

Object-oriented software design

Phần mềm quản lý điểm danh học sinh/ sinh viên

Group 06

- Hoang Ngoc Bao Tran - 18110057
- Pham Quang Danh – 18110004
- Phan Ngoc Bao Tuyen - 18110062

Current status analysis:

Each semester has nearly 500 subject classes. Each class can have up to 100-150 students. Every day, teachers who go to class must open a monitoring board to take attendance.

Lecturers do not know the number of students absent in each study shift, daily, weekly or monthly. But leaders need to understand the situation of students to have specific solutions.

At the end of each semester, open the monitoring sheet to count the number of absent periods of students, calculate the attendance score manually => waste time for the teacher.

In fact, the management of absentee students at universities of education and training. The room is also manual and ineffective in management. The current management work is mainly done manually, it takes a lot of time. The need for a management system would be the best option for dealing with the current situation. Through the process of research and analysis, it shows the ineffectiveness of the current management process, raises new requirements for student management and behavior classification, thereby proposing solutions to overcome the current difficulties in order to improve the effectiveness in management at the university and accelerate the process of applying computerization in student management at the University of Science and Technology.

Giới thiệu phần mềm: Ứng dụng điểm danh dựa theo vị trí của học sinh, mỗi môn học sẽ có vị trí phòng học riêng. Học sinh vào lớp học(trong vị trí đã cài đặt sẵn do giảng viên) mới có thể điểm danh.

Request :

• Storing information:

- Student and lecturer information.
- Student learning schedule, Lecture schedule of lecturers.
- Teaching information as well as the teacher's teaching history.

- Attendance for students and teachers to take attendance.

Statistics reports on school with permission and without permission (time in and out of class, how many minutes late)

Reporting: Course Report, Student Report, Class Report.

• **Search :**

- Look up subjects
- Look up the number of excused / unexcused absences
- Look up student / lecturer information
- Look up classrooms

• **Output:**

Number of absences per term in a subject.

Summary of study program, suggestions for the next semester

- Week 05.

Division (user): Student

ID: IE

1	Attendance	Manage student/teacher	•		
	Searching	Manage student/school	<ul style="list-style-type: none"> • Student learning information as well as learning history. • Teaching information as well as teacher's teaching history. • Grades of Students and Teachers. • Classing for students • Academic results • Reports: Course Reports, Student Reports, Class Reports 		
3	Report	Manage student	<ul style="list-style-type: none"> • Reports: Course Reports, Student Reports, Class Reports 		

Division (user): administrator

ID: CA

OD	Function	Type	Constraint/ Formula Code	Form code	Notes
1	Search Infomation	Manage student/teacher	Search student/teacher function is based on information, namely: <ul style="list-style-type: none"> • Name 		

			<ul style="list-style-type: none"> ID 		
2	Edit	Manage student/teacher	Edit information function needs:		
3	Print result of student	Manage student	Print function needs: <ul style="list-style-type: none"> student details Score 		
4	Report	Manage student/teacher/parents	Chat with admin		

Division (user): Parent

ID: MA

OD	Function	Type	Constraint/ Formula Code	Form code	Notes
1	Search information	Manage product	Search based on information, namely: <ul style="list-style-type: none"> Name ID 		
2	Report	Manage student/teacher/school	<ul style="list-style-type: none"> Chat with admin 		

Division (user): teacher ID: SD

OD	Function	Type	Constraint/ Formula Code	Form code	Notes
1	Attendance	Manage student			
3	Searching	Manage student	View teacher's schedule flexibly <ul style="list-style-type: none"> • Student admissions • Timely registration for teaching schedule • Academic results • View the number of sessions taught and the number of absences 		

❖ **System functional requirements:**

Decentralization:

ID	Contents	Description	Notes
1	Role management	<ul style="list-style-type: none"> - Administrator holds the roles - Teachers are enabled to take attendance, students must take attendance within a certain time and place - Parents have the right to see teacher information, and their children 	

Non-functional requirements:

❖ User related:

ID	Contents	Criteria	Description	Note
1	Software can be updated and modified to adapt the trend of customers as well as the requirements of managing of the owners.	Resilience		
2	Graphic User-Interface: <ul style="list-style-type: none"> - User-friendly. - Easy manipulation. - Feature buttons are laid out simple, convenient and visible. - Functional windows can interact with each other, provide users with efficiency. 	Usability		
3	<ul style="list-style-type: none"> - Database is kept secure and easy to be accessed. - The system operates stable, reliable and instant response. 	Efficiency		
4	<ul style="list-style-type: none"> - Computers in the network can share the resources though installed software. - Software can meet the requirements of users without making silo effect. 	Compatibility		

❖ Staff-related:

ID	Contents	Criteria	Description	Note
1	<ul style="list-style-type: none"> - The module, source code and other proportion of the system can be reused for latter projects. - The source code can be recycled and applied for other programs without changing the cores. 	Reusability		

❖ Quality

ID	Contents	Criteria	Description	Note
1	The search information student/teacher function is convenient and visible.	Convenience	Support the keyword-like searching.	
2	Allow edit information based on Excel file (CSV) UI Design is unity.	Compatibility		
3	Processing time is acceptable	Effectiveness	Support QR Code Scanner.	

I. USE CASE MODELING

1.1. Define Use Case Actor and Function

Actor	Features
Student	<ul style="list-style-type: none"> - Login - Register - Search information - View Calendar - Attendance - History attendance - View notification - Edit personal information - Location - Face recognition
Teacher	<ul style="list-style-type: none"> - Login - Register - Search information - View Calendar - Send notification - Face recognition - Manage Student - Manage Class - Edit personal information

Administrator	<ul style="list-style-type: none"> - Login - Register - Search information - View Calendar - History attendance - Manage Class - Manage Teacher - Manage Student
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1.2. Function Description

1.2.1. Student

Order	Feature	Description
1	Login	Allow customers to log in to the system
2	Register	Allow Student to create an account to log into the system
3	Search information	Allow Student to search for courses, teacher, student.
4	View calendar	Allow Student view their schedule
5	Attendance	Allow Student check attendance
6	History attendance	Allow Student view what class they join or don't join
7	View notification	Allow Student follow notification of teacher
9	Face recognition	Allow App can confirm right person use this account
10	Edit personal information	Allow customers to change personal information (password/ address)

1.2.2. Teacher

Order	Feature	Description
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1	Login	Allow Teacher to log in to the system
2	Register	Allow Teacher to create an account to log into the system
3	Search information	Allow Teacher to search for courses, teacher, student.
4	View calendar	Allow view their schedule
5	Manage Student	Allow Teacher can view student history
6	Manage Class	Allow Teacher edit class room, add and delete student in class
7	Sent notification	Allow Teacher sent notification for student
8	Face recognition	Allow App can confirm right person use this account
9	Edit personal information	Allow customers to change personal information (password/ address)

