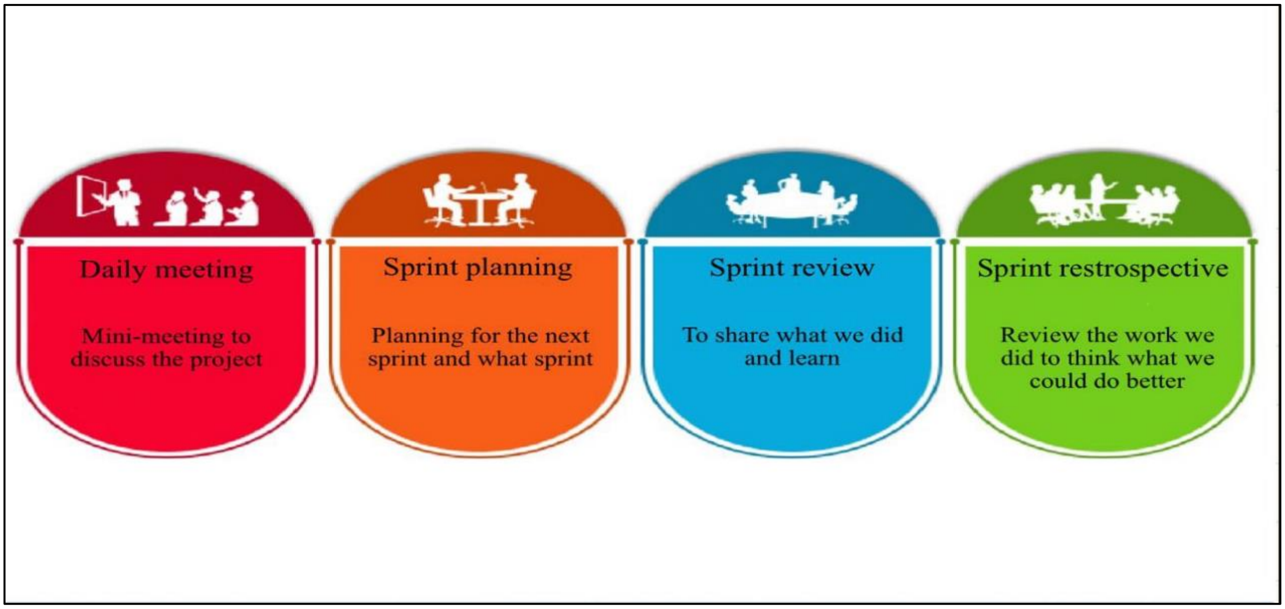
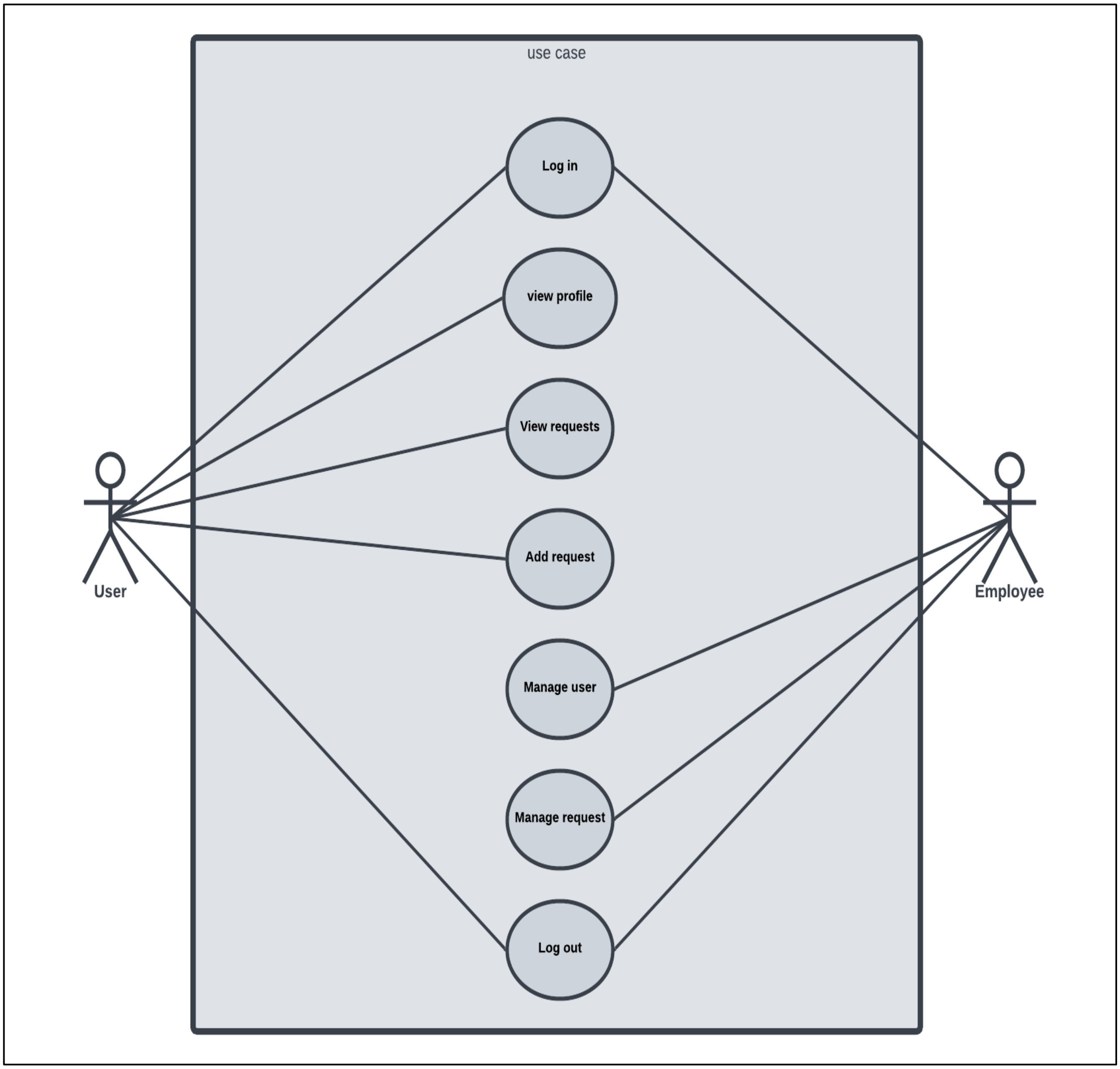

Daily meeting
Mini-meeting to discuss the project
Sprint planning
Planning for the next sprint and what sprint
Sprint review
To share what we did and learn
Sprint restrospective
Review the work we did to think what we could do better

Figure 4 Scrum Ceremonies

3.9 Use case

User is the parent who will sign up to the website to add request and they could check their information in the profile area and check the request. But for the Employee they will manage the request to decide if the child is qualified to be in the DMD or not. Also, they will manage the user so if there is anything wrong in the user information, they could edit it and make it right.



[10]

Figure 5 Use case diagram

3.9.1 Log in use case:

ID:	1
Title:	**Log in**
Description:	It’s use when the employee /user want to get into the system
Primary Actor:	Employee /User
Preconditions:	When employee /user getting into the system
Postconditions:	Employee can use the system services successfully
Main Success Scenario	When he enters the right log in information and get in without any problem
Extensions:	Enter wrong log in information both or one of them
Priority:	Medium

[11] [12]

Table 2 Log in use case description

3.9.2 View profile use case:

ID:	2
Title:	**view profile**
Description:	It shows the information of the profile for each child
Primary Actor:	User
Preconditions:	The user must be logged in into the system
Postconditions:	The user can see the child information
Main Success Scenario	It’s success when the user goes to each child profile without getting any wrong information
Extensions:	Getting into the child profile and seeing another child name and information
Priority:	high

Table 3 View profile use case description

3.9.3 View request use case:

ID:	3
Title:	**View requests**
Description:	It's show if the request is complete or not and if the show the information in the request
Primary Actor:	User
Preconditions:	The user must be logged in into the system
Postconditions:	The user sees the information of the request and its status
Main Success Scenario	Seeing the status and the information of the request all correct
Extensions:	The request status being rejected while it's accepted or the information in the request look different then the information Entered information
Priority:	High

Table 4 View request description

3.9.4 add request use case:

ID:	4
Title:	**Add request**
Description:	It's used to add a new request for the child
Primary Actor:	User
Preconditions:	The user must be logged in into the system
Postconditions:	The user enters the information and submit the request
Main Success Scenario	Enter all the information and accepting all the condition and uploading all the document without having any problem
Extensions:	Getting problem with uploading document or enter the information
Priority:	high

Table 5 Add request description

3.9.5 Manage user use case:

ID:	5
Title:	**Manage user**
Description:	It manages user information profile and correct it if there is anything wrong on it
Primary Actor:	Employee
Preconditions:	The employee must be logged in into the system
Postconditions:	He will be able to see and manage user information
Main Success Scenario	Change the information of the user without getting any problem
Extensions:	Changing the information of the user but it doesn't change in the user interface or database
Priority:	Medium

Table 6 Manage user description

3.9.6 Manage request use case:

ID:	6
Title:	**Manage request**
Description:	It shows all the uncompleted request and view it with all information inside it to decide to accept or reject the request
Primary Actor:	Employee
Preconditions:	The employee must be logged in into the system
Postconditions:	See and manage the requests and accept/reject it
Main Success Scenario	View and accept the request without getting any problem with the status of the request or the document uploaded
Extensions:	Getting the information or the document wrong
Priority:	High

Table 7 Manage request description

3.9.7 Log out use case:

ID:	7
Title:	**Log out**
Description:	It's used to log out of the System
Primary Actor:	Employee/User
Preconditions:	The employee/user must be logged in into the system
Postconditions:	Employee /User leave the system
Main Success Scenario	Taking all the control on this account from the device without getting any problem
Extensions:	Leaving the account but whenever you get back you still logged in like you haven't left
Priority:	High

Table 8 Log out use case description

3.10 Define BRS and SRS

BRS	SRS
The Business Requirement Specification is a document that describes the requirements of the client using the non-technical expression.	The Software Requirement specification describes requirement at a high level, the functional and technical specification of the software.
It is derived from the client's requirements and the client's interactions.	The Software Requirement Specification obtain from the Business Requirement specification.
Usually, its created by the Business Analyst who interacts with clients.	The System Analyst is the one who created it. It is also known as User Requirement Specifications.
References for tables and diagrams may not be included.	It always includes references to illustrations, tables and use cases.
The BRS documents cover all types of requirements.	It specifies the functional and non-functional requirements of the software to be developed.
The BRS document lists the user base along with similar stakeholders from the client-side.	The SRS document doesn't list anyone from the client or user base.

[6] [7] [8]

PHASE TWO

1. System model design

In this section, we will use a set of diagrams to clarifies the operations of the following use cases**:**

- **Log in**: Is the operation of entering the username/phone number and password to enter employee/user page. The diagrams for this operation can be seen in Figure 12 and 28.

- **User view profile:** Is the operation of displaying user information to the user. The diagram for this operation can be seen in Figure 6, 13, 18, 22 and 29.

- **User view request:** Is the operation of displaying user request to the user. The diagrams for this operation can be seen in Figure 7, 14, 23 and 33.

- **User add request:** Is the operation of submitting a request that contains the child information. The diagrams for this operation can be seen in Figure 8, 15, 19, 24 and 31.

- **Employee manage user:** Is the operation of viewing/editing user information. The diagrams for this operation can be seen in Figure 9, 16, 20, 25 and 29.

- **Employee manage request:** Is the operation of viewing/editing user request. The diagrams for this operation can be seen in Figure 10, 17, 21, 26 and 32.

