# Software Requirements and Design Document

**for**

# UNIVERSITY DAYCARE MANAGEMENT SYSTEM

**Prepared by *Laiba Zulfiqar & Imra Tariq***

**FAST NUCES H-11 CAMPUS,ISLAMABAD**

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# ● Introduction

## ○ Purpose

The purpose of a Fast Daycare System  is to provide a practical and supportive solution for parents within the university community, facilitating their academic and professional pursuits while ensuring the well-being and development of their children.

## ○ Product Scope

The University Daycare System is a specialized software designed to streamline and enhance childcare services within a university setting. Its primary purpose is to provide a convenient and supportive solution for university students and faculty who are parents, facilitating their academic and professional pursuits while ensuring the well-being and development of their children

## ○ Title : FAST DAYCARE SYSTEM

***Project Aim:***
The aim of the "Fast  Daycare System" is to revolutionize and streamline the childcare services offered within the university, providing a fast, efficient, and user-friendly solution for parents, staff, and daycare administrators. The project seeks to enhance the overall daycare experience by leveraging modern technologies to address key challenges and improve operational efficiency.
Immediate Solution:

**The immediate solution** :

Enrollment: Simplified and accelerated registration processes for new children, ensuring accessibility for parents and guardians.
Real-Time Attendance Tracking: Robust system implementation for accurate and instant attendance tracking, enhancing child safety and keeping parents informed.
Efficient Communication Platform: Integration of an in-app communication platform for instant updates and personalized interactions between parents and daycare staff.
Automated Billing and Payment: Implementation of an automated billing system with secure payment processing for transparent and hassle-free financial transactions.

## ○ Objectives

**Efficient Enrollment:** *Simplify and accelerate the registration process for new children, ensuring a seamless onboarding experience.*
***Real-Time Attendance Tracking:*** *Implement a robust system for accurate, real-time monitoring of children's attendance to enhance safety and inform parents promptly.*
***Transparent Communication:*** *Foster transparent and instant communication between parents and daycare staff through an efficient in-app platform.*
***Automated Billing and Payment:*** *Streamline financial transactions with an automated billing system for accuracy and a user-friendly payment experience.*
***Optimized Staff Management:*** *Develop a staff management module to enhance scheduling, role assignments, and overall staff efficiency.*
***Safety Protocols:*** *Prioritize child safety by implementing emergency protocols, access controls, and secure storage of medical records.*
***Analytics and Reporting:*** *Provide administrators with intuitive tools for tracking attendance, financial summaries, and operational metrics to support informed decision-making.*

## ○ Problem Statement

*The selection of a University Daycare System in Pakistan stems from a critical need to address the unique challenges faced by university students and faculty who are also parents. The existing landscape lacks an integrated and efficient solution to manage daycare services within the university, leading to manual and time-consuming processes. Currently, parents often encounter difficulties in enrolling their children, managing attendance records, and communicating effectively with daycare staff. Moreover, administrative tasks such as billing and payment processes are prone to errors and inefficiencies.*

*The manual nature of these operations not only consumes valuable time for parents and staff but also poses challenges in maintaining accurate records, potentially compromising the safety and well-being of the children. The feasibility of a University Daycare System lies in its ability to streamline these processes, providing an automated, user-friendly, and comprehensive solution that enhances the overall daycare experience for parents while optimizing administrative workflows.*

*The project's feasibility is underscored by the potential to significantly reduce administrative overhead, improve accuracy in record-keeping, and foster a positive and secure environment for children. By automating enrollment, attendance tracking, billing, and communication processes, the University Daycare System aims to mitigate the current challenges and create a more efficient, transparent, and accessible childcare solution tailored to the specific needs of the university community in Pakistan.*

# ● Overall Description

## ○ Product Perspective

*The University Daycare System outlined in this Software Requirements Specification (SRS) is an independent and novel product specifically designed to cater to the distinctive childcare needs within the university setting in Pakistan. Unlike being part of an existing product family or serving as a replacement for current systems, it stands alone as an innovative solution to streamline and improve the administration of daycare services within the university.*

*Operating autonomously, the system is engineered to offer a tailored suite of features addressing the unique requirements of university parents, students, and faculty. Its core functionalities include enrollment management, real-time attendance tracking, seamless communication tools, efficient billing processes, and streamlined staff management.*

*Although the University Daycare System is self-contained, its potential interfaces with broader university systems are acknowledged. These interfaces may involve integration with university-wide calendars to synchronize with academic schedules, authentication systems to ensure secure access, and potentially connectivity with financial or student information systems for smooth data exchange. A straightforward diagram illustrating the system's key components, their interconnections, and external interfaces would visually depict the system's position within the larger university environment, facilitating a clear understanding of its role and integration points.*

## ○ Product Functions

Enrollment Management:
Allow parents and guardians to efficiently register and enroll their children in the university daycare system.

Real-Time Attendance Tracking:
Implement a robust system for accurate, real-time monitoring of children's attendance.

Communication Tools:
Provide an integrated in-app communication platform for transparent and instant interaction between parents and daycare staff.

Billing and Payment:
Streamline financial transactions with an automated billing system, ensuring accuracy and a user-friendly payment experience for parents.

- **List of Use Cases**
- **Extended Use Cases**
- **Use Case Diagram**

# ● Other Nonfunctional Requirements

## ○ Performance Requirements

**1. Enrollment Processing Time:**
- Requirement:The system must complete the enrollment process for a new child within 5 minutes.
- Rationale: Swift enrollment is essential to provide parents with a positive experience and reduce waiting times, contributing to overall satisfaction with the daycare service.

**2. Real-Time Attendance Update:**
- Requirement:The system must update attendance records in real-time, with a latency of no more than 10 seconds.
- Rationale:Timely attendance tracking is crucial for child safety, and the system's ability to update records in real-time ensures that parents are promptly informed about their child's presence or absence in the daycare.

**3. Communication Platform Responsiveness:**
- Requirement:The in-app communication platform must have a response time of less than 2 seconds for sending and receiving messages.
- Rationale: Rapid communication is vital for efficient parent-staff interaction, fostering quick exchanges of information and enhancing overall satisfaction with the daycare's communication system.

**4. Billing and Payment Processing Time:**
- Requirement:Automated billing and payment processes should be completed within 3 minutes.
- Rationale:Efficient financial transactions are crucial for a seamless payment experience, minimizing disruptions and ensuring that parents can manage their financial responsibilities promptly and conveniently.

## ○ Safety Requirements

***Emergency Procedures:***

*Requirement: The University Daycare System must have clearly defined emergency procedures, including evacuation plans and communication protocols for various emergency scenarios.*

*Safeguards: Automated emergency notifications, regular training drills, and access to emergency contacts.*

***Access Controls:***

*Requirement: The system must implement robust access controls to prevent unauthorized access to sensitive information and facilities.*
*Safeguards: Secure authentication methods, role-based access controls, and regular monitoring of access logs.*

## ○ Software Quality Attributes

*<Specify any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning.>*

Usability:

*Requirement:* The system must achieve a user satisfaction rating of at least 90% in usability testing.

*Rationale:* Prioritize a user-friendly interface and intuitive workflows to enhance the overall user experience for parents, staff, and administrators.

Reliability:

*Requirement:* The system should have a minimum uptime of 99.5%.

*Rationale:* Emphasize system reliability to ensure continuous availability and minimize disruptions in daycare operations.

Adaptability:

*Requirement:* The system must be capable of accommodating changes or updates with a maximum downtime of 2 hours.

*Rationale:* Enable adaptability to address evolving requirements and incorporate system enhancements with minimal impact on operational continuity.

Maintainability:

*Requirement:* The system code must adhere to coding standards, allowing developers to understand and modify it efficiently.

*Rationale:* Prioritize maintainability to facilitate ongoing updates, bug fixes, and improvements to the system.

Testability:

*Requirement:* The system must have an automated testing coverage of at least 90%.

*Rationale:* Facilitate efficient and thorough testing processes to identify and address issues in a timely manner.

Interoperability:

*Requirement:* The system must seamlessly integrate with university-wide systems, achieving a data exchange success rate of 98%.

*Rationale:* Ensure interoperability to support a cohesive technology ecosystem within the university.

Availability:

*Requirement:* The system should have scheduled maintenance windows with a maximum duration of 2 hours per month.

*Rationale:* Balance availability with the need for routine maintenance to sustain optimal performance.

Robustness:

*Requirement:* The system must handle concurrent user access for at least 500 users without significant performance degradation.

*Rationale:* Prioritize robustness to ensure the system can handle varying workloads and user demands.

Flexibility:

*Requirement:* The system must provide customizable settings to accommodate diverse daycare needs.

*Rationale:* Prioritize flexibility to cater to the unique requirements of different departments or units within the university.

Security:

*Requirement:* The system must undergo regular security audits, ensuring compliance with security standards and best practices.

*Rationale:* Emphasize security to safeguard sensitive data and protect against potential vulnerabilities or breaches.