1.2.3. Administrator

Order	Feature	Description
1	Login	Allow Admin to log in to the system
2	View calendar	Allow view all schedule Class
3	Search information	Allow Teacher to search for courses, teacher, student.
3	Face recognition	Allow App can confirm right person use this account
4	Manage Class	Allow add, edit, delete, view class information
5	Manage Teacher	Allow add, edit, delete, view teacher information
6	Manage Student	Allow add, edit, delete, view student information

1.3. Use Case Diagram

1.3.1. Use Case Diagram

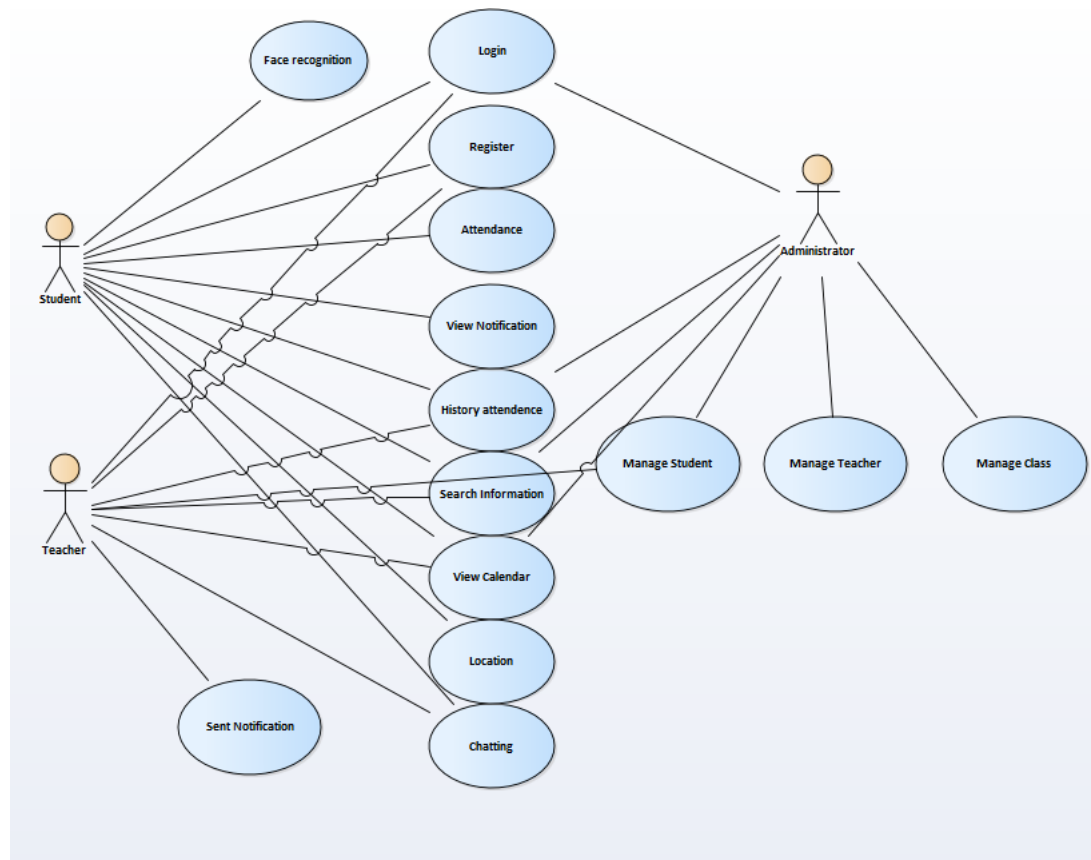


Figure 1. Usecase diagram

1.3.2. Use Case Specification

❖ Login

Name	Log In
Brief Description	The way user website logins
Actor(s)	Student/Teacher/Admin login into system
Flow of Events	
Basic Flow	
<p>This usecase starts when the user wants to access the system</p> <ol style="list-style-type: none"> 1. Student/Teacher/Admin select “Login” function on the system 2. The system displays the “Login” page 3. Student/Teacher/Admin enter the correct username and password then click "Log in" 4. The system will return user to Homepage. 	

Alternate Flows	
Title	Description
Enter the wrong login information	<ol style="list-style-type: none"> If the Student/Teacher/Admin enters an invalid password: <ol style="list-style-type: none"> The system will ask the user to re-enter the password. <ul style="list-style-type: none"> The system determined the password is incorrect. The system provides options for Student/Teacher/Admin to retrieve a forgotten password. If the user enters an invalid username: <ul style="list-style-type: none"> Error system.
Pre-Conditions	
Title	Description
	Student/Teacher/Admin already has an account on the system
Post-Conditions	
Title	Description
Success	Log in successful, the user accesses the system.
Failure	Log in failed, the users cannot log in.
Extension Points	
None	

❖ *Register*

Name	Register
Brief Description	The way students/teacher creates an account
Actor(s)	Students - teacher
Flow of Events	
Basic Flow	
<p>This Student/Teacher/Admin starts when the customer chooses the function to register</p> <ol style="list-style-type: none"> Customer chooses the "Register" function in the system. The system displays "Register" page with information about username, password, phone number, email, address. Customer fills out the above information and press the "Register" button. The notification system has successfully register. 	

Alternate Flows	
Title	Description
Fill out the information missing	1. The system requires re-fill and full information in the "Register" page.
Pre-Conditions	
Title	Description
	Student/Teacher/Admin successfully connected to the system
Post-Conditions	
Title	Description
Success	Register successful, Students/Teacher create account successfully.
Failure	Register failed, Student/teacher create account failure.
Extension Points	
None	

❖ Attendance

Name	Attendance
Brief Description	The way student and teacher check attendance
Actor(s)	Students - teacher
Flow of Events	
Basic Flow	
<p>This usecase starts when the users chooses the function to a</p> <ol style="list-style-type: none"> 1. Student login in the system 2. The system displays the information of student/teacher. Then they choose subject. 3. Next, they check face recognition 4. Customer fills out the above information and press the " OK " button. 5. The notification system has successfully when information input is correct. 	
Alternate Flows	
Title	Description
Fill out the information missing	1. The system requires re-fill and full information of users

Pre-Conditions	
Title	Description
	The users successfully login into the website.
Post-Conditions	
Title	Description
Success	Attendance successful.
Failure	Attendance failed.
Extension Points	
None	

❖ [View Notice](#)