1.1 FLOWCHART DIAGRAMS

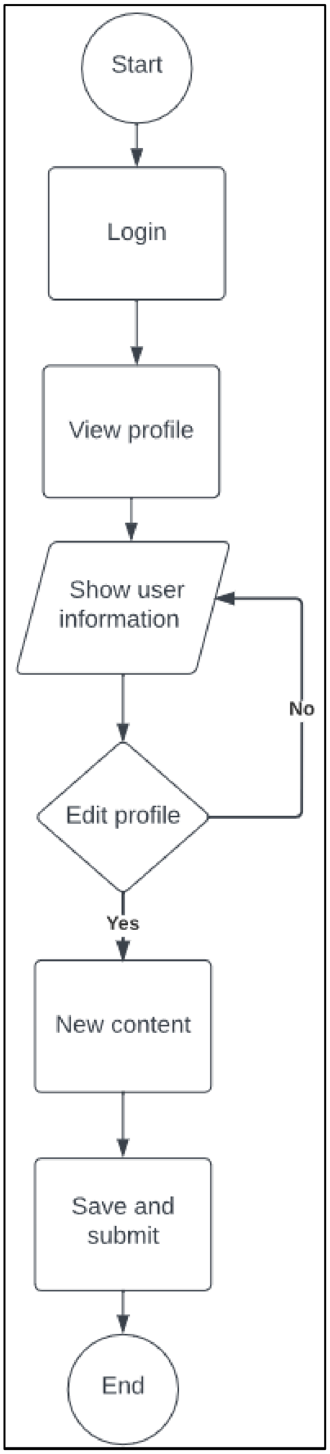


Figure 6 User view profile flowchart diagram

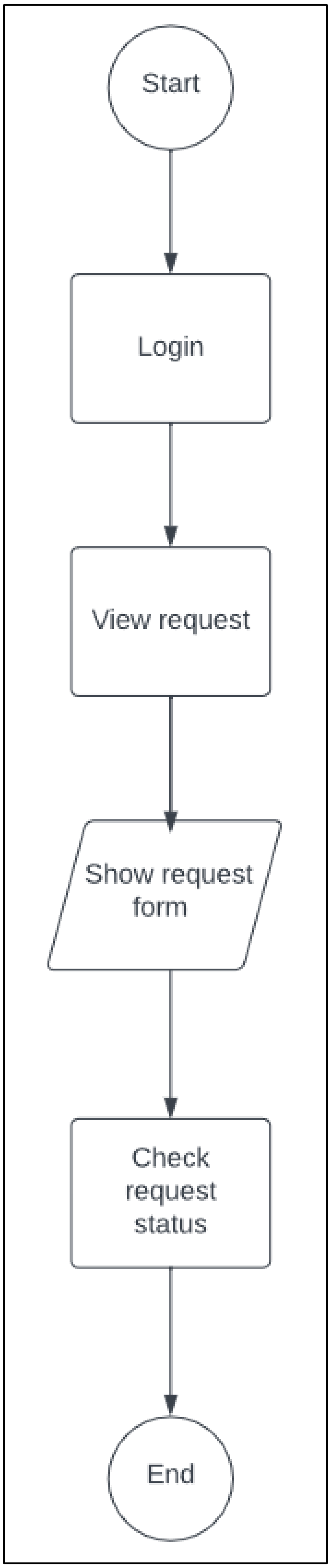


Figure 7 User view request flowchart diagram

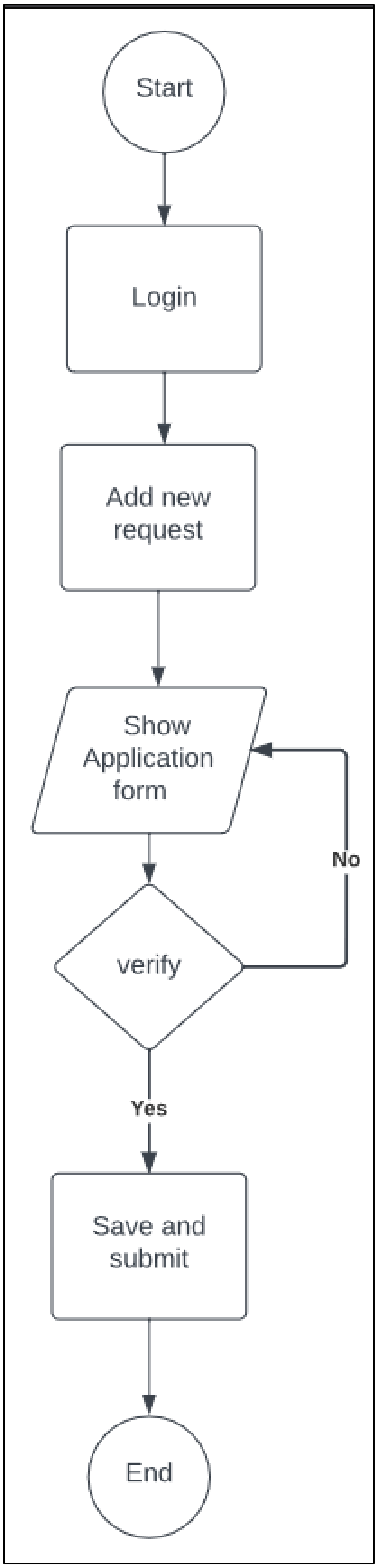


Figure 8 User add request flowchart diagram

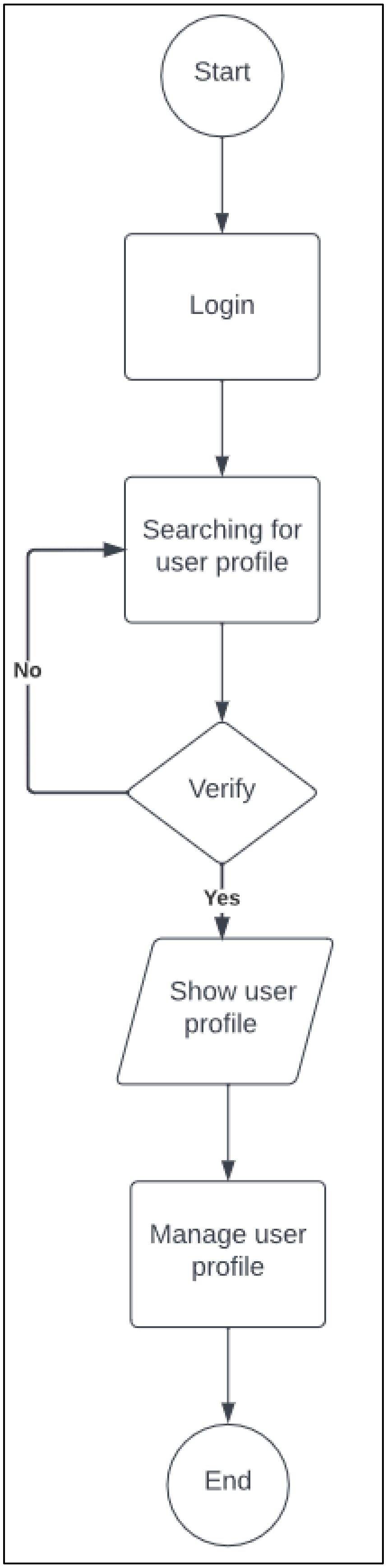


Figure 9 Employee manage user flowchart diagram

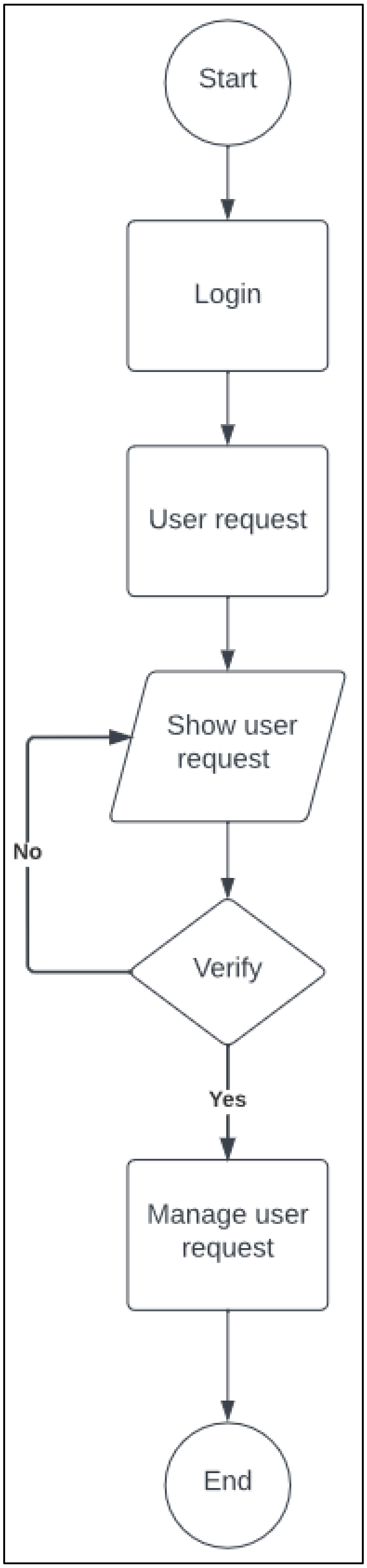
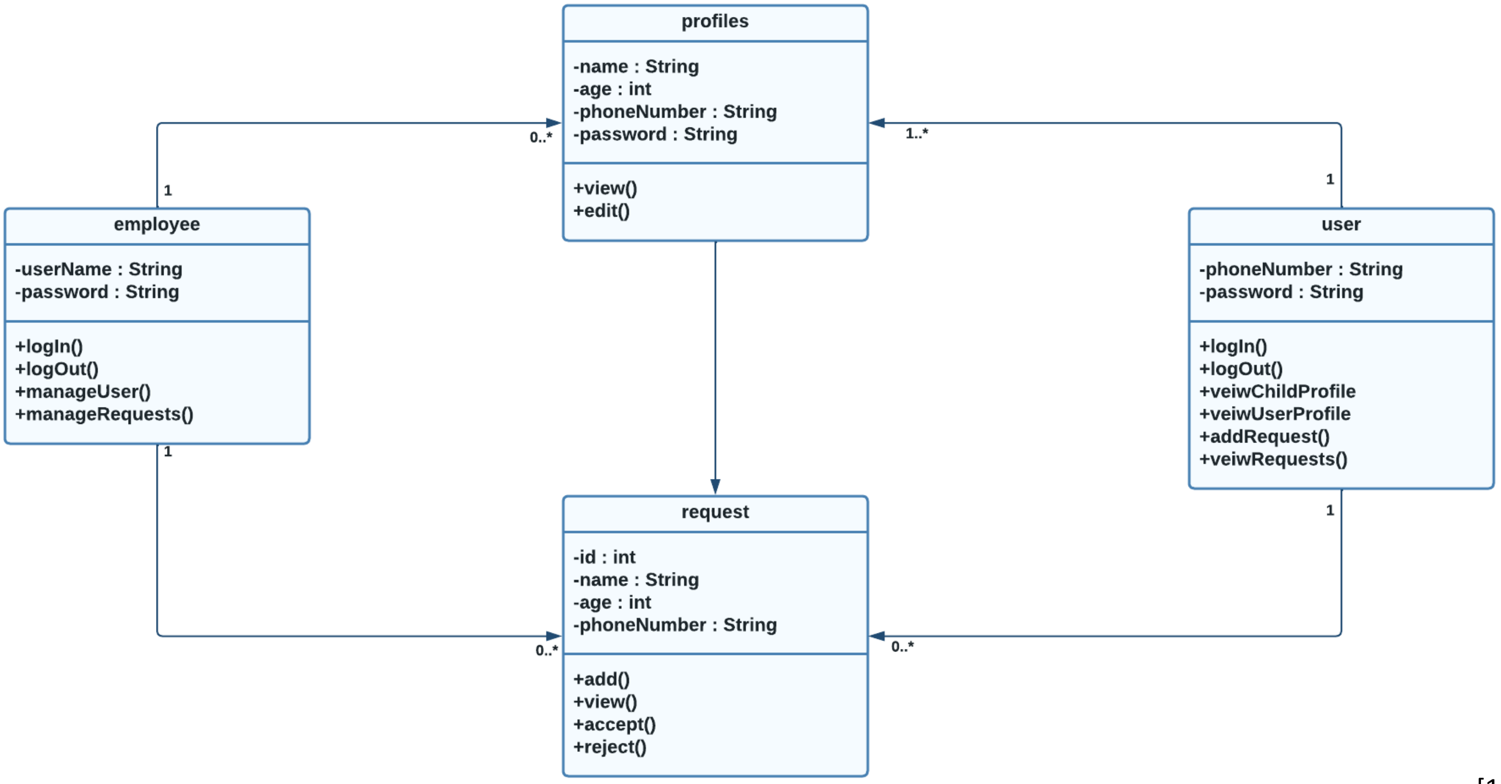