## ○ Business Rules

*<List any operating principles about the product, such as which individuals or roles can perform which functions under specific circumstances. These are not functional requirements in themselves, but they may imply certain functional requirements to enforce the rules.>*

Enrollment Eligibility Rule: Only children of university students, faculty, and staff are eligible for enrollment in the daycare system.

Attendance Records Access Rule: Parents and legal guardians have the right to access real-time attendance records of their children.

Communication Protocol Rule: All communication between parents and daycare staff must occur within the designated in-app communication platform to ensure privacy and security.

Billing and Payment Responsibility Rule: Parents are responsible for timely payment of daycare fees, and failure to do so may result in the temporary suspension of daycare services.

## ○ Operating Environment

*<Describe the environment in which the software will operate, including the hardware platform, operating system and versions, and any other software components or applications with which it must peacefully coexist.>*

**Hardware Platform:** *any laptop/pc .*

*Minimum requirements include:*

*Dual-core processor (or equivalent)*

*4 GB RAM*

*20 GB of available disk space*

**Operating System:**

*The system is compatible with multiple operating systems, including:*

*Windows 10 (64-bit)/macOS Catalina (or later)/Ubuntu 20.04 (or later)*

**Java Development Environment:**

*The system is developed using Eclipse as the Java Integrated Development Environment (IDE).*

*Minimum required version: Eclipse IDE 2021-06.*

**Database System:**

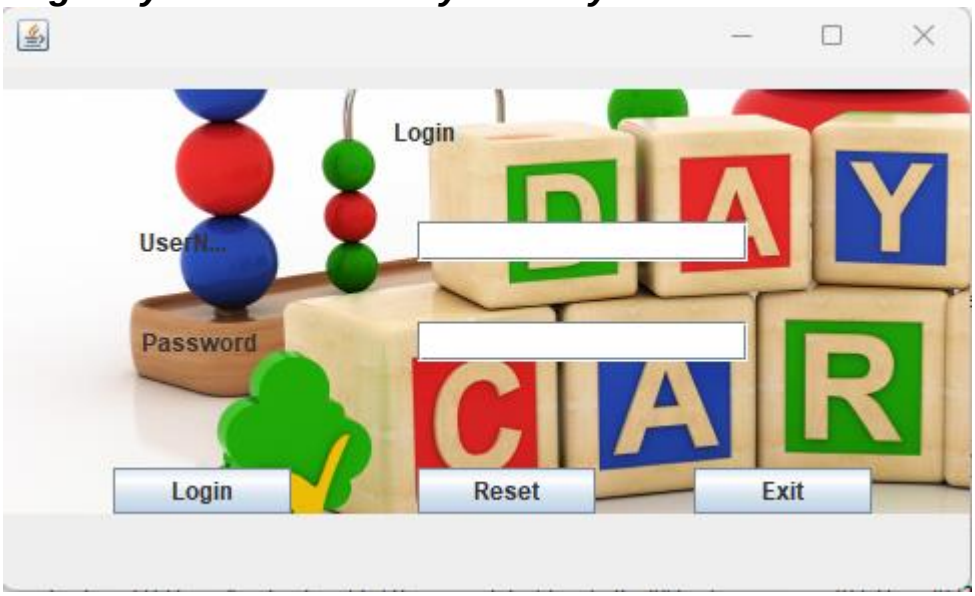
*The backend of the University Daycare System is powered by a MySQL database.*