Name	View Notice
Brief Description	The way user view notice
Actor(s)	Students/teacher
Flow of Events	
Basic Flow	
This usecase starts when the customer chooses the function to view information ò notice	
1. User chooses the " notification " function in the system.	
Alternate Flows	
Title	Description
Customer clicks "Cancel" button	1. The system returns the customer to the “notification” page.
Pre-Conditions	
Title	Description
	User successfully accessed into the” notification” page.
Post-Conditions	
Title	Description
Success	View successfully
Failure	View failed, user cann’t view notification failure.
Extension Points	
None	

❖ *Location*

Name	Location
Brief Description	The way admin and teacher view location of part of attendance
Actor(s)	Student and teacher
Flow of Events	
Basic Flow	
<p>This student and teacher starts want to check location on time</p> <ol style="list-style-type: none"> 1. Student chooses the type to check location. 2. Customer clicks "Yes" button. 3. The notification system has successfully check location. 	
Alternate Flows	
Title	Description
Customer clicks "No" button	1. The system returns to the "Manage cart" page.
Pre-Conditions	
Title	Description
	User successfully accessed into the "Manage cart" page.
Post-Conditions	
Title	Description
Success	Check location successful.
Failure	Check location failed.
Extension Points	
None	

❖ *Search information*

Name	Search information
Brief Description	The way teacher/Admin can search information
Actor(s)	Teacher/Admin
Flow of Events	
Basic Flow	

This usecase starts when the teacher/admin chooses the function to search information	
<ol style="list-style-type: none"> 1. Customer access Information cart 2. Customer clicks "Search Information " button. 3. Search Information in system has successfully. 	
Alternate Flows	
Title	Description
Customer clicks "Information " button	1. The system returns the manager to the "Information " page.
Pre-Conditions	
Title	Description
	Students/ Teacher successfully accessed into the "Information cart" page.
Post-Conditions	
Title	Description
Success	Search successful, teacher and admin view information successfully
Failure	The user cann't be found
Extension Points	
None	

❖ *Search product*

Name	Search product information
Brief Description	The way customer search product information
Actor(s)	Customer
Flow of Events	
Basic Flow	
<p>This usecase starts when the customer chooses the function to search product information</p> <ol style="list-style-type: none"> 1. Customer chooses the "Search product" function in the system. 2. The system displays "Search product" page. 3. Customer enter information and press the "Search" button. 4. The system displays product information according to the keyword entered. 	
Alternate Flows	
Title	Description

The seller enters a keyword that is not in the database	1. Notification system doesn't have the kind of product that user looking for
Pre-Conditions	
Title	Description
Post-Conditions	
Title	Description
Success	Search successful, customer search product information successfully.
Failure	Search failed, customer search product information failure.
Extension Points	
None	

❖ Chatting

Name	Chatting
Brief Description	The way Students/ Teacher choose the order chatting method
Actor(s)	Students/ Teacher
Flow of Events	
Basic Flow	
<p>This usecase starts after the Students/ Teacher choose the chatting method.</p> <ol style="list-style-type: none"> 1. Students/ Teacher chooses the button "Chatting" in the system. Then, student will get ID from admin. 2. Students/ Teacher clicks “ start “ to begin 	
Alternate Flows	
Title	Description
Customer clicks "No" button	1. The system returns the manager to the "Manage cart" page.
Pre-Conditions	
Title	Description
	Users successfully accessed into the “Chatting ” page.
Post-Conditions	
Title	Description

Success	Chatting successful.
Failure	Cann't connect
Extension Points	
None	

❖ *View calendar*

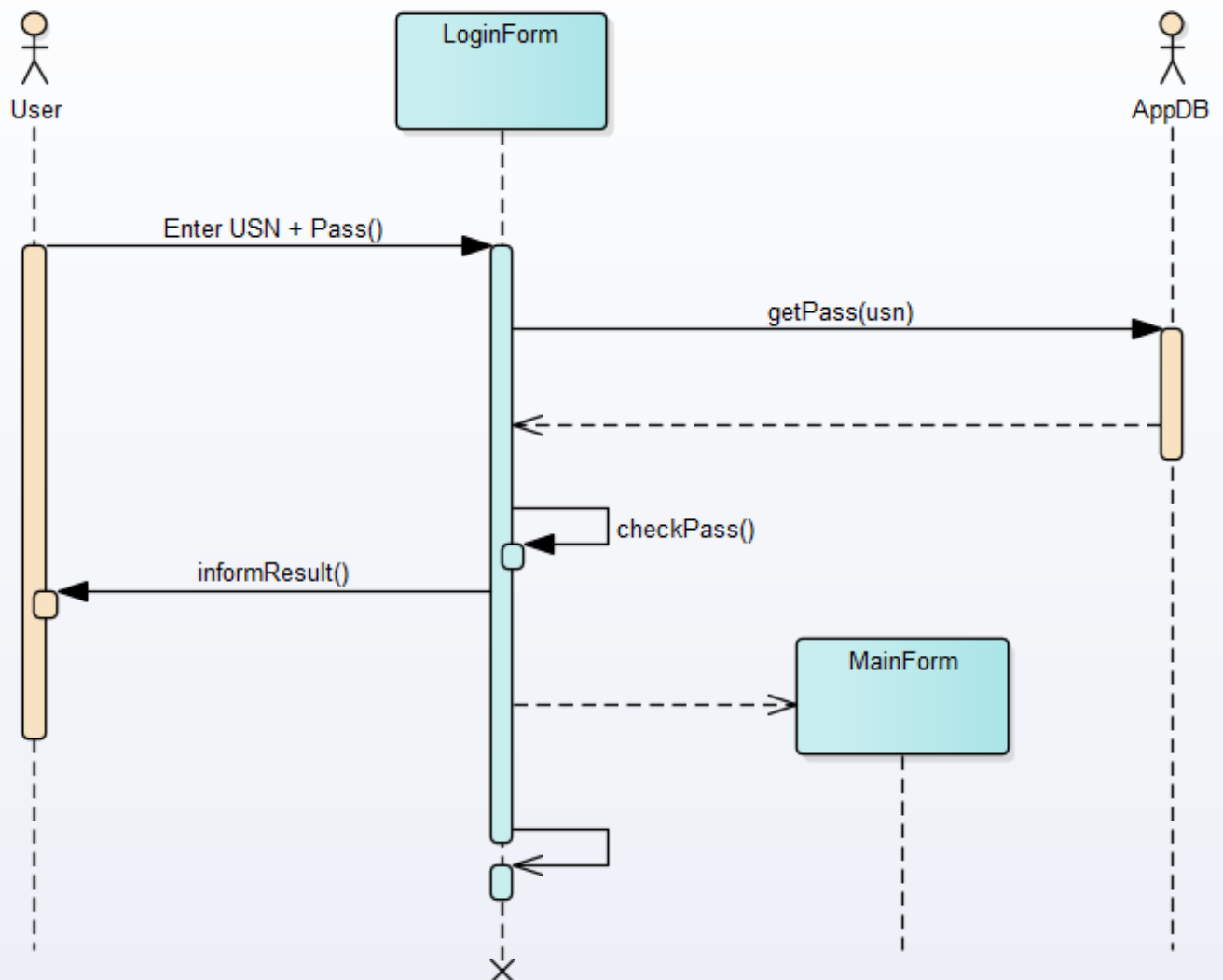
Name	View calendar
Brief Description	The way student and teacher view calendar
Actor(s)	Students/ Teacher
Flow of Events	
Basic Flow	
<p>This usecase starts when the users chooses the function to View calendar</p> <ol style="list-style-type: none"> 1. Students/ Teacher choose the product that they want to read more detail 2. The system redirects Students/ Teacher to the view calendar detail 	