Figure 10 Employee manage request flowchart diagram

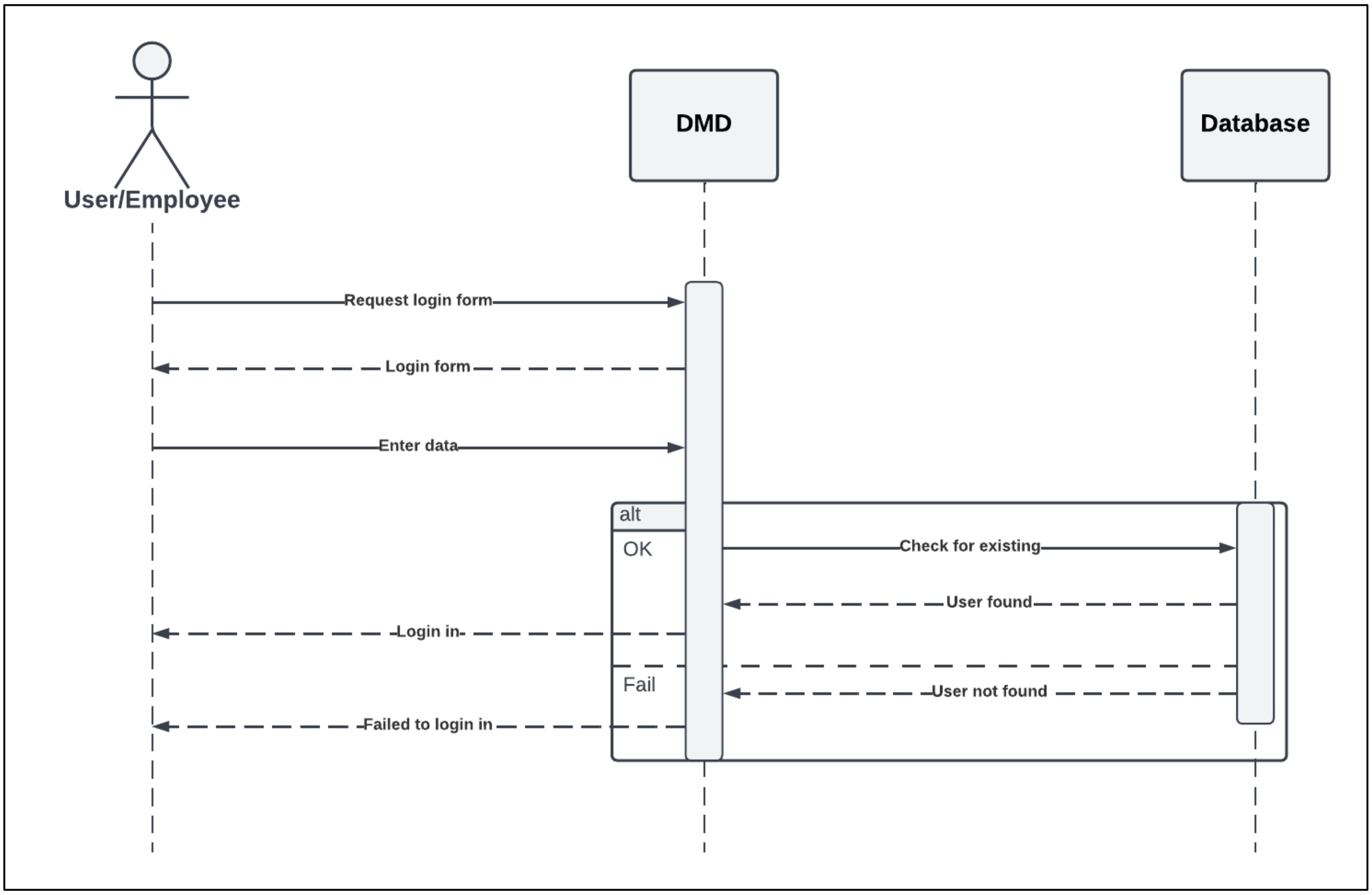
1.2 CLASS DIAGRAM



[13]

Figure 11 Class diagram

1.3 SEQUENCE DIAGRAMS



[14]