*MySQL Workbench is used as the database management tool.*

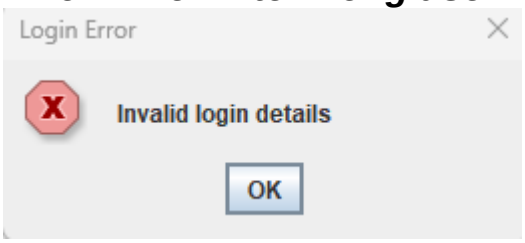
*Minimum required version: MySQL 8.0.*

- **User Interfaces**

### *Login System of Fast Day Care System:*

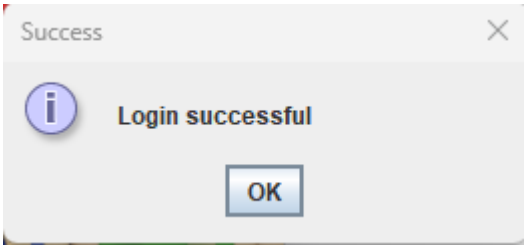



### *Error if we write wrong user name and password:*

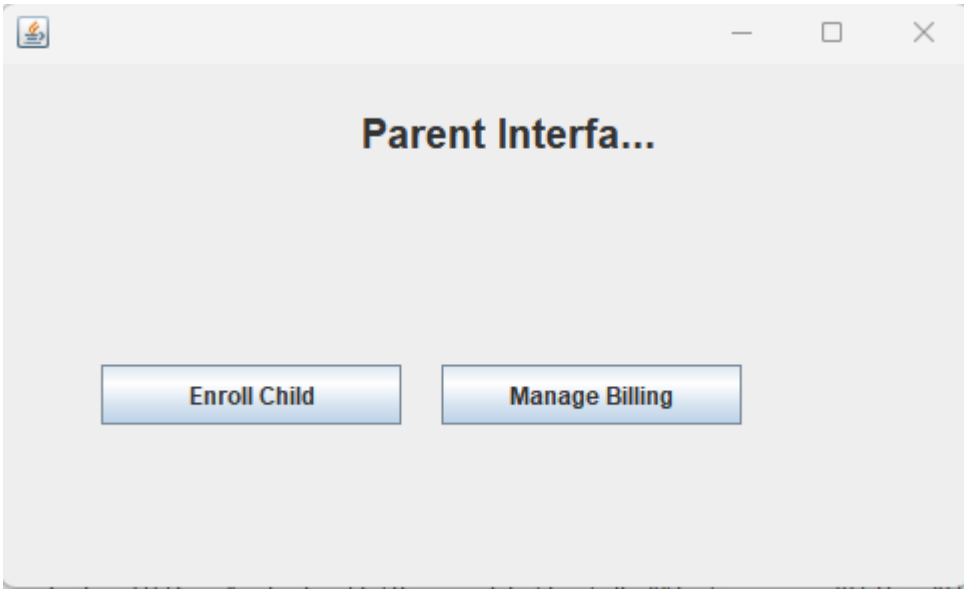


***When parent enters their password and user name it will show parent interface:***

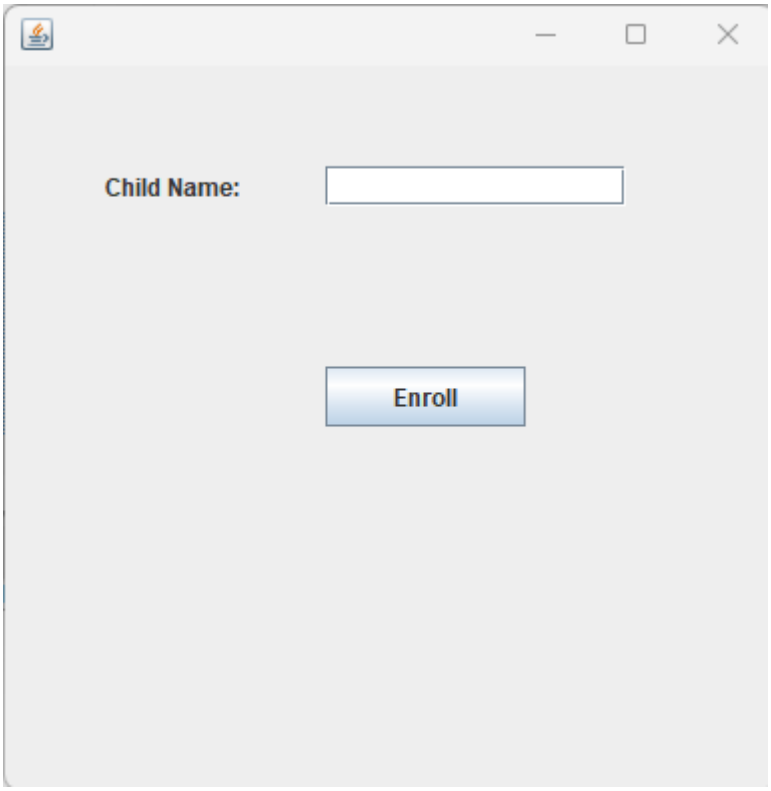

***Parent Interface:***



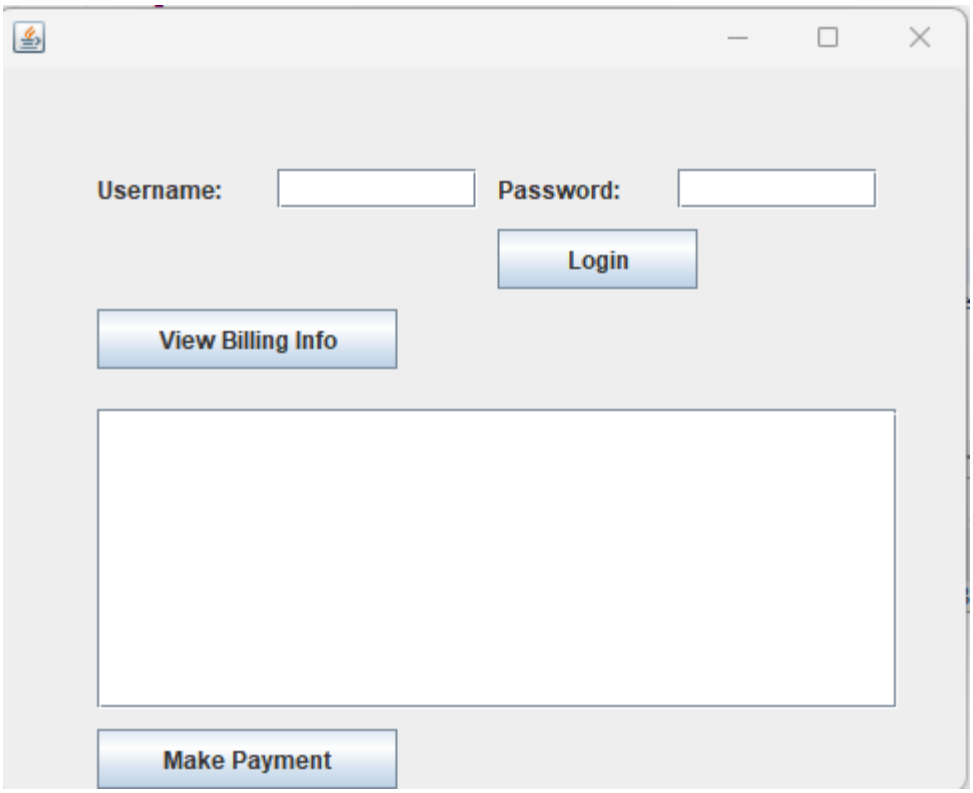

*It contains two buttons (use cases) that handle the enrollment of child and make payments:*