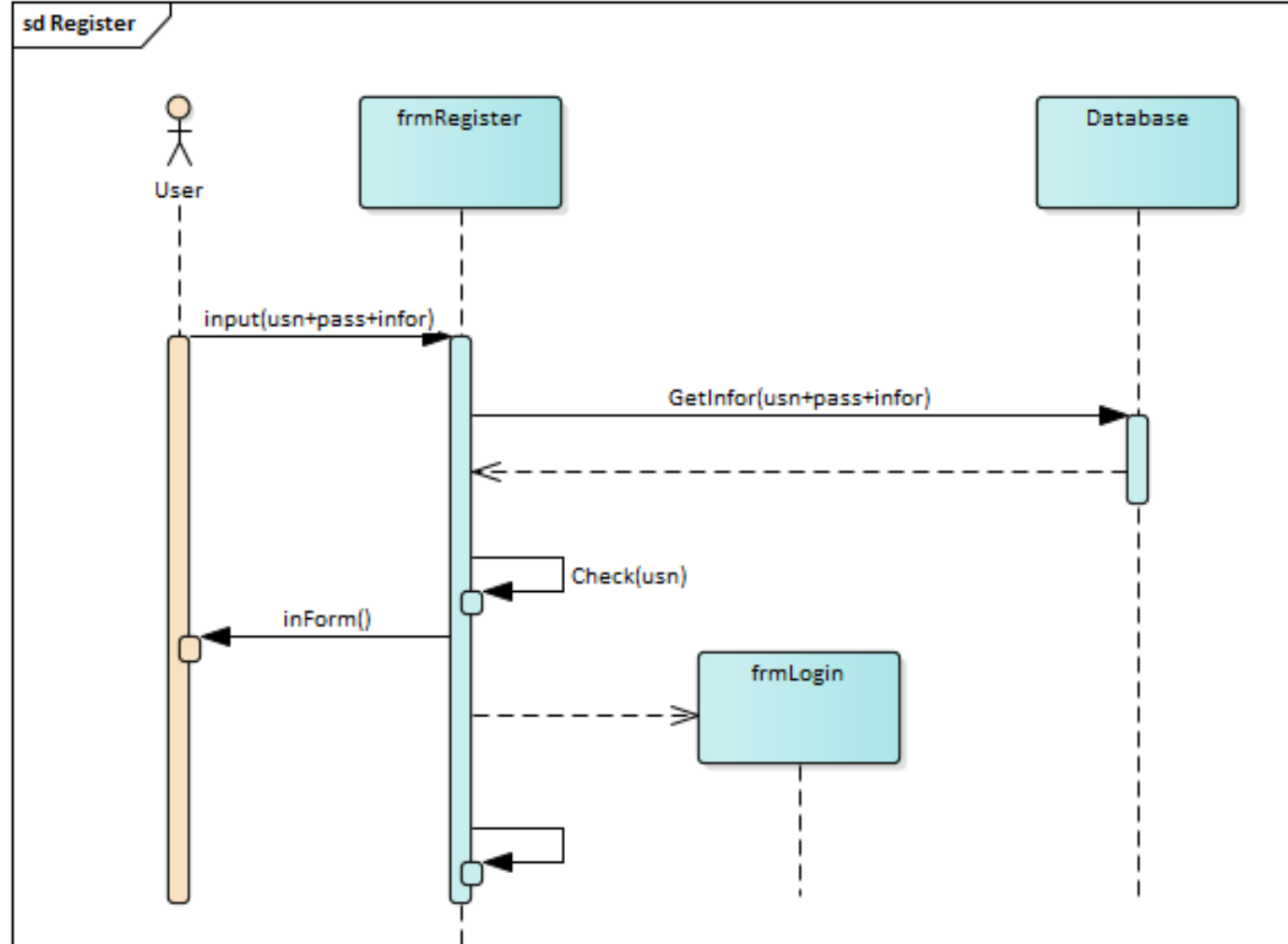
❖ *Edit personal information*

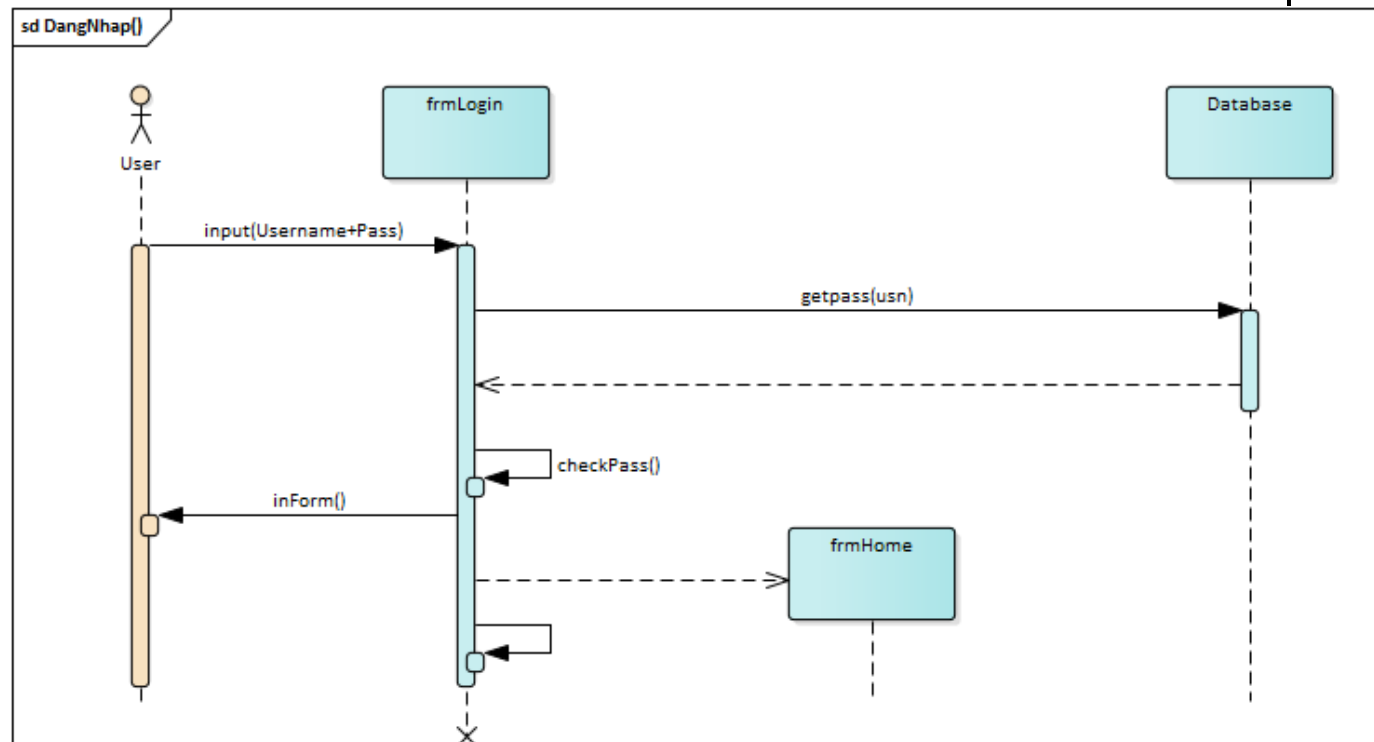
Name	Edit personal information.
Brief Description	The way admin edit personal information
Actor(s)	Admin
Flow of Events	
Basic Flow	
<p>This usecase starts when the user chooses the function to edit personal information.</p> <ol style="list-style-type: none"> 1. User chooses the "Edit personal information" function in the system. 2. The system displays "Edit personal information" form. 3. User re-enter new information and clicks "Change" button. 4. The notification system has successfully change information. 	
Alternate Flows	
Title	Description
User confirmation of new information failed	1. The system requires the user to enter a new information.
Pre-Conditions	

Title	Description
	User successfully logged into the system.
Post-Conditions	
Title	Description
Success	Change successful, user change information successfully.
Failure	Change failed, user change information failure.
Extension Points	
None	