Figure 12 Log in sequence diagram

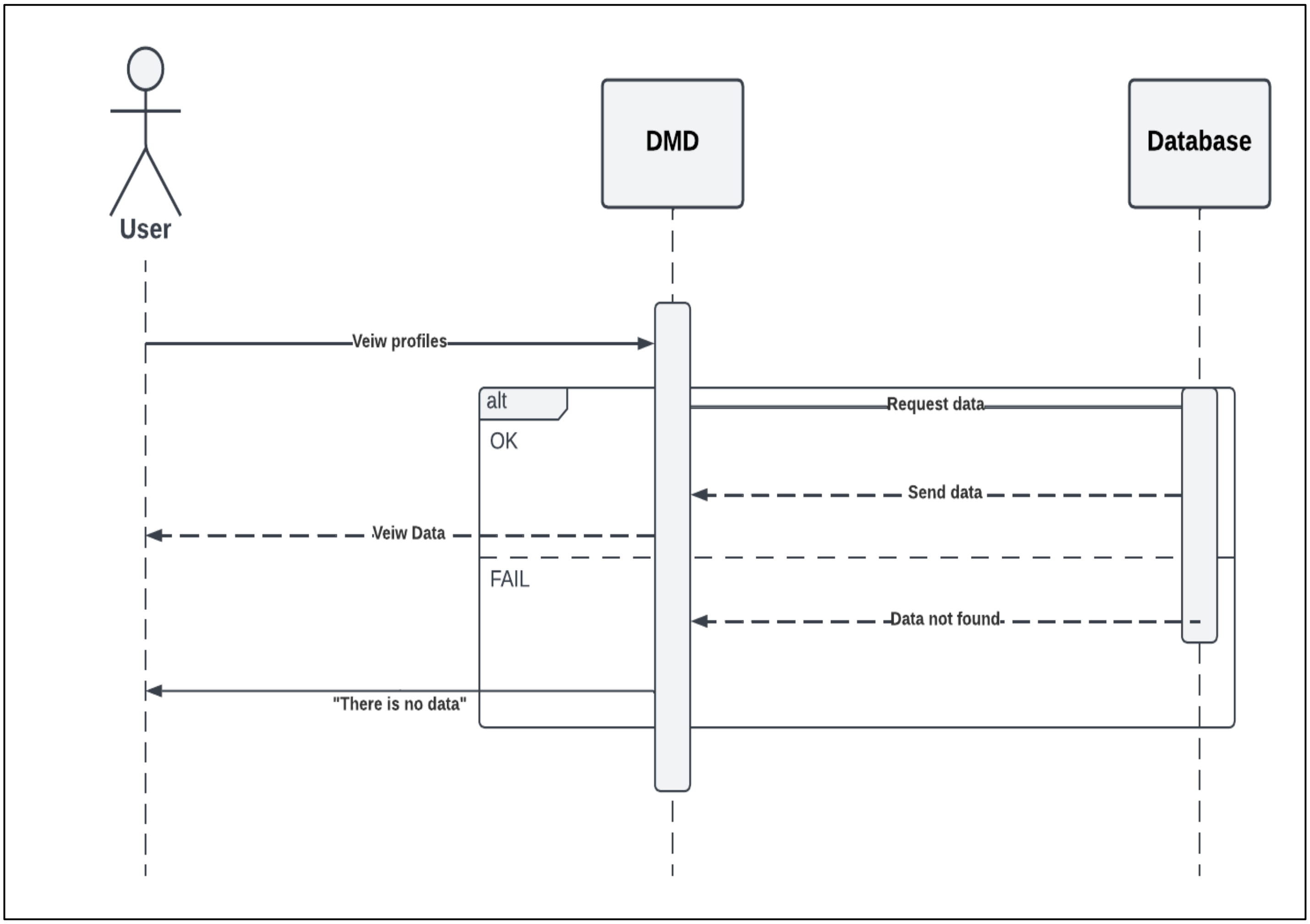


Figure 13 User view profiles sequence diagram

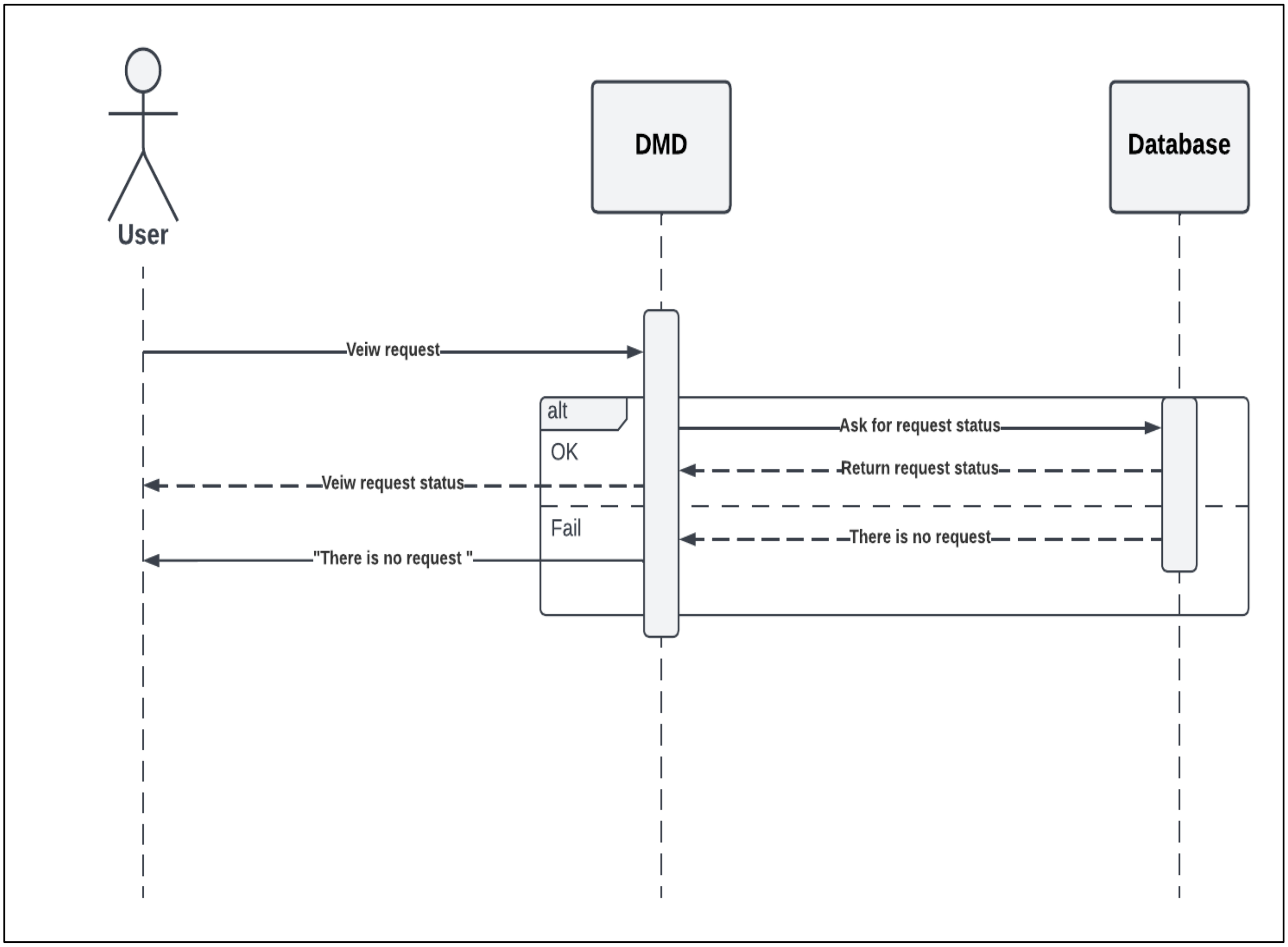


Figure 14 User view request sequence diagram

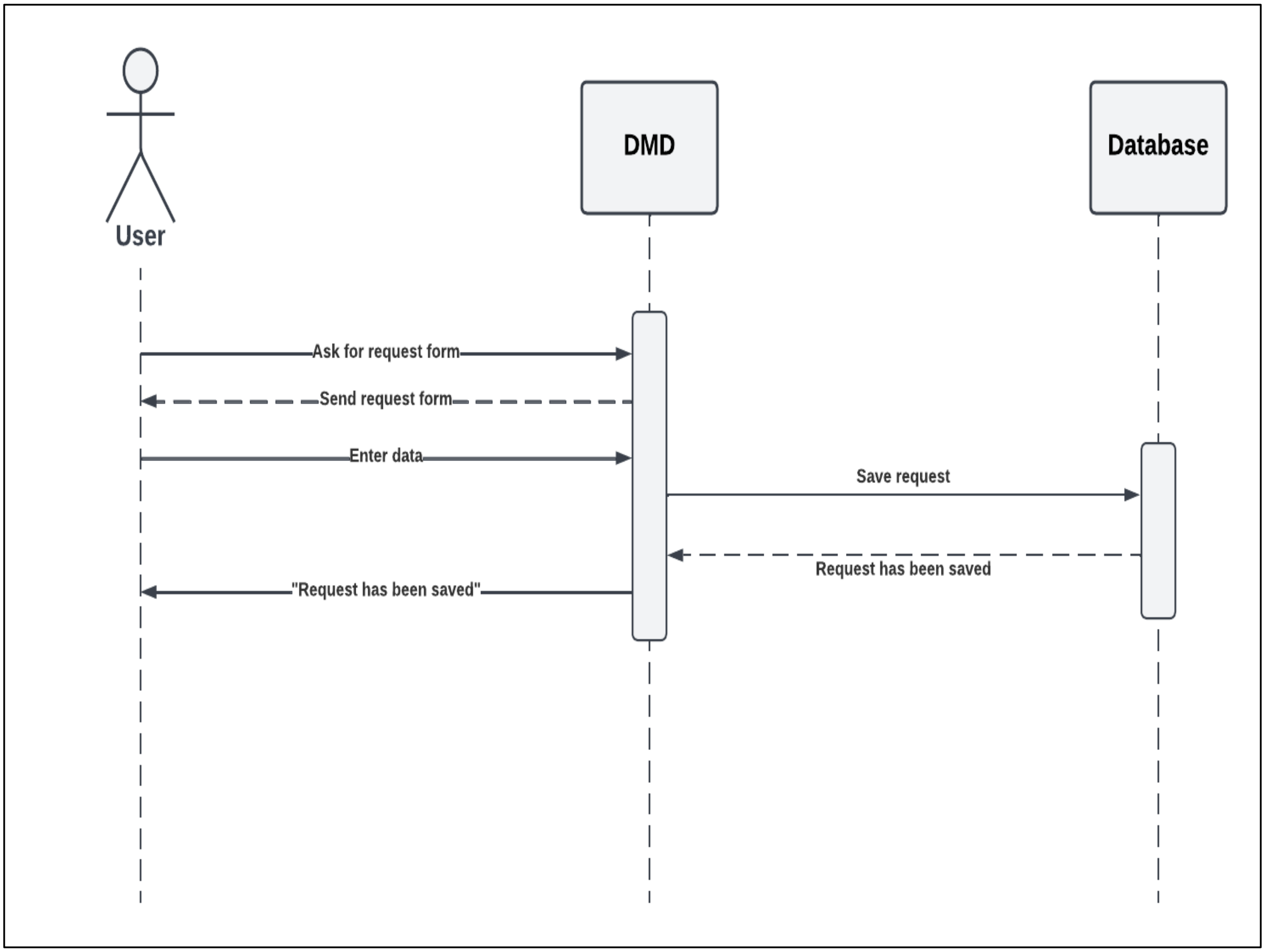


Figure 15 User add request sequence diagram

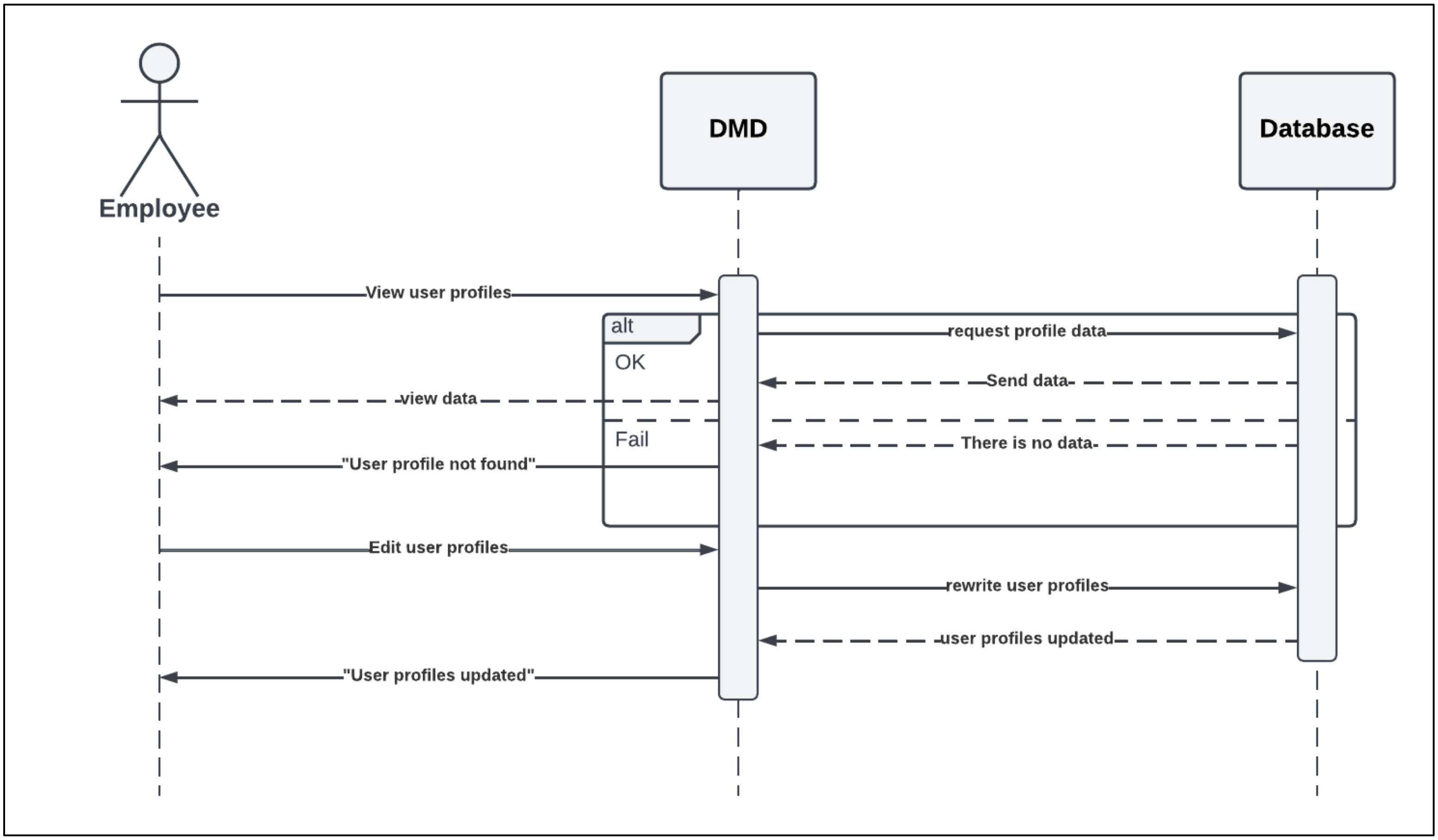


Figure 16 Employee manage user sequence diagram

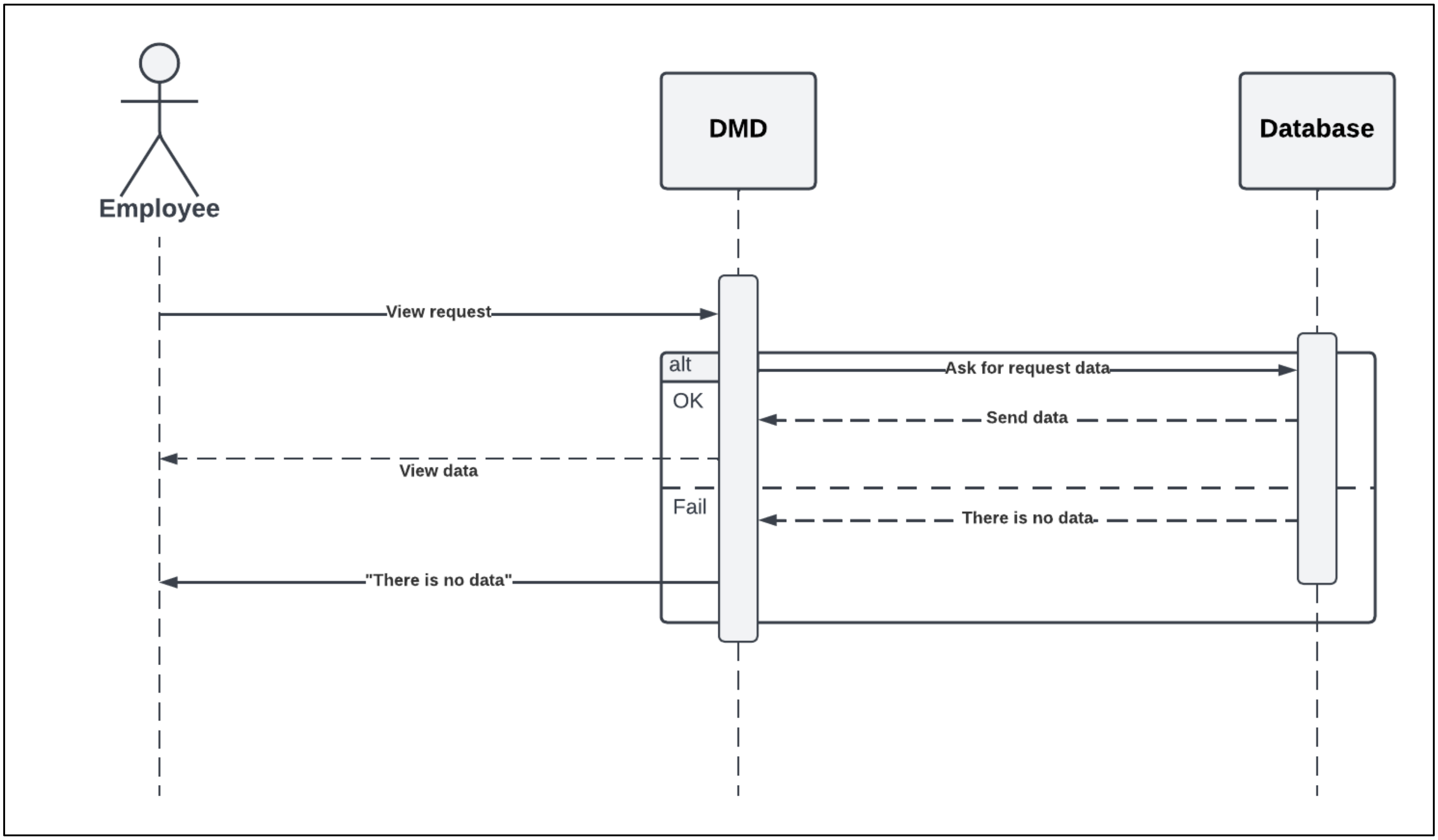
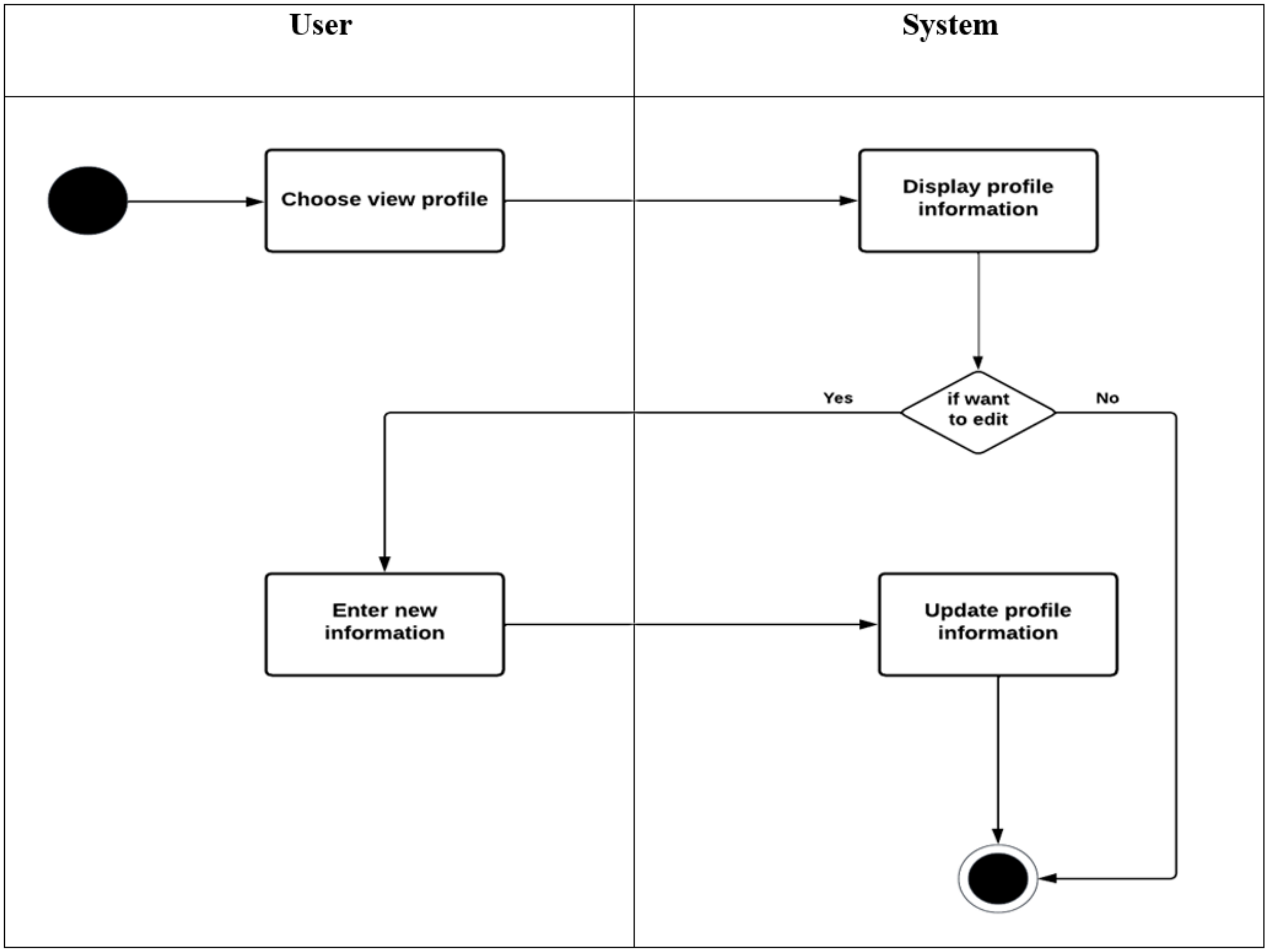