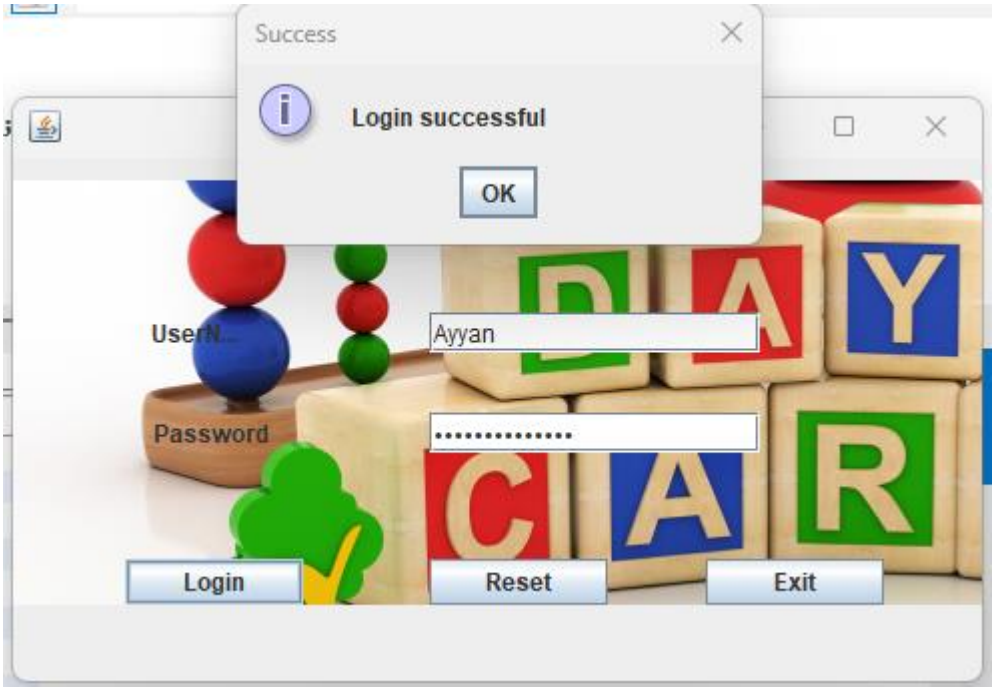
## *Enroll child button:*

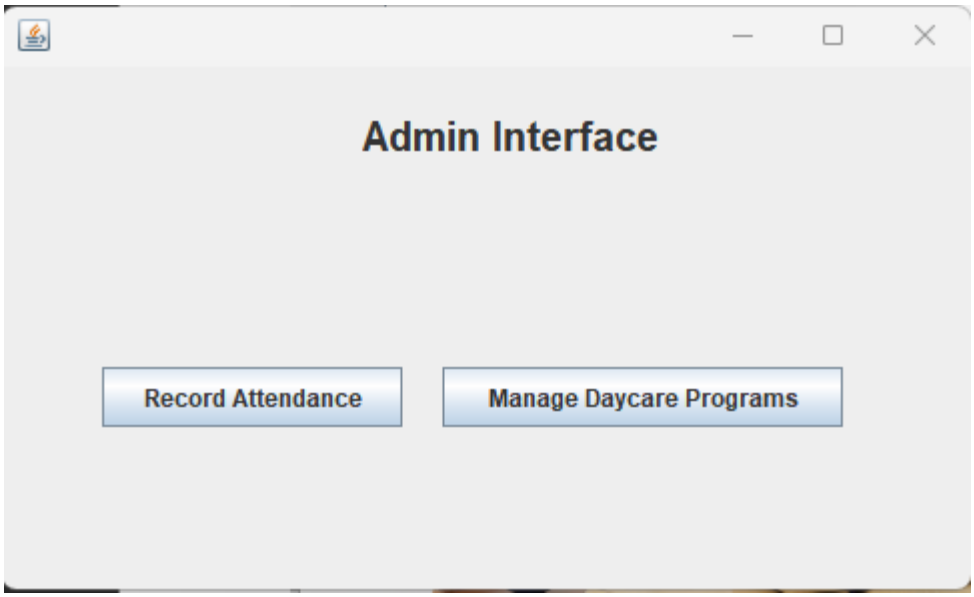



## *Manage billing button:*

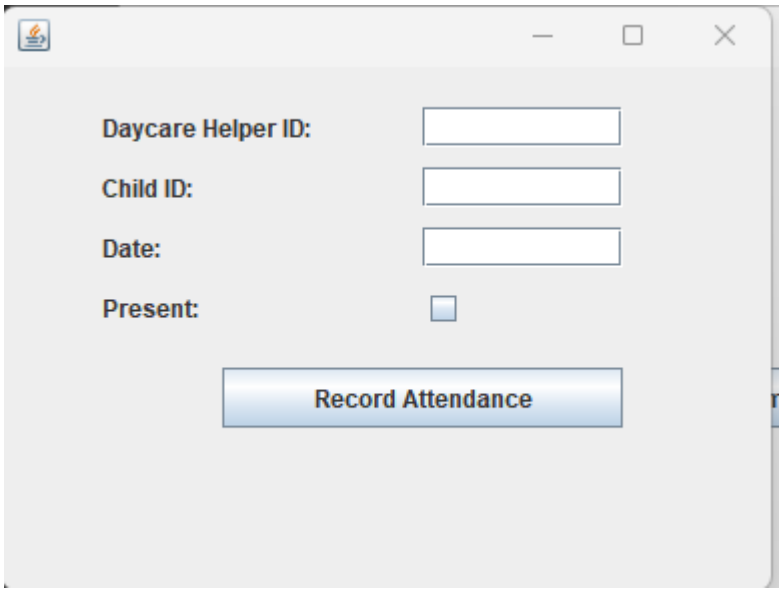



## *Admin Interface:*

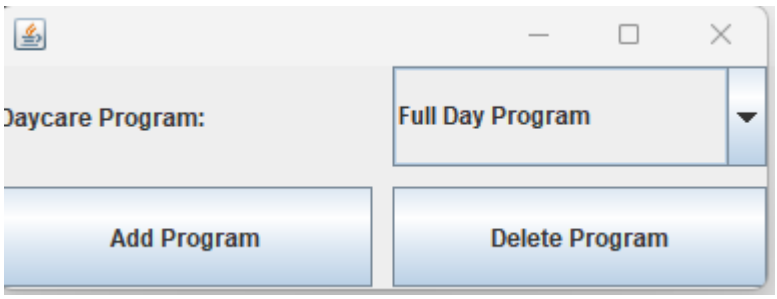




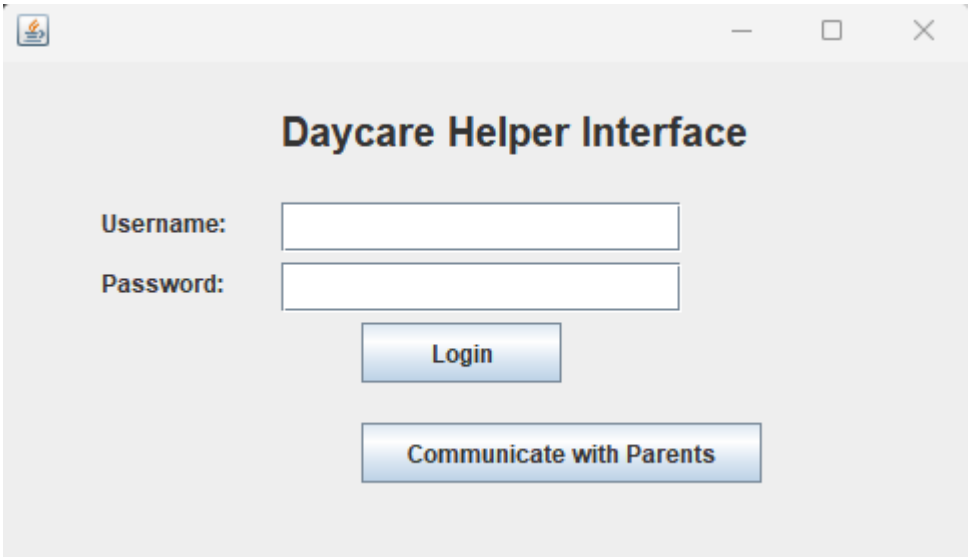

## *Record Attendance Button:*




## *Manage Day Care Programs:*



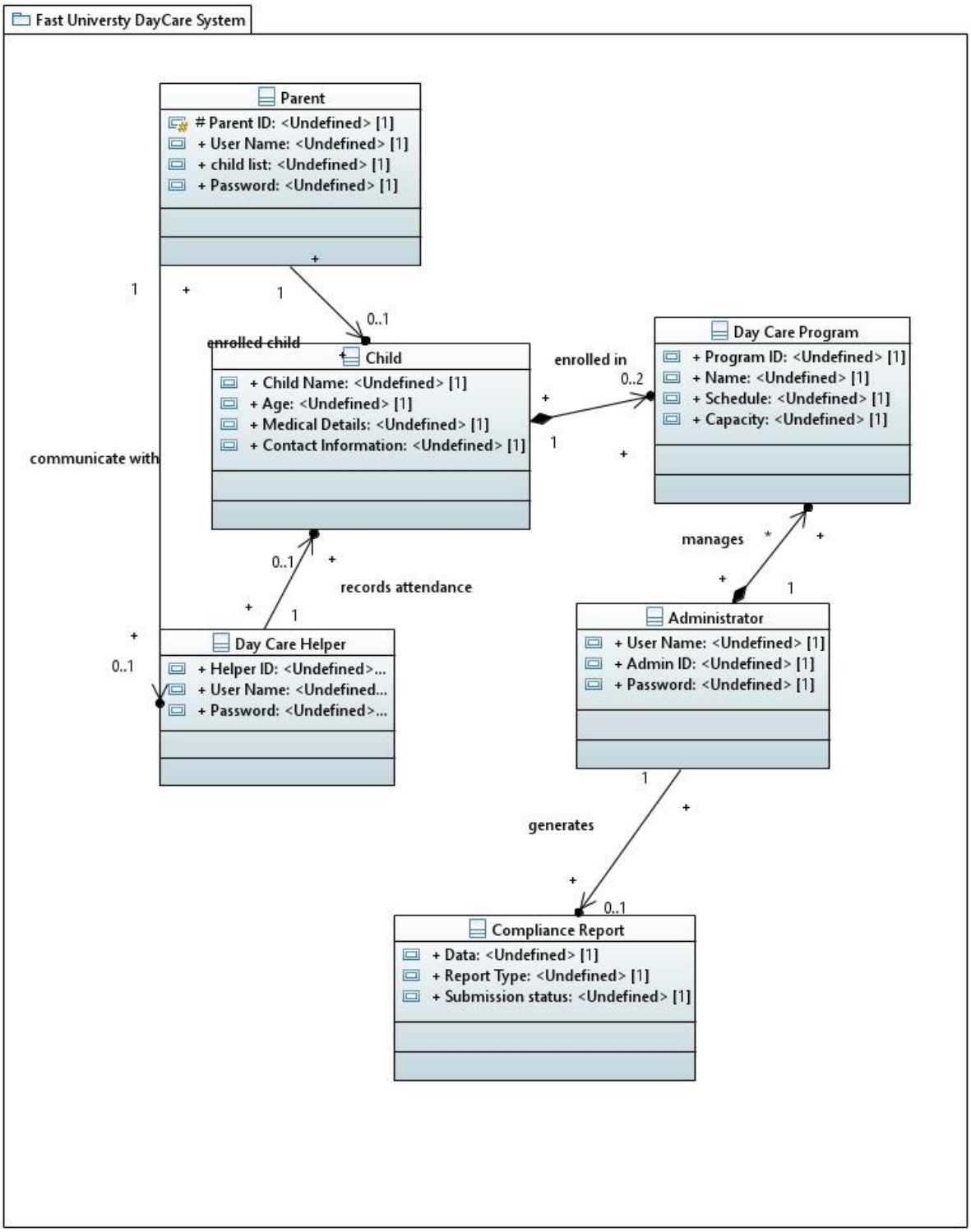