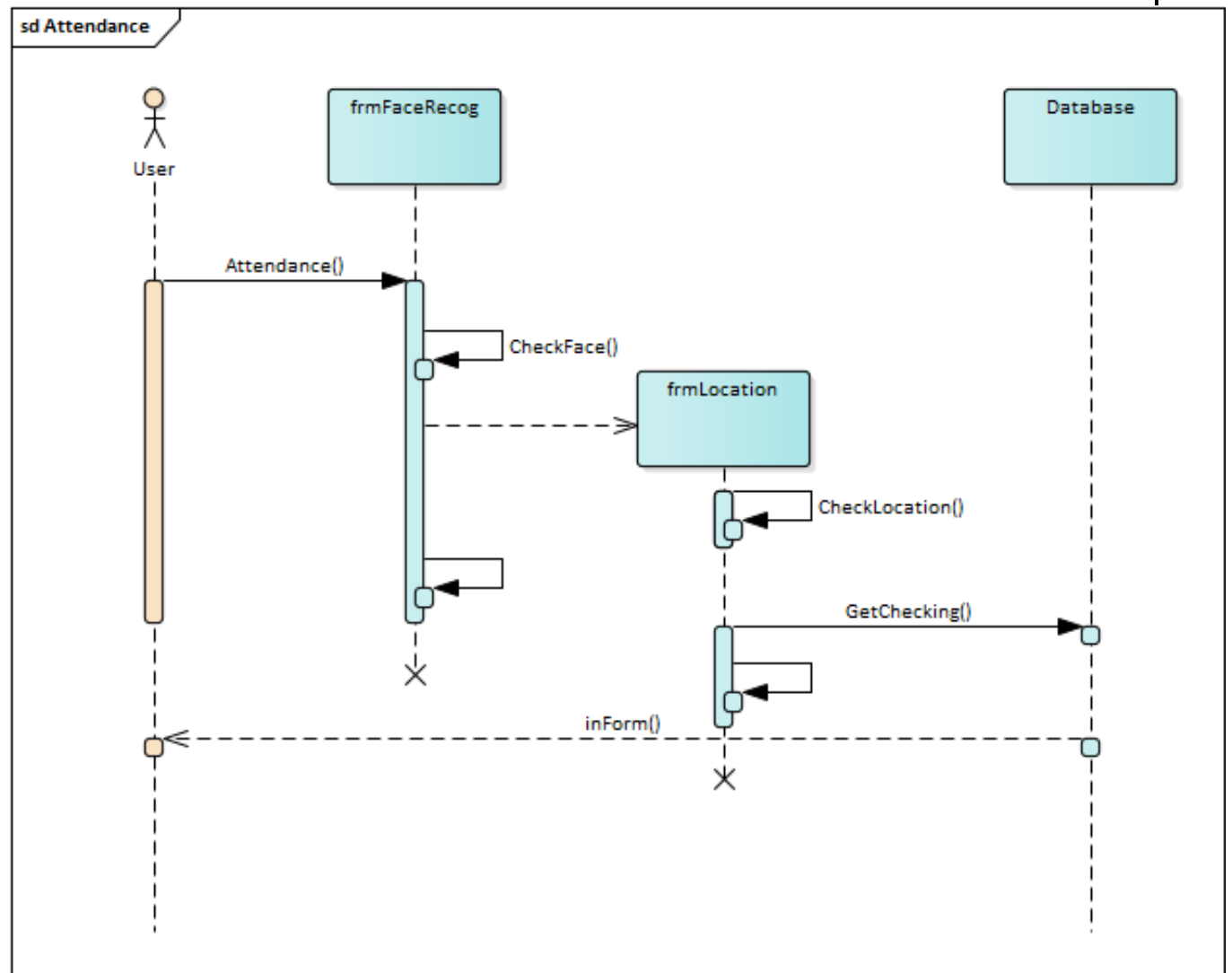
User sequence login



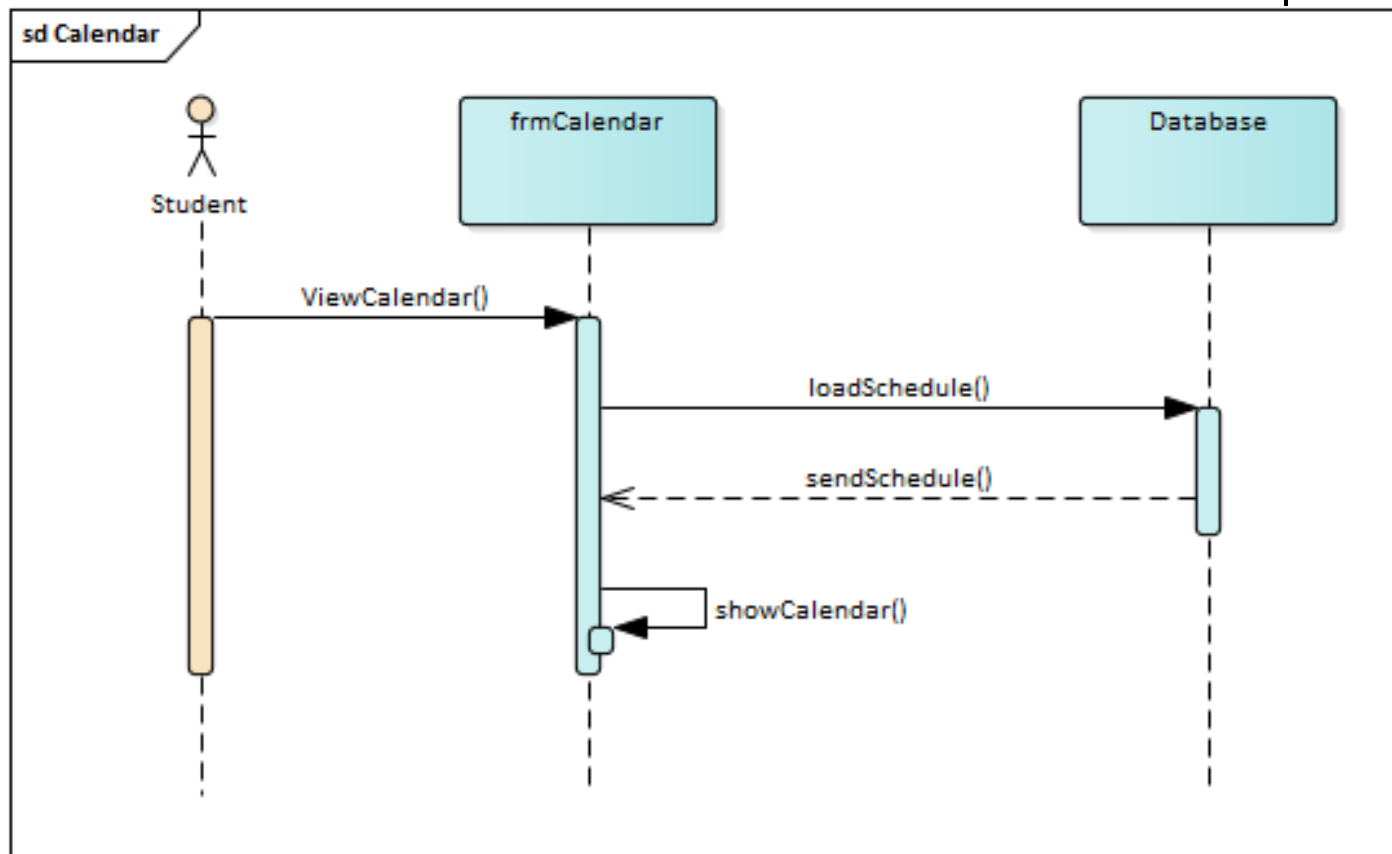
User sequence sign up**User sequence sign in**