Figure 17 Employee manage request sequence diagram

1.4 ACTIVITY DIAGRAMS



[15]

Figure 18 User view profile activity diagram

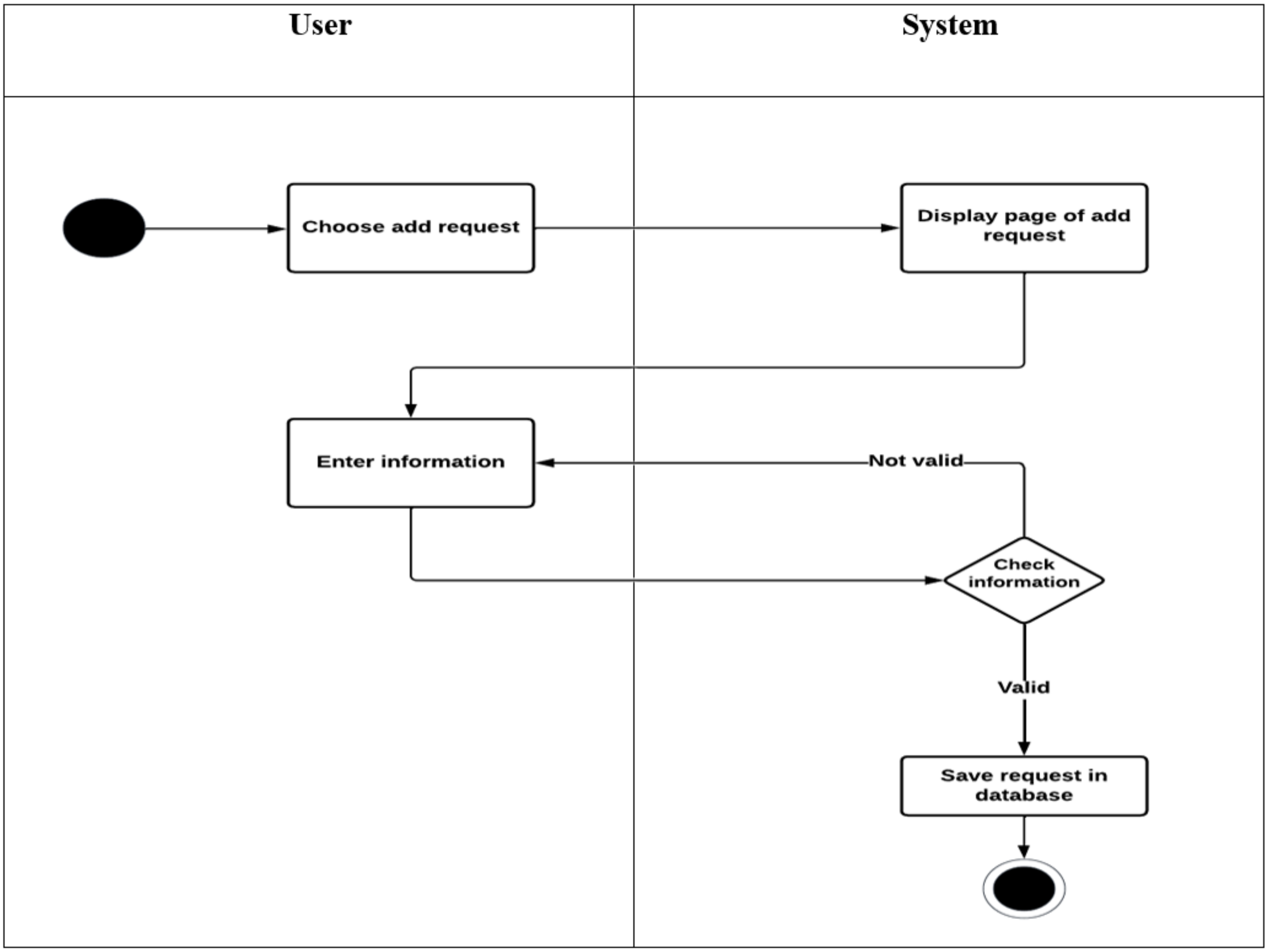


Figure 19 User add request activity diagram

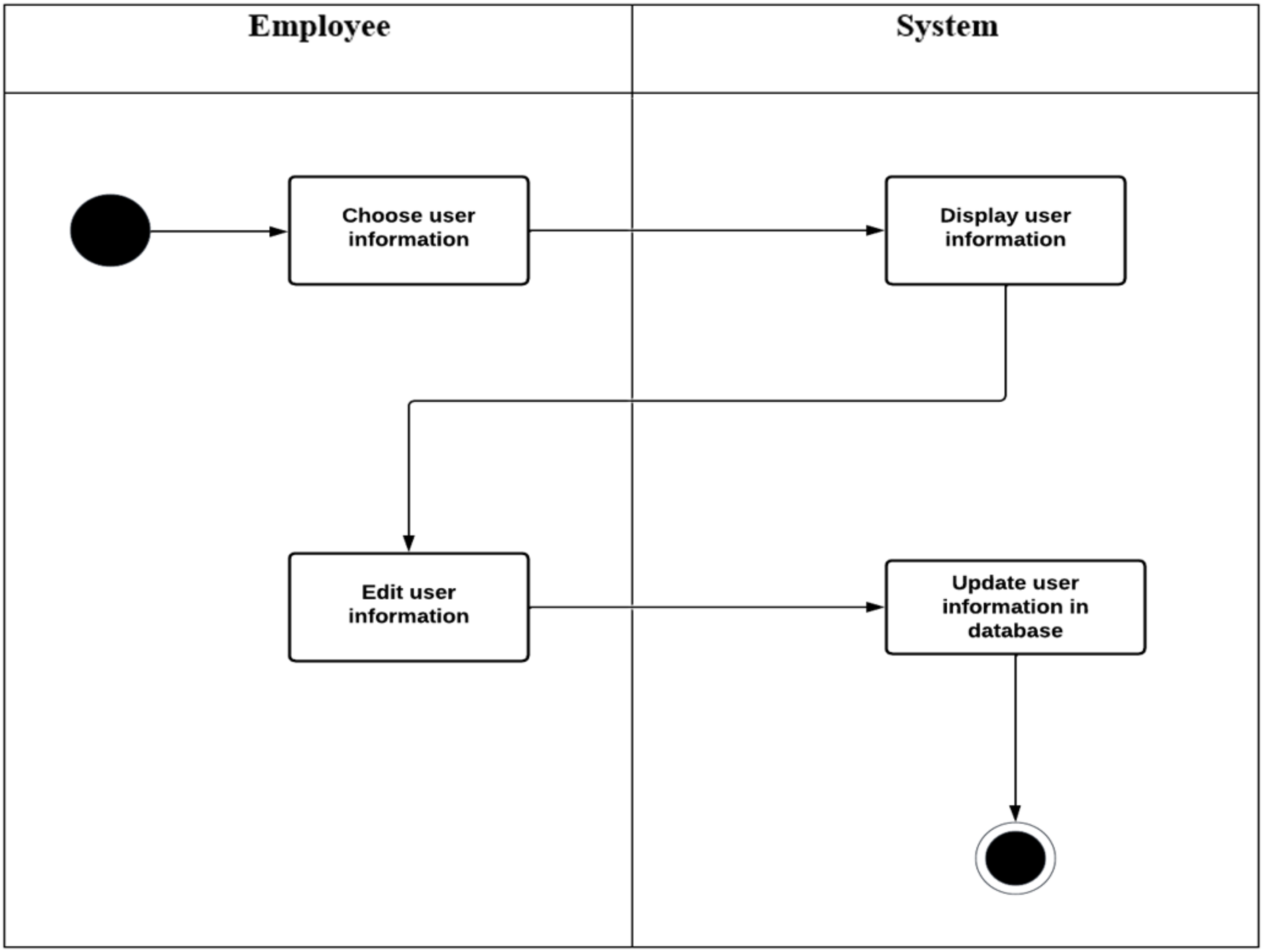


Figure 20 Employee manage user activity diagram

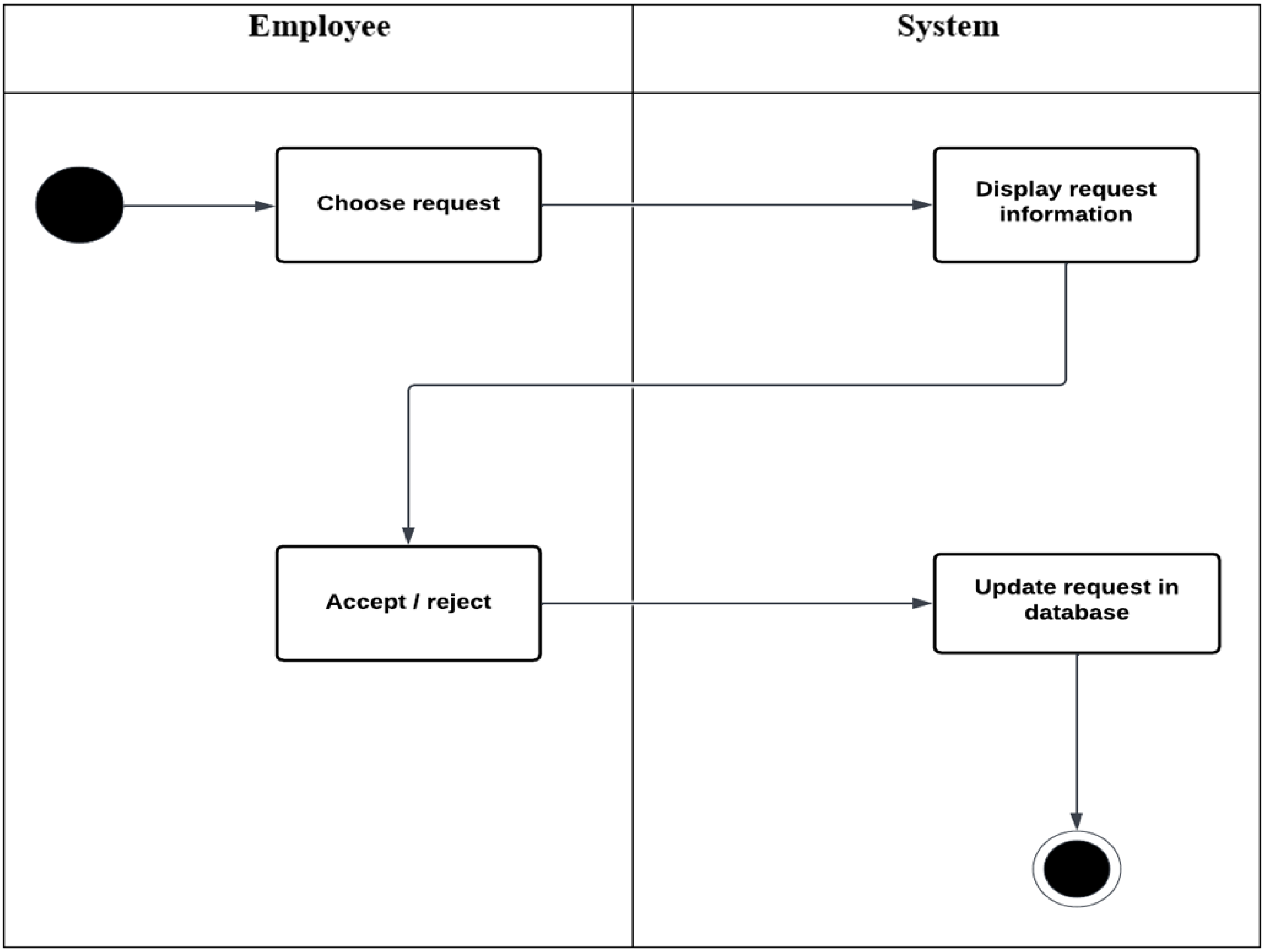


Figure 21 Employee manage request activity diagram

1.5 STATE DIAGRAMS

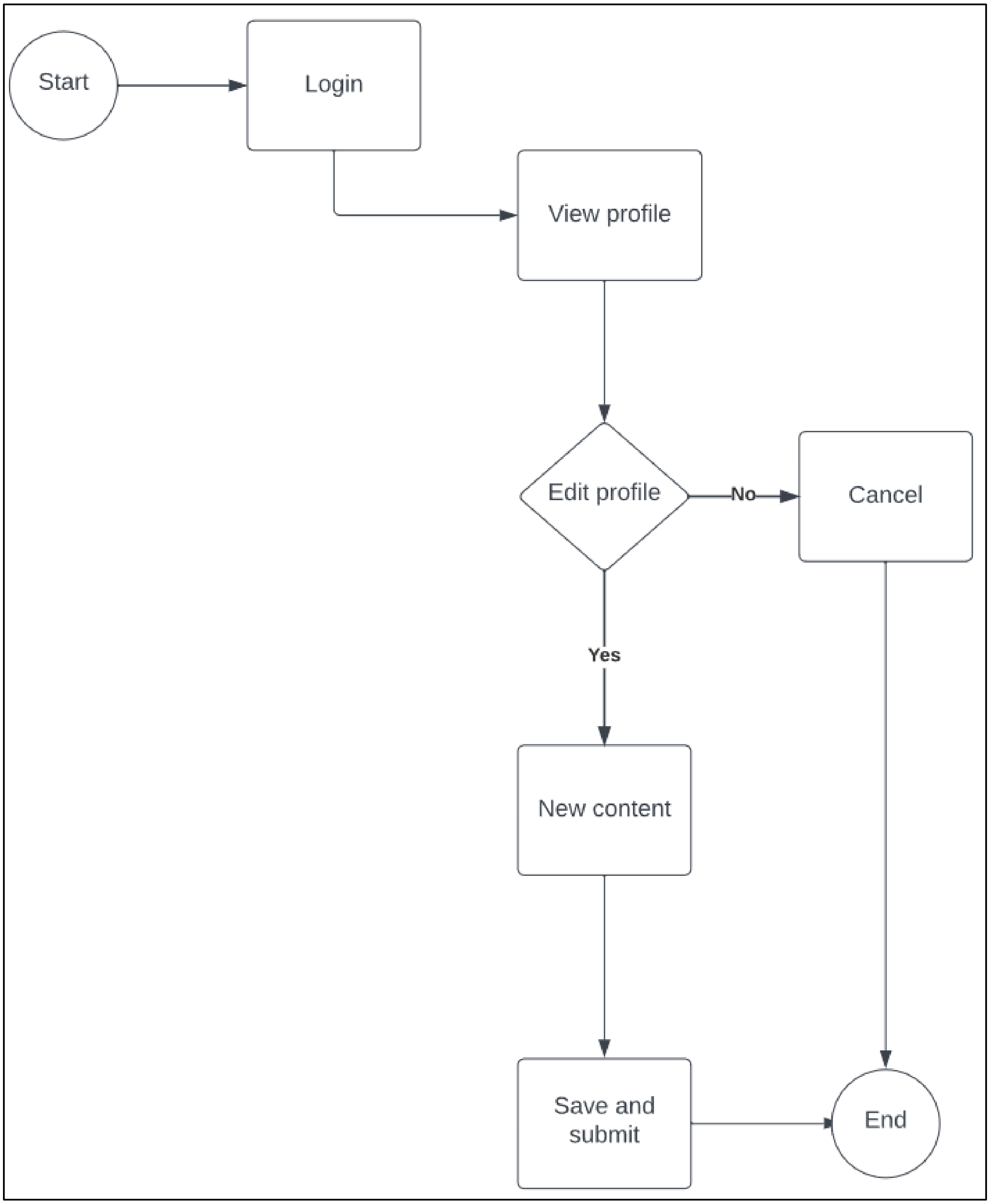


Figure 22 User view profile state diagram

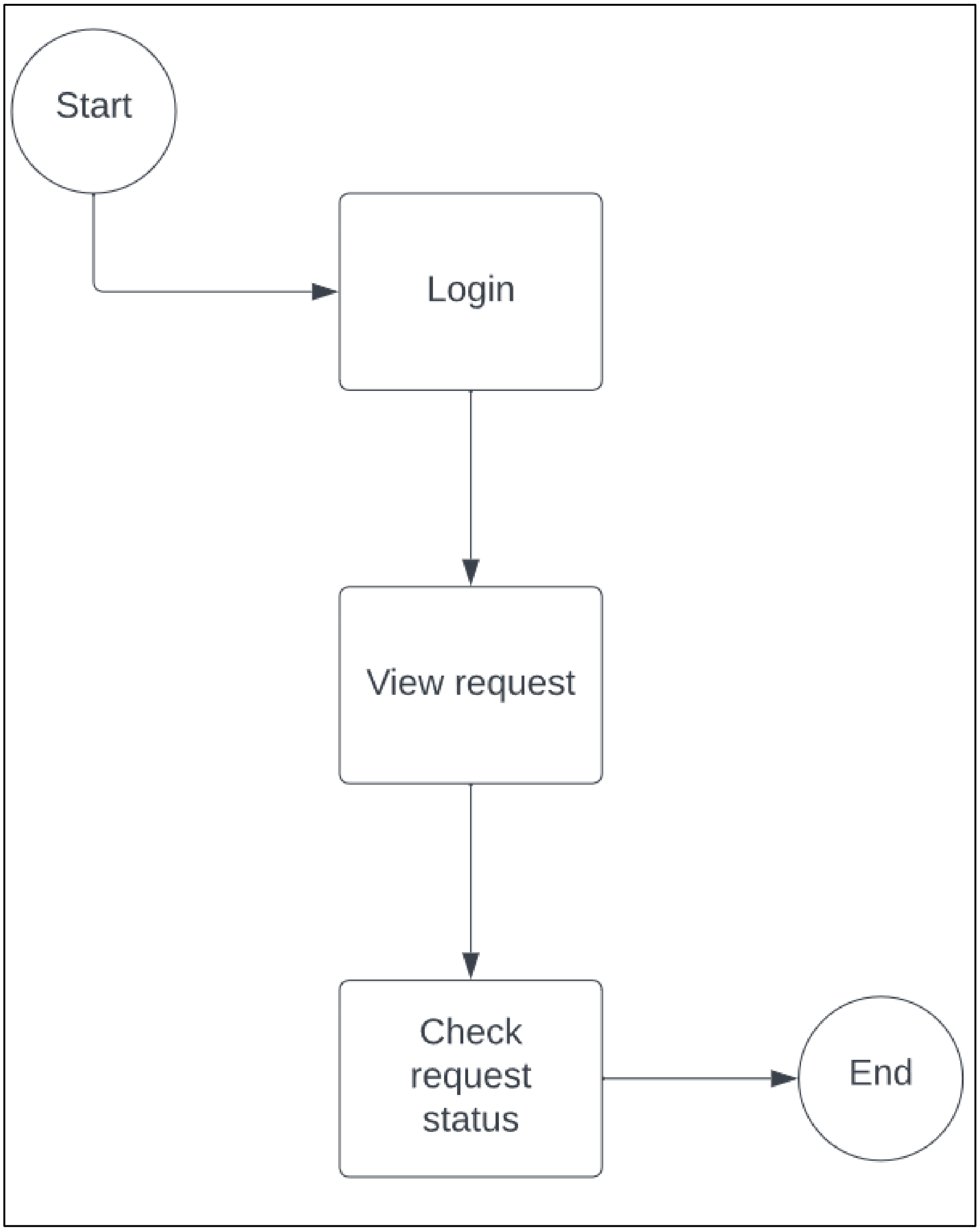


Figure 23 User view request state diagram

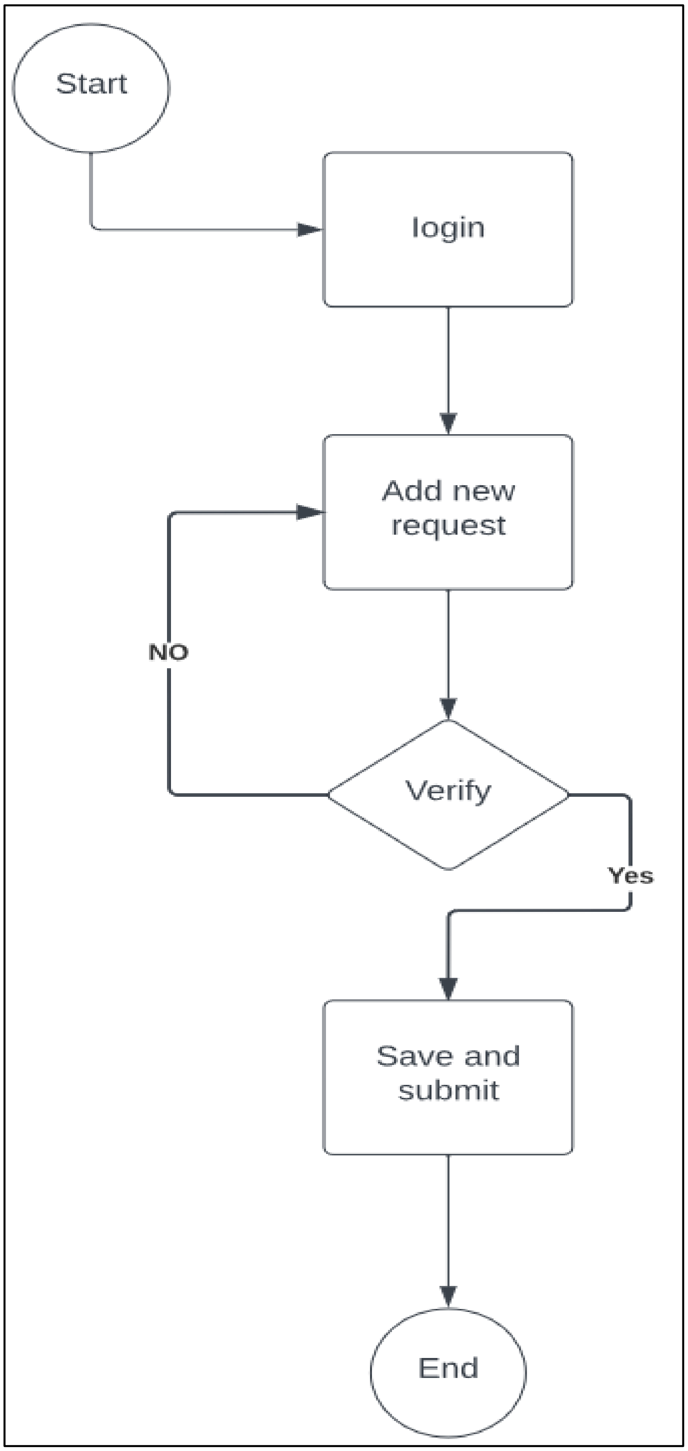


Figure 24 User add request state diagram

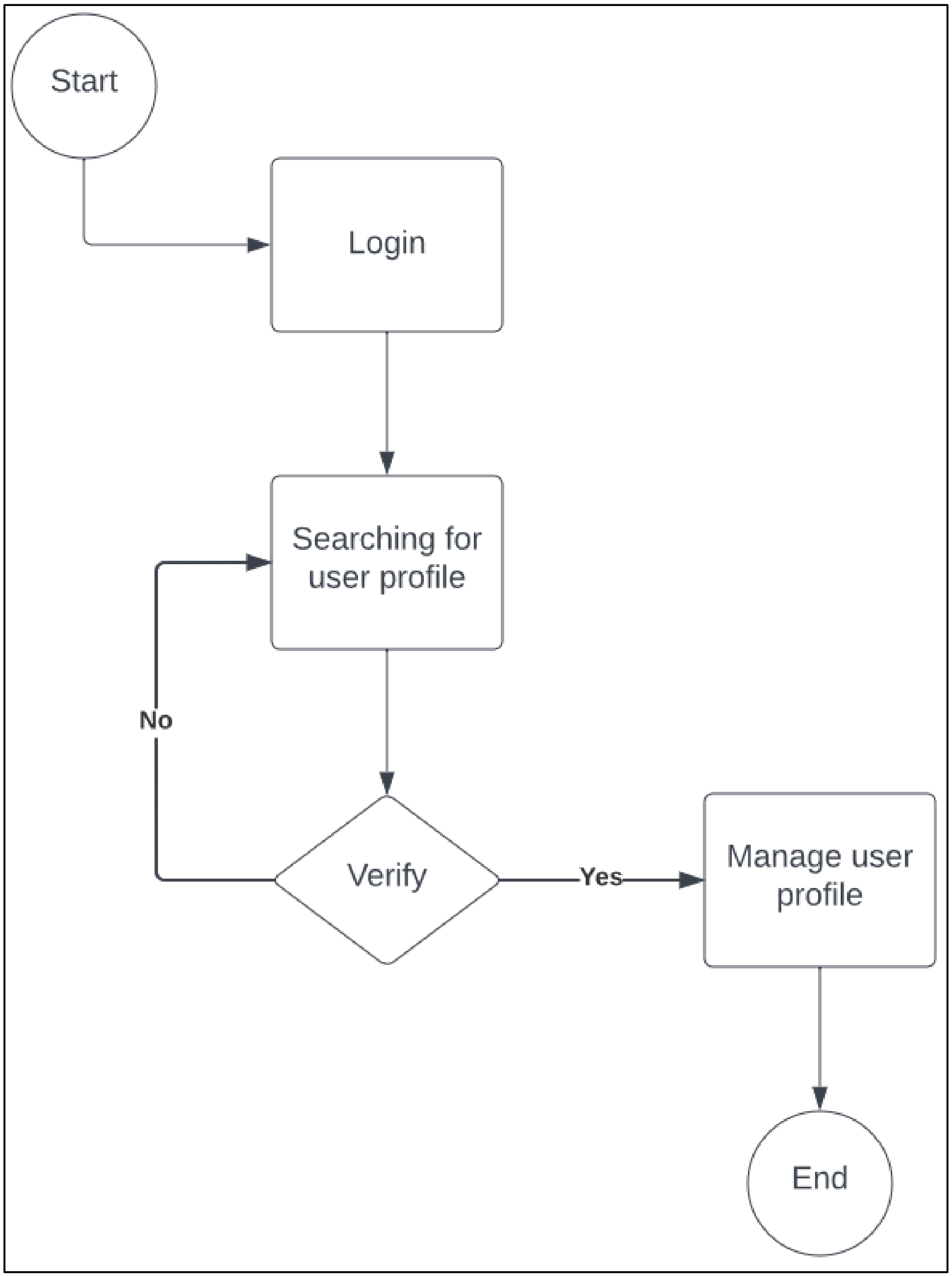


Figure 25 Employee manage user state diagram

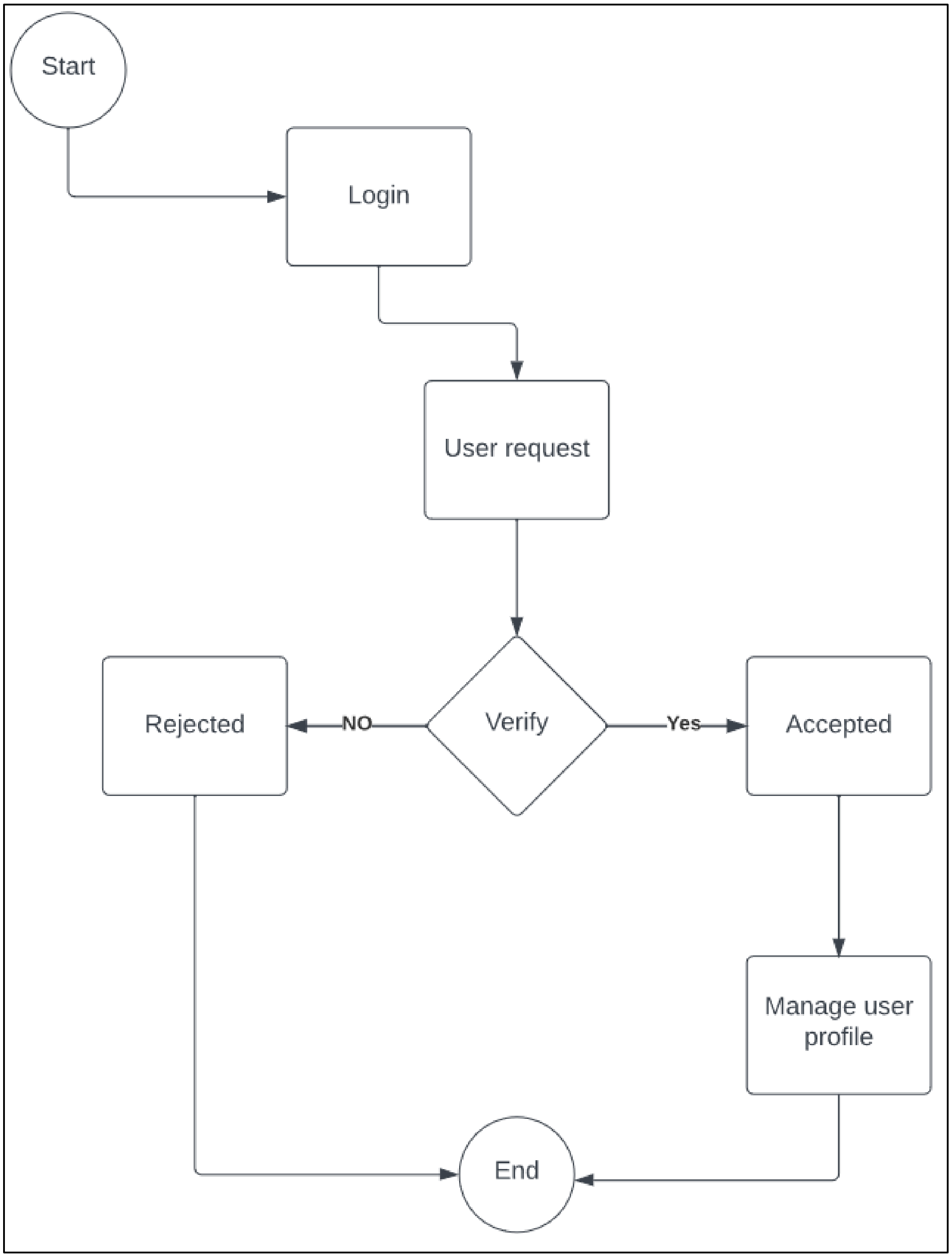