## *Day Care Helper Interface:*


## *Communicate with Parents button:*

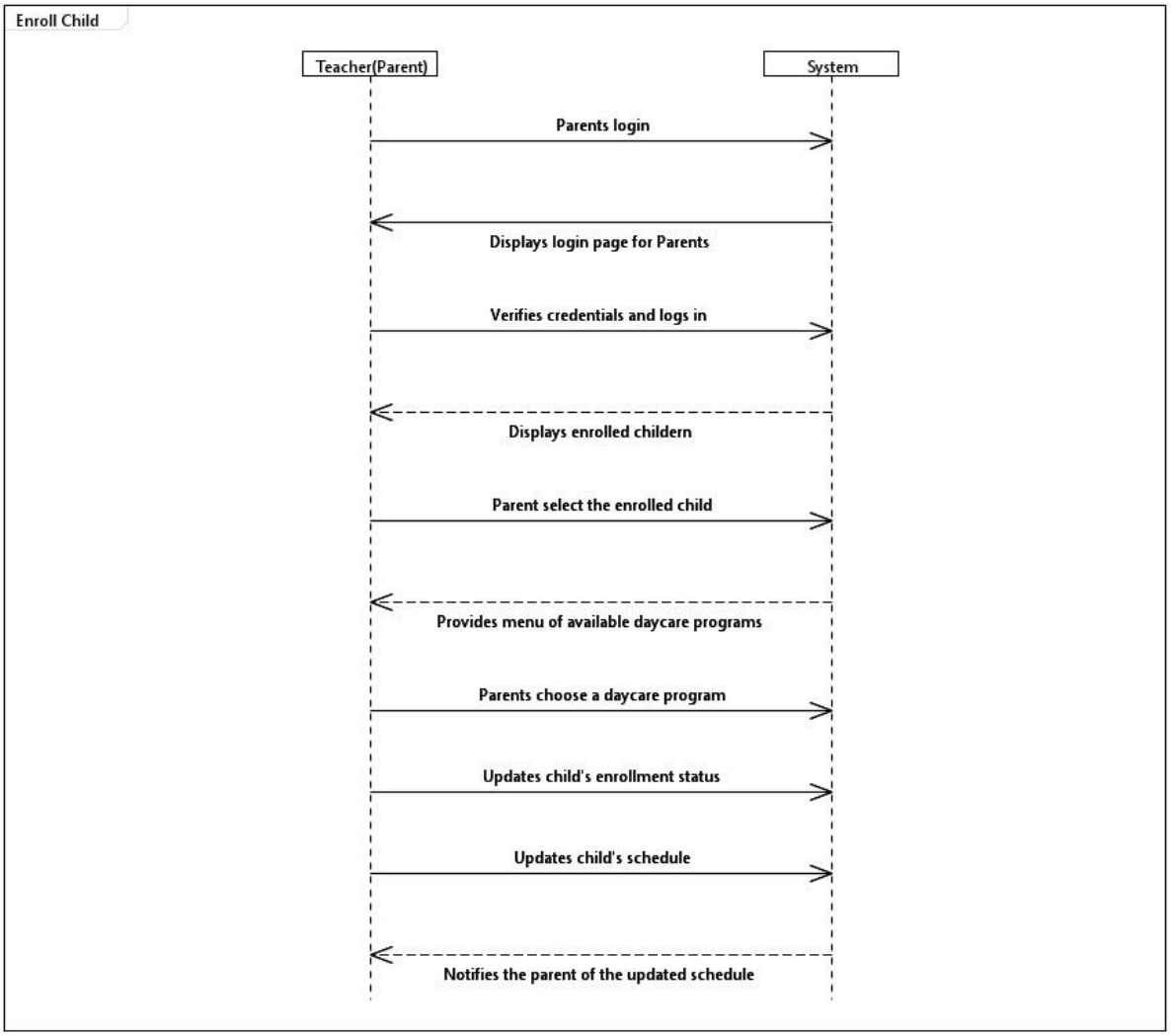

Input
Enter parent's username:
OK
Cancel

- **Domain Model**



- **System Sequence Diagram**

## Enroll Child:

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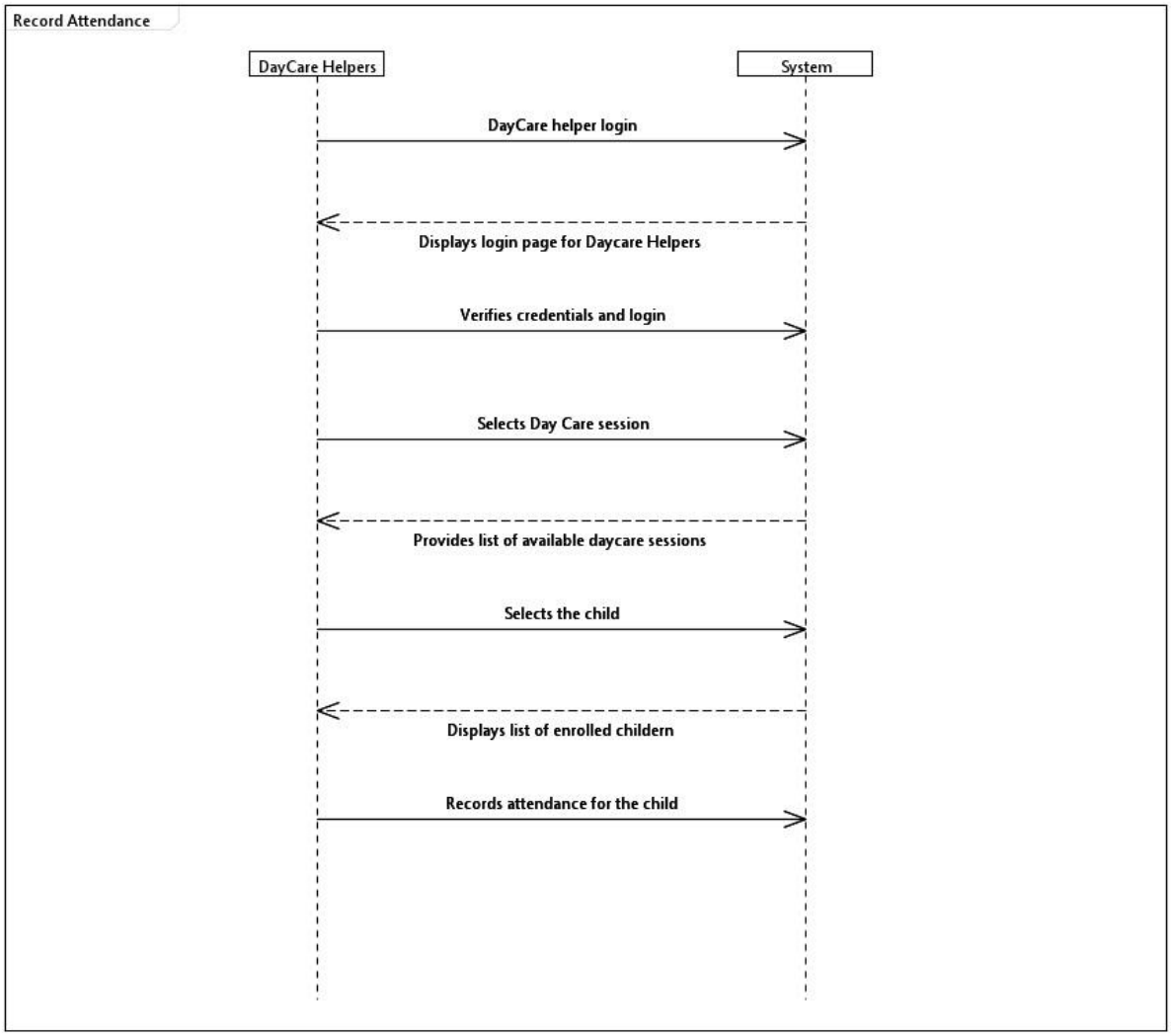


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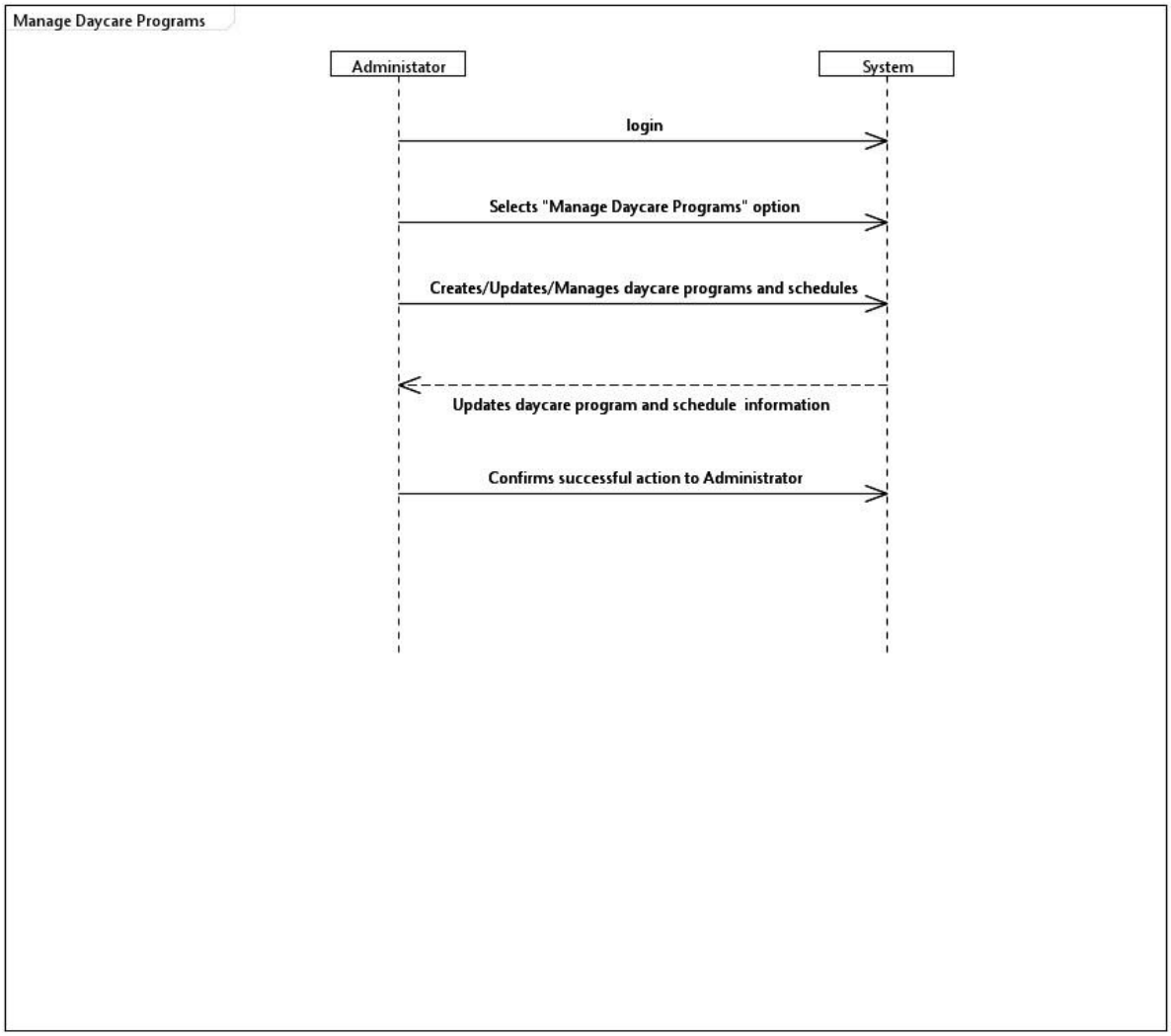
# Manage DayCare Programs:

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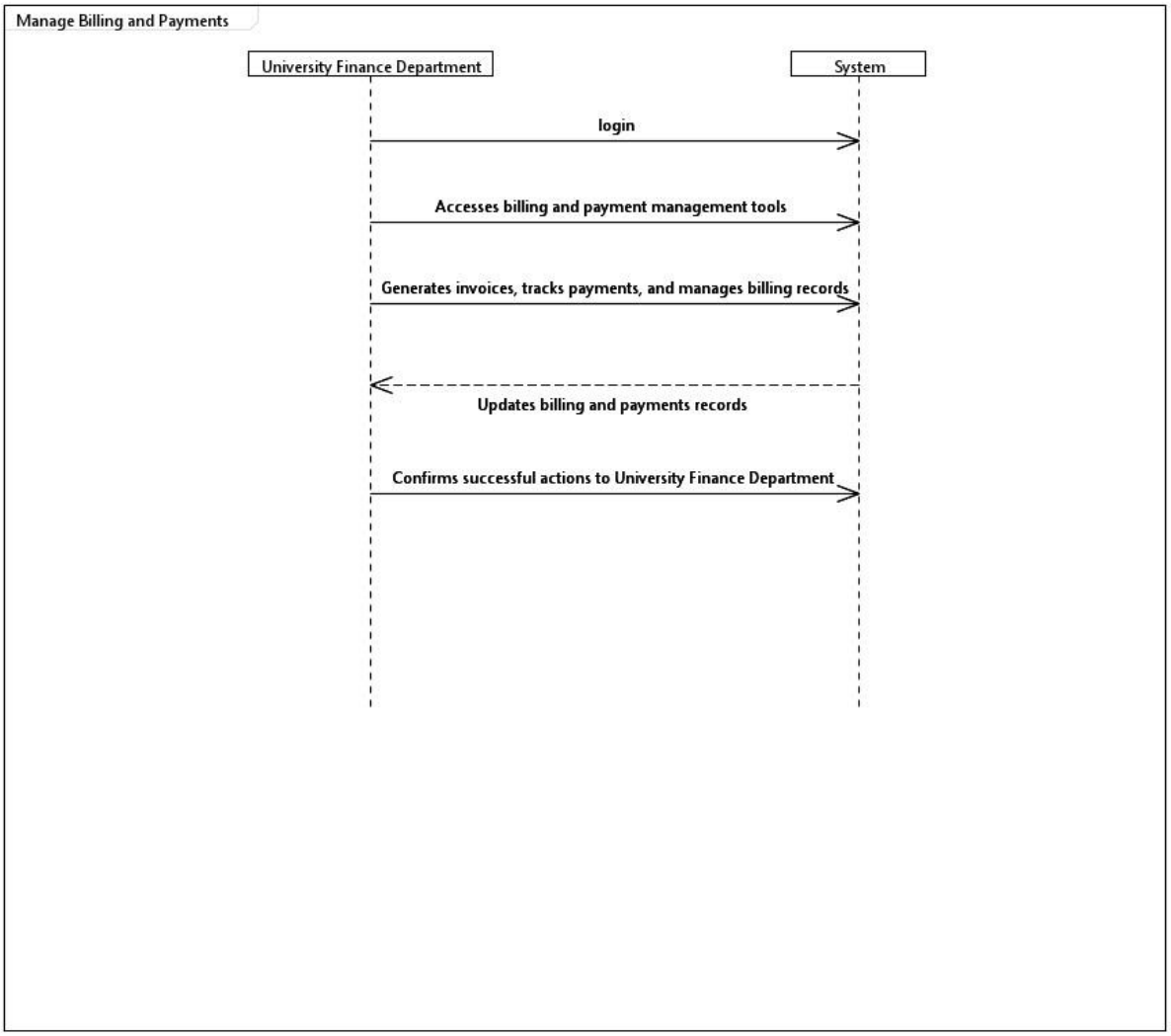
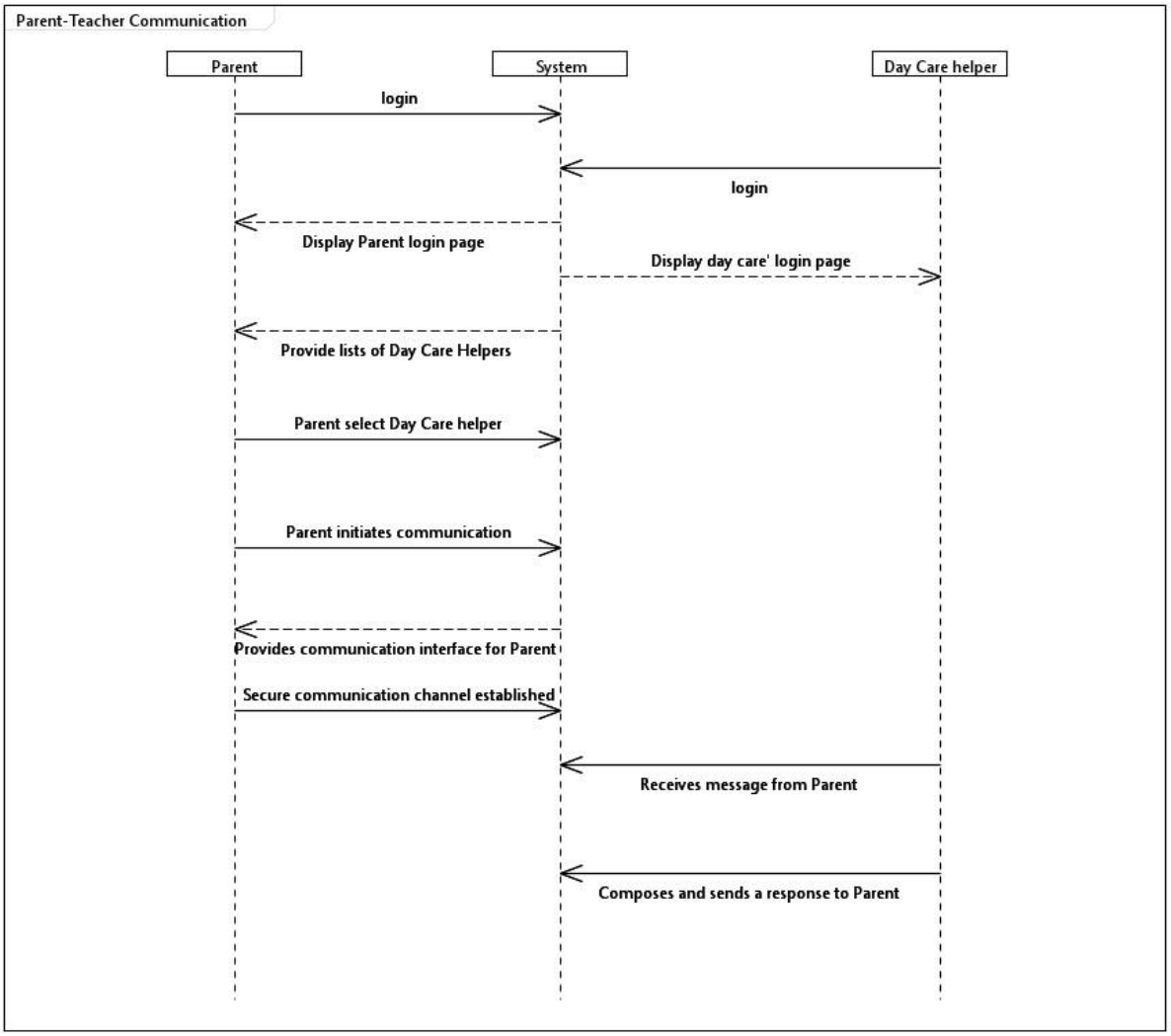
## Manage Billing and Payments:




## Parent Teacher Communication:

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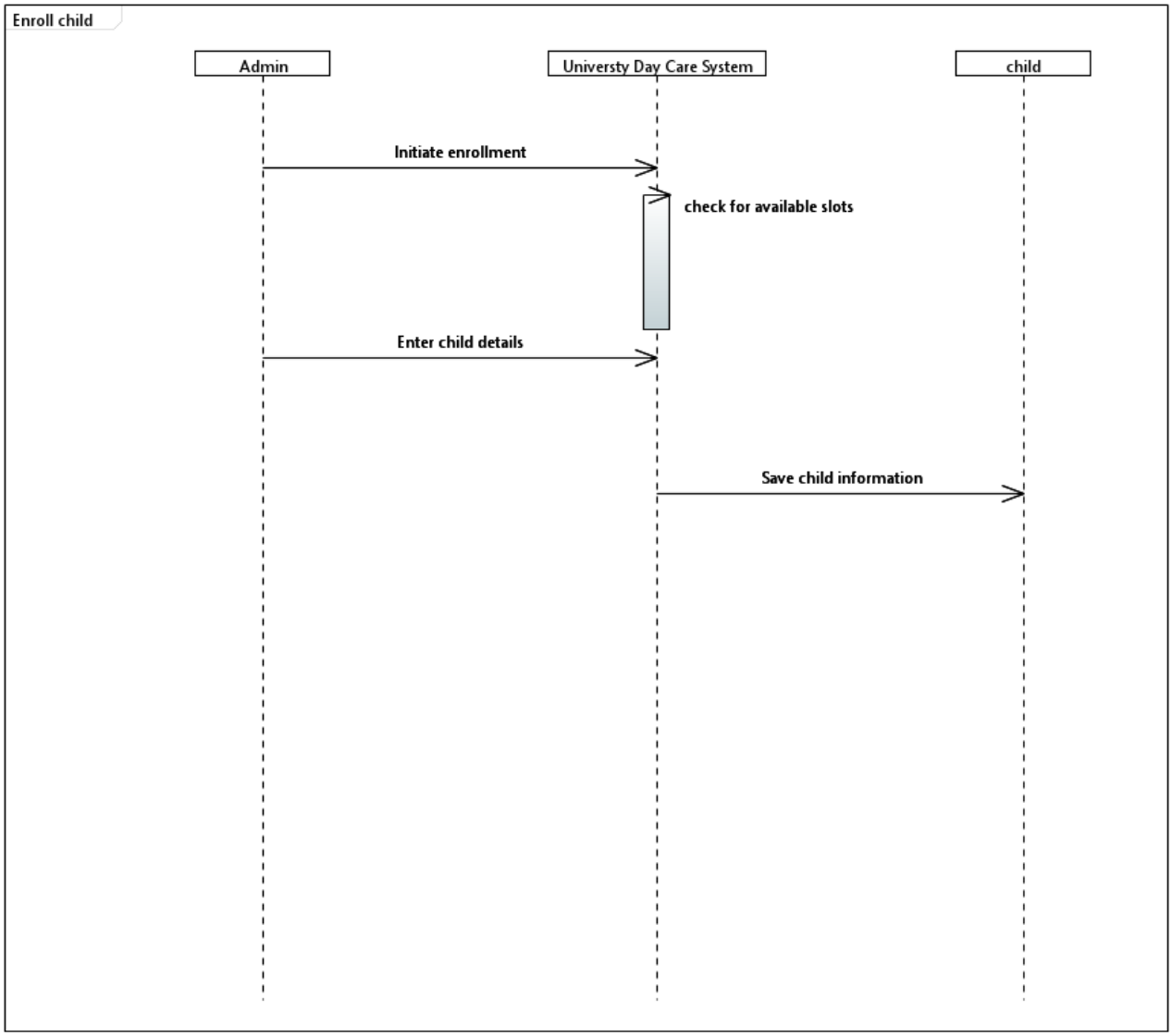
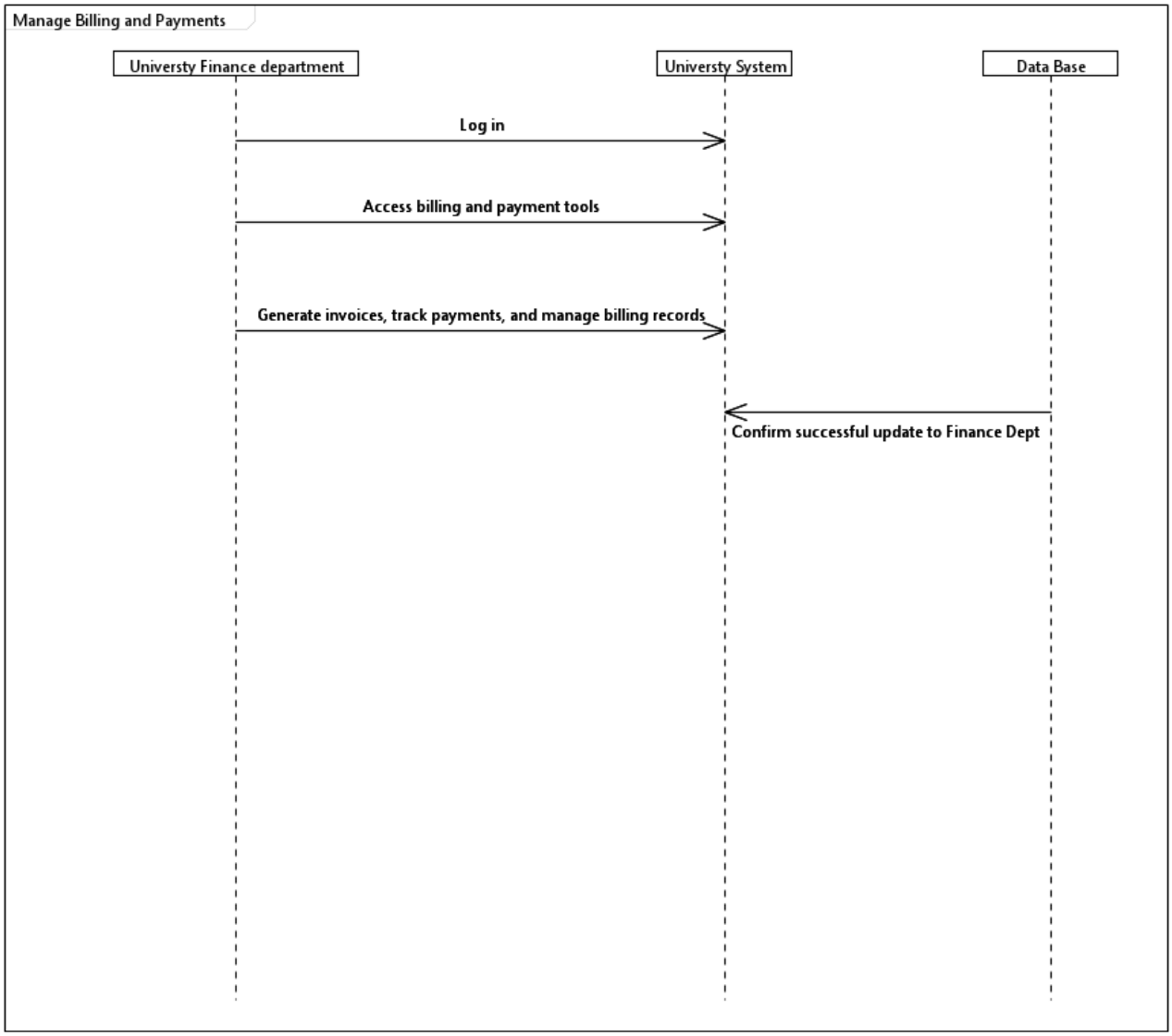
- **Sequence Diagram**

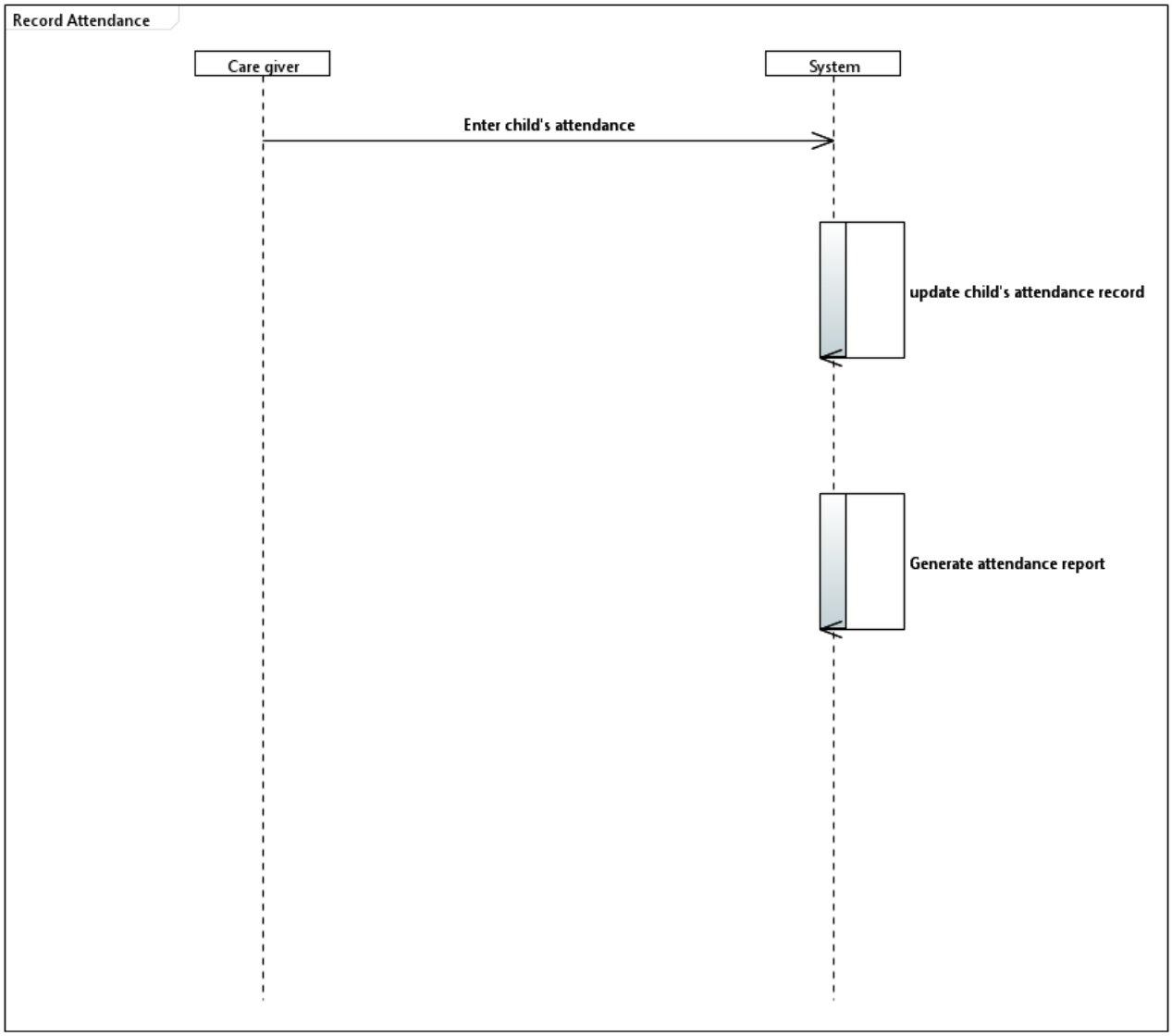
**Enroll child:**



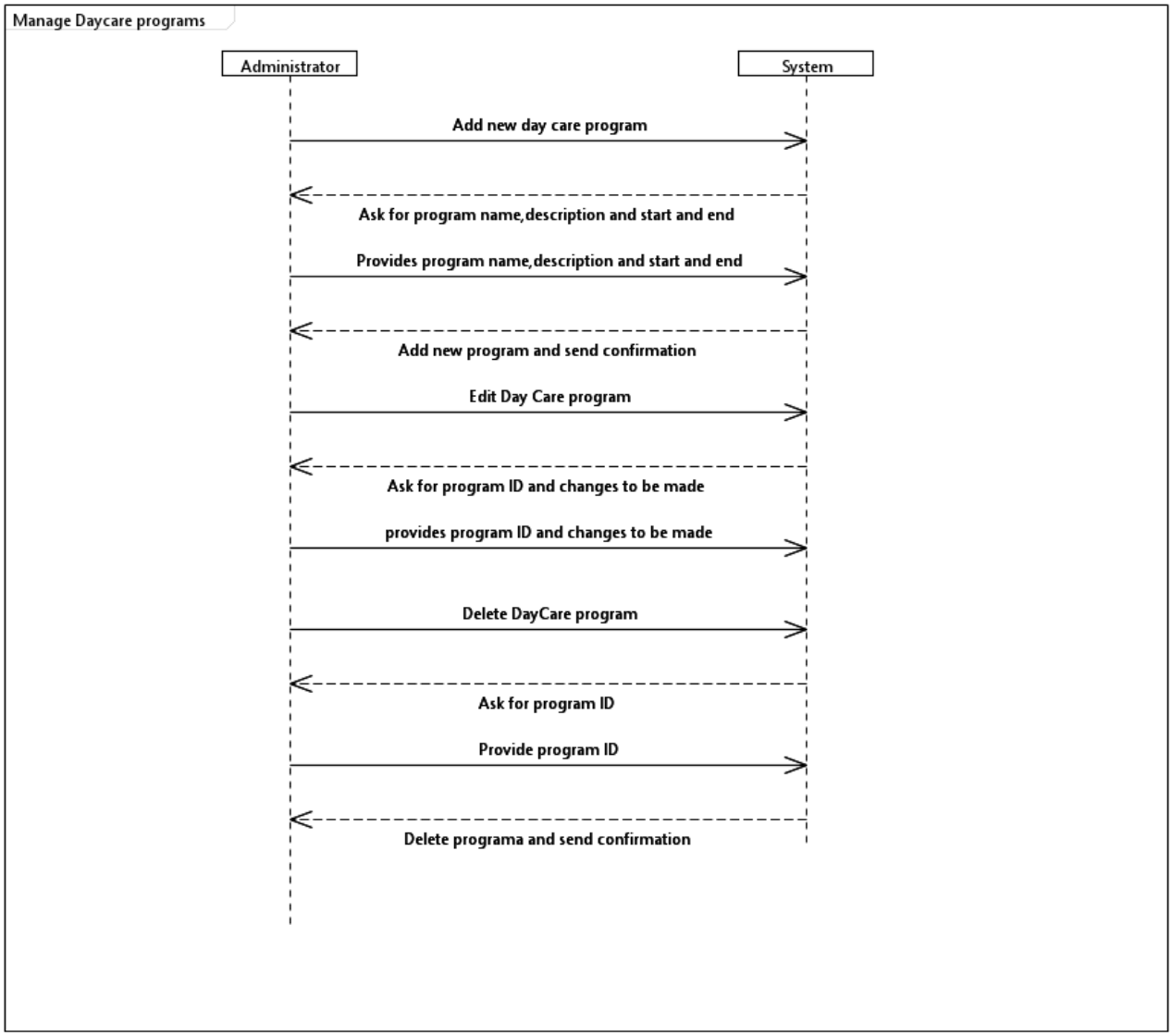

## Manage Billing and Payments:



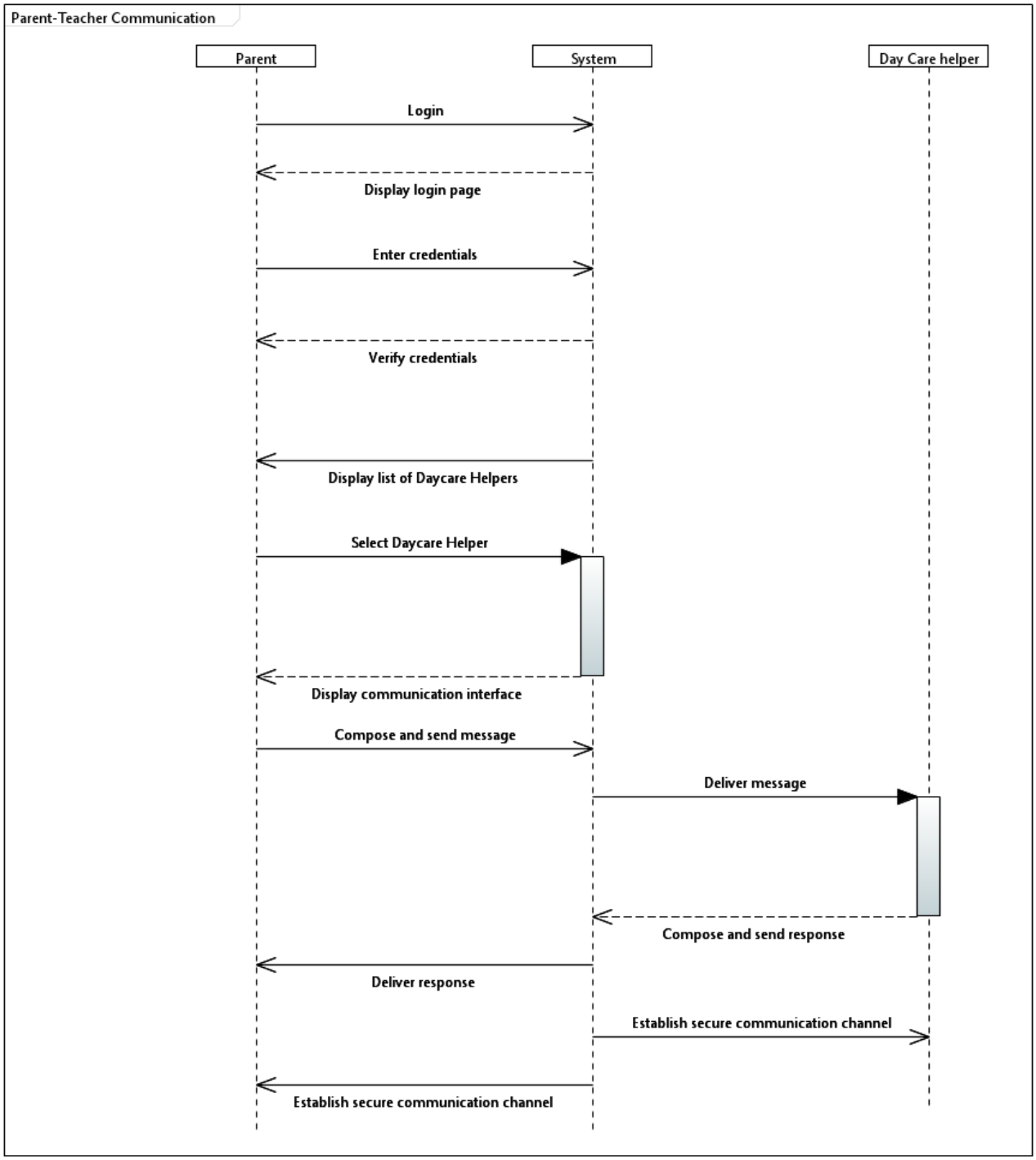

## Record Attendance:




## Manage Day Care Programs:




## Parent Teacher Communication:


Parent-Teacher Communication
Parent
System
Day Care helper
Login
Display login page
Enter credentials
Verify credentials
Display list of Daycare Helpers
Select Daycare Helper
Display communication interface
Compose and send message
Deliver message
Compose and send response
Deliver response
Establish secure communication channel
Establish secure communication channel

- # Class Diagram