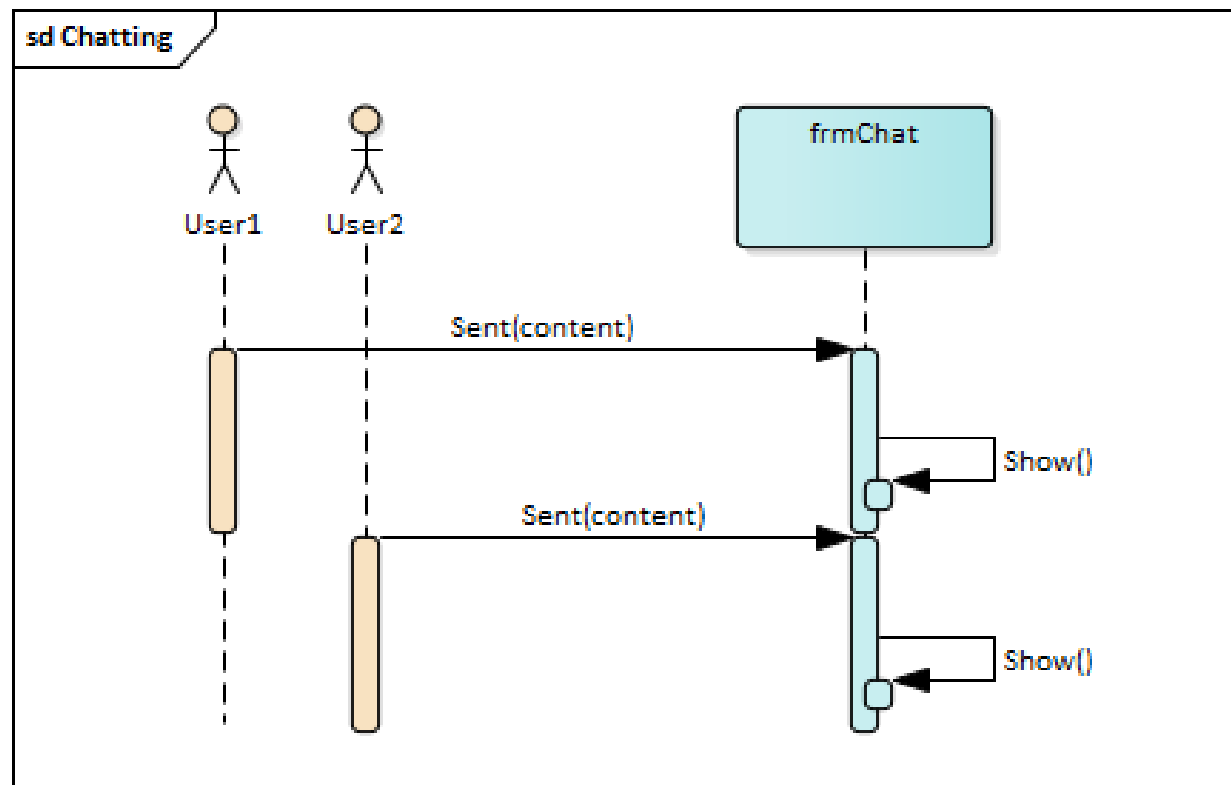
User sequence attendance



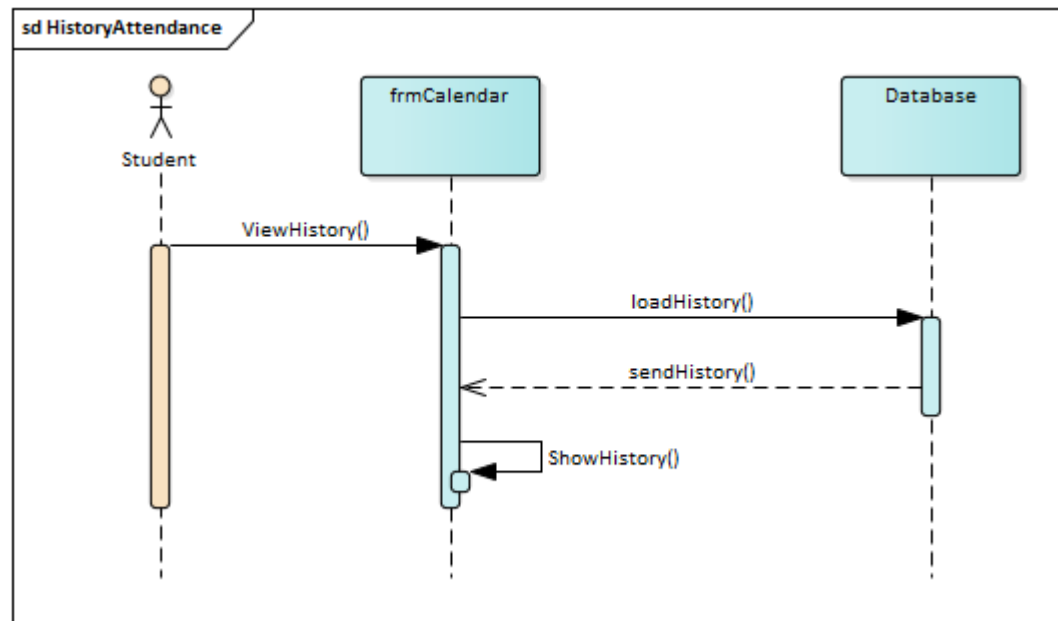
User sequence calendar