Figure 26 Employee manage request state diagram

2. Architectural design

2.1 MVC Pattern

MVC Pattern is the pattern that we will use in this project as the architectural design. The MVC name stand for (Model-View-Controller) and this pattern goes through 3 stages:

1) **Model**
2) **View**
3) **Controller**

2.1.1 Model

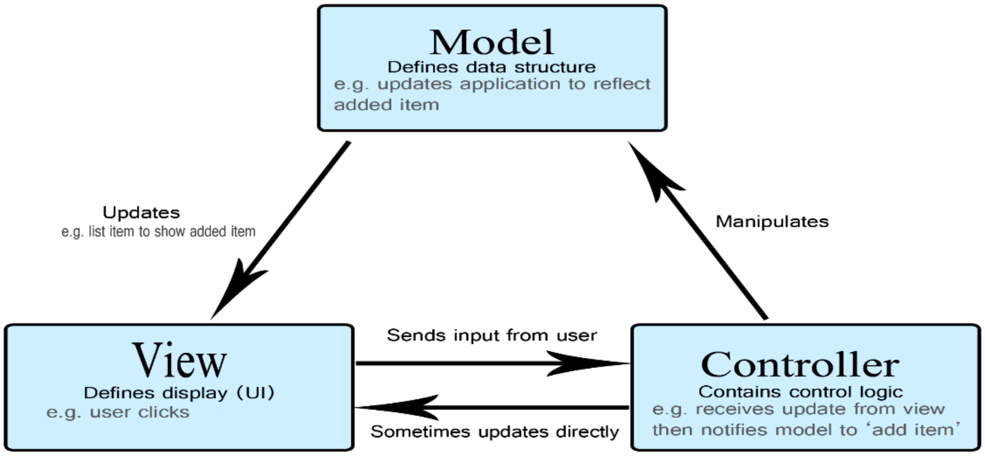
The model contains the information and handles the data logic (database, etc.) and could input new information to the database or output it from the database by Controller instructions.

2.1.2 View

The view focus on presenting the data that the model contains and make it more clear to the user.

2.1.3 Controller

The controller handles the operations and interaction between Model and View and control the ingoing and outgoing of the user requests.


Model