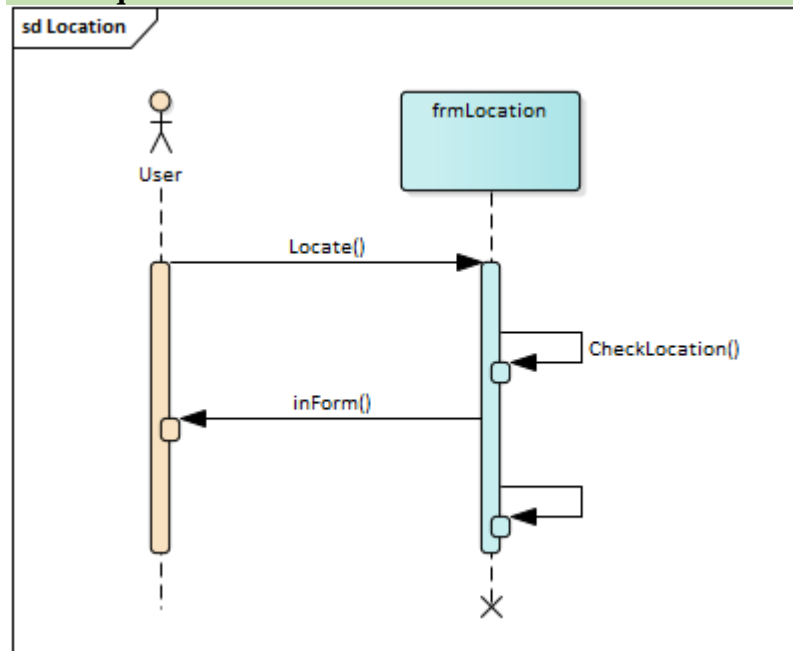
User sequence Chatting



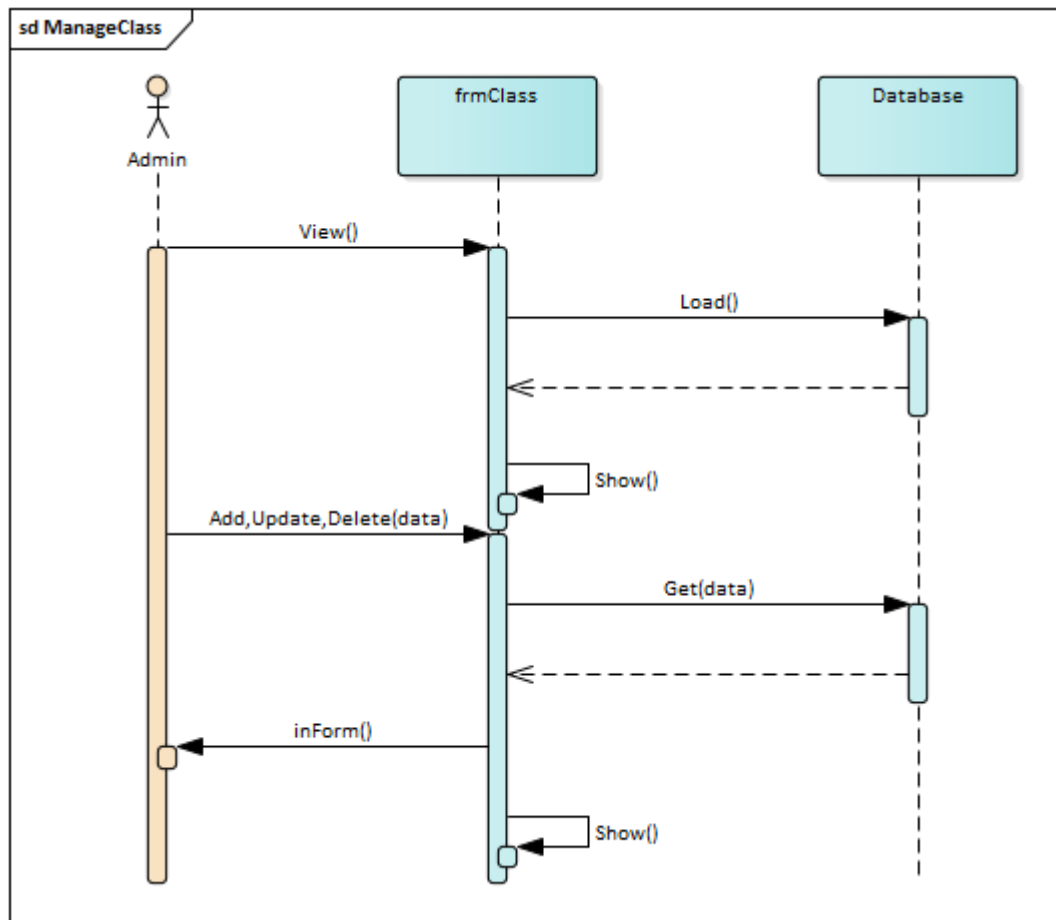
User sequence History Attendance



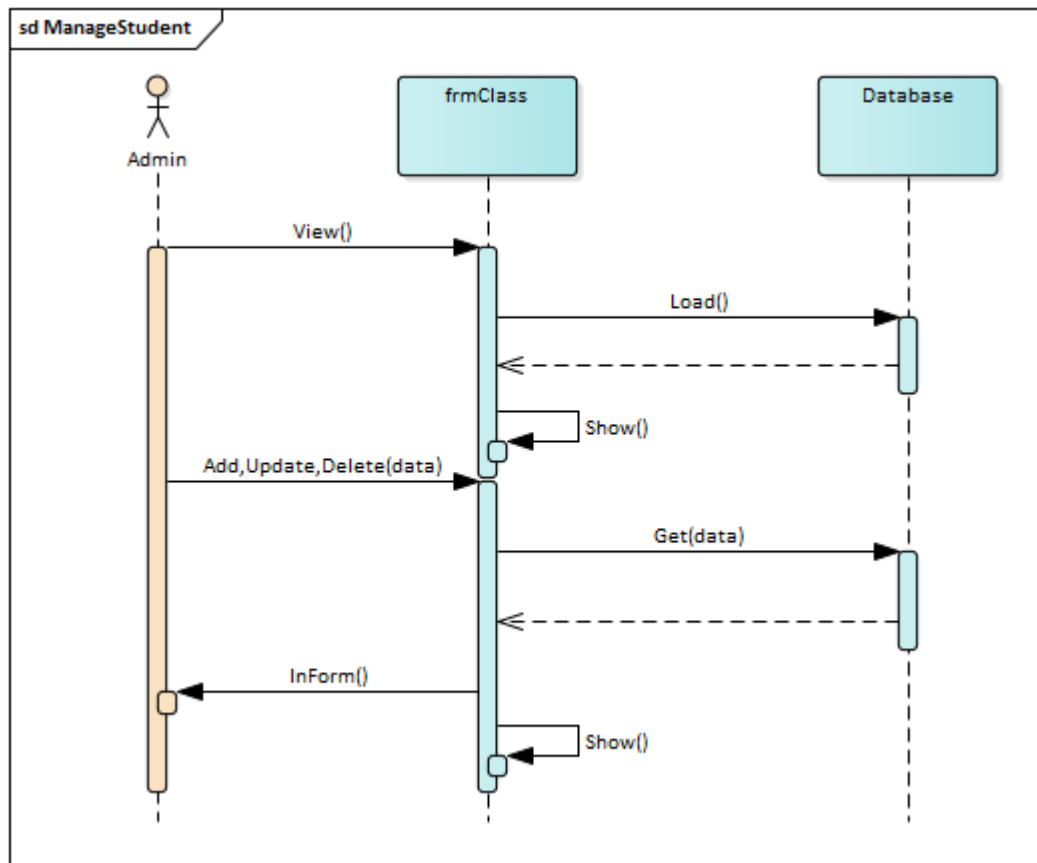
User sequence Location

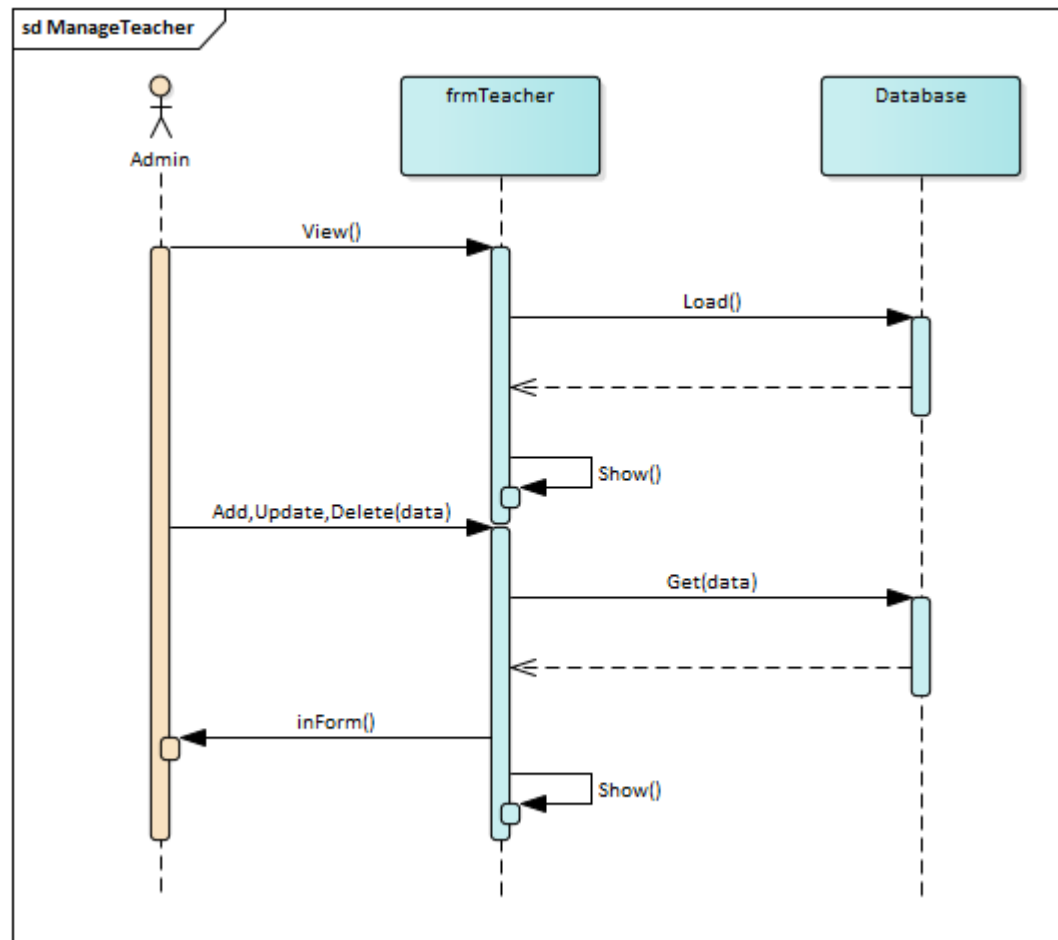


User sequence Manage Class