Defines data structure
e.g. updates application to reflect added item
Updates
e.g. list item to show added item
Manipulates
View
Defines display (UI)
e.g. user clicks
Sends input from user
Sometimes updates directly
Controller
Contains control logic
e.g. receives update from view then notifies model to 'add item'

[16] [17] [18]

Figure 27 MVC Pattern diagram

We chose the MVC Pattern for its advantages and for the following reasons:

- MVC Pattern is more appropriate to the web-based application system.
- There are multiple ways to view and interact with the data.
- Allows the data to change independently of its representation and vice versa.

3. Project Prototype

Here we will share with you our first look to the website design:

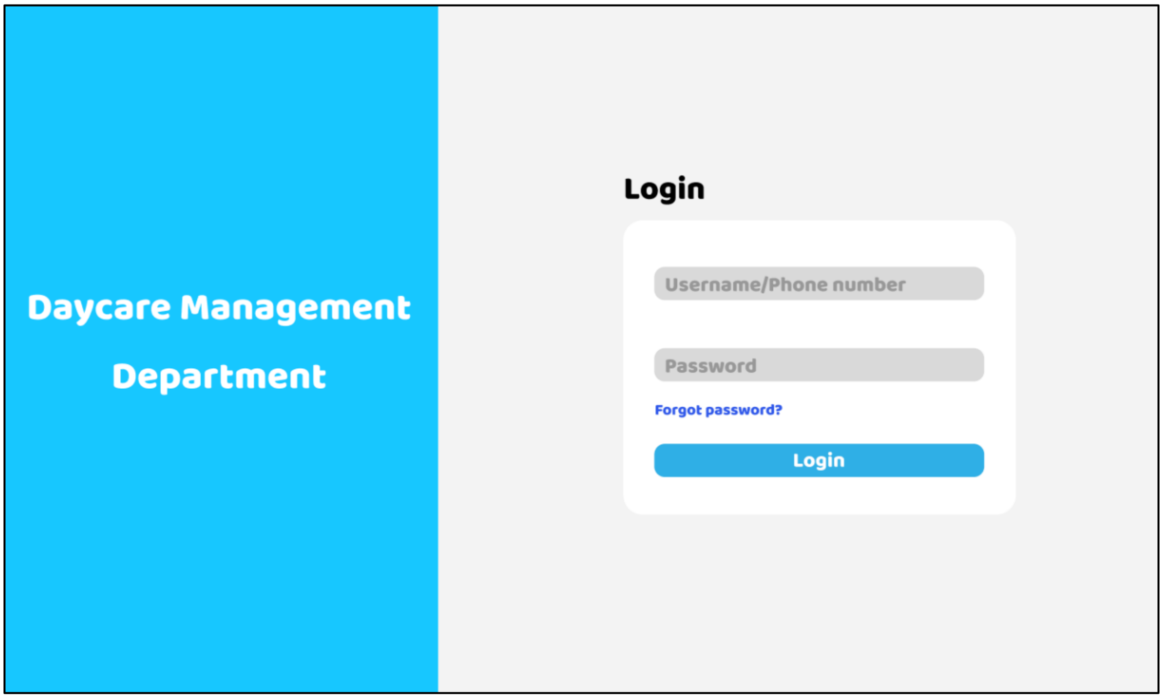
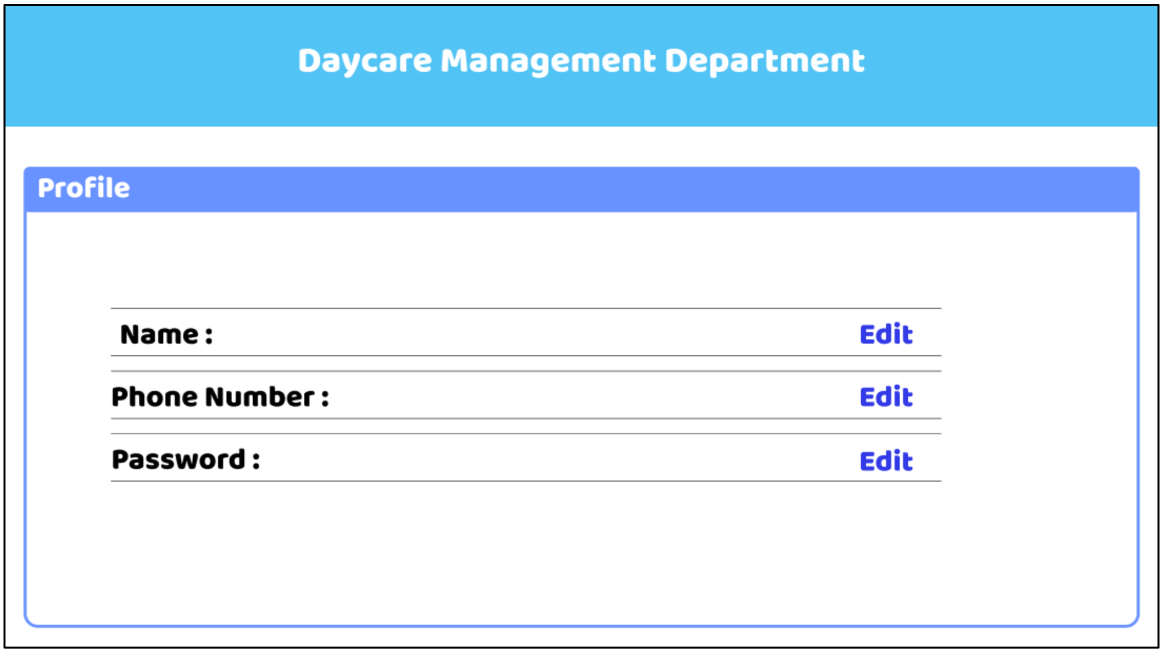


Figure 28 Log in prototype



Daycare Management Department

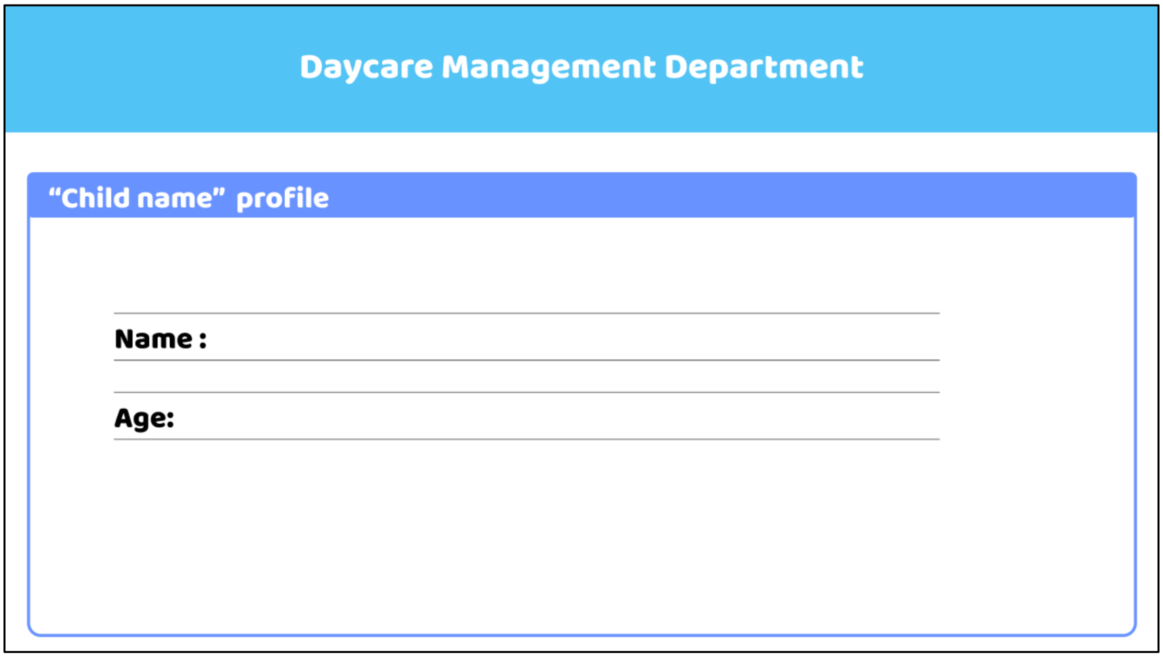
Profile

Name :

Phone Number :

Password :

Figure 29 Employee manage user / User view profile prototype



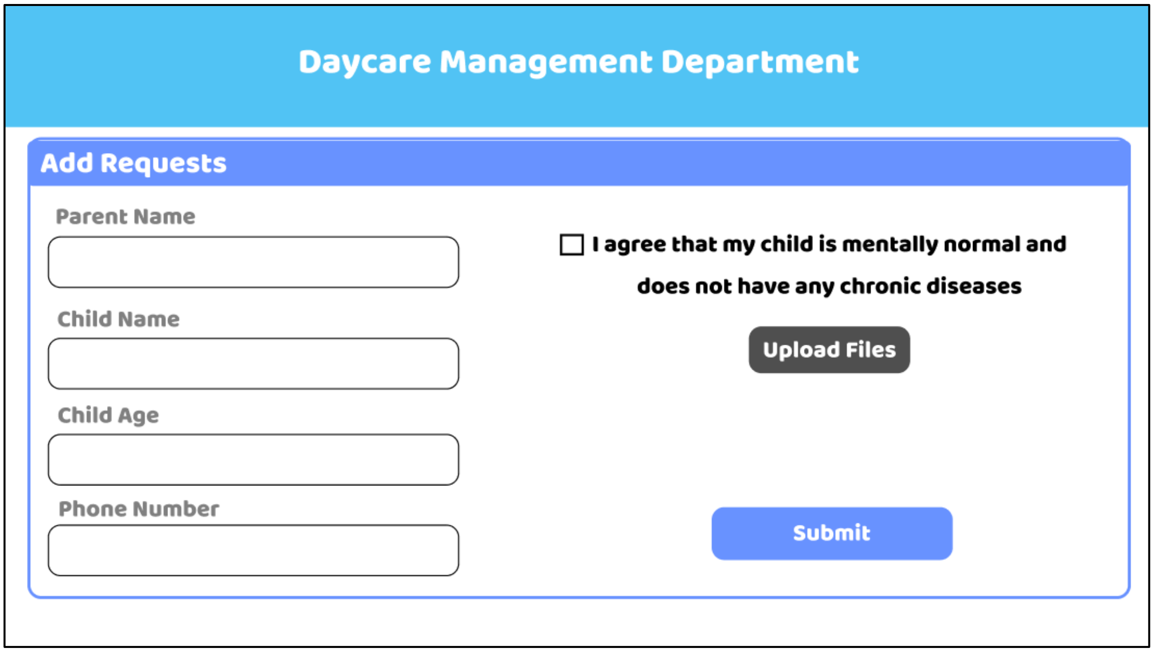
Daycare Management Department

“Child name” profile

Name :

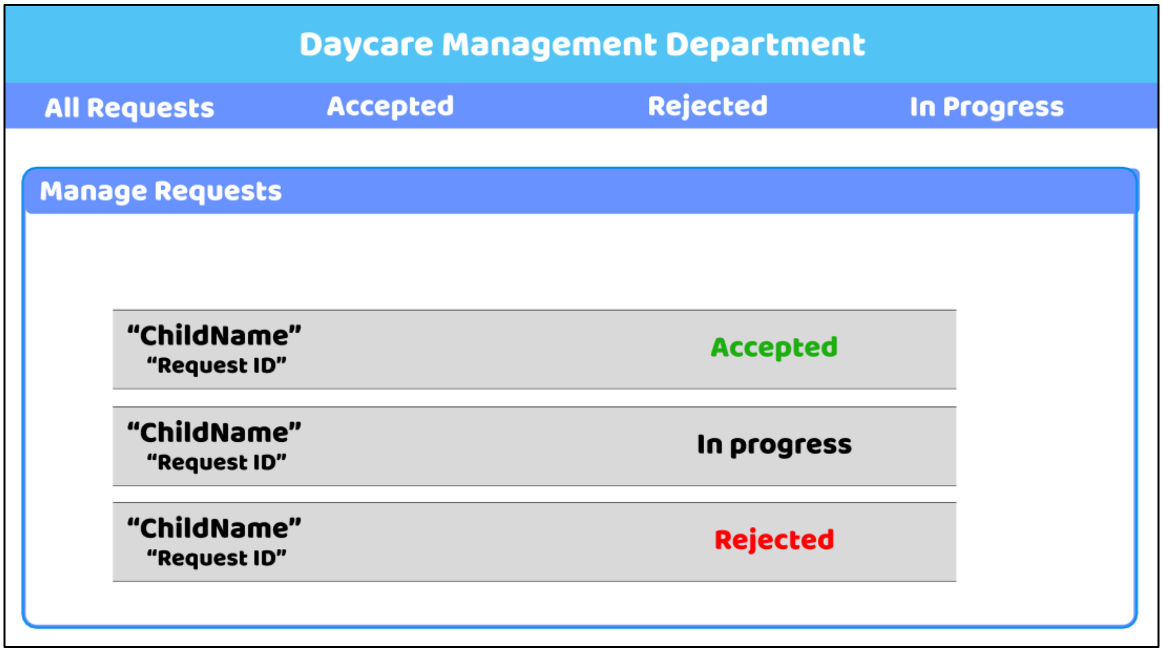
Age:

Figure 30 User view child profile prototype



□ I agree that my child is mentally normal and does not have any chronic diseases

Figure 31 User add request prototype

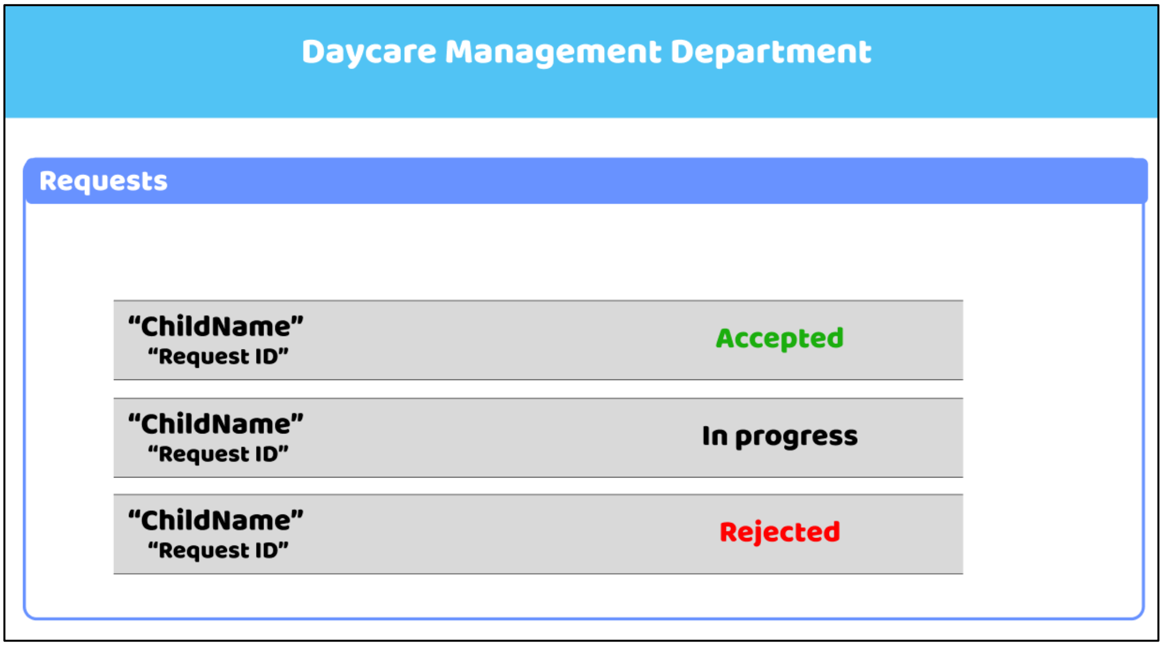


"ChildName" "Request ID" Accepted

"ChildName" "Request ID" In progress

"ChildName" "Request ID" Rejected

Figure 32 Employee manage request prototype



Daycare Management Department

Requests

"ChildName"
"Request ID" Accepted

"ChildName"
"Request ID" In progress

"ChildName"
"Request ID" Rejected

Figure 33 User View request prototype

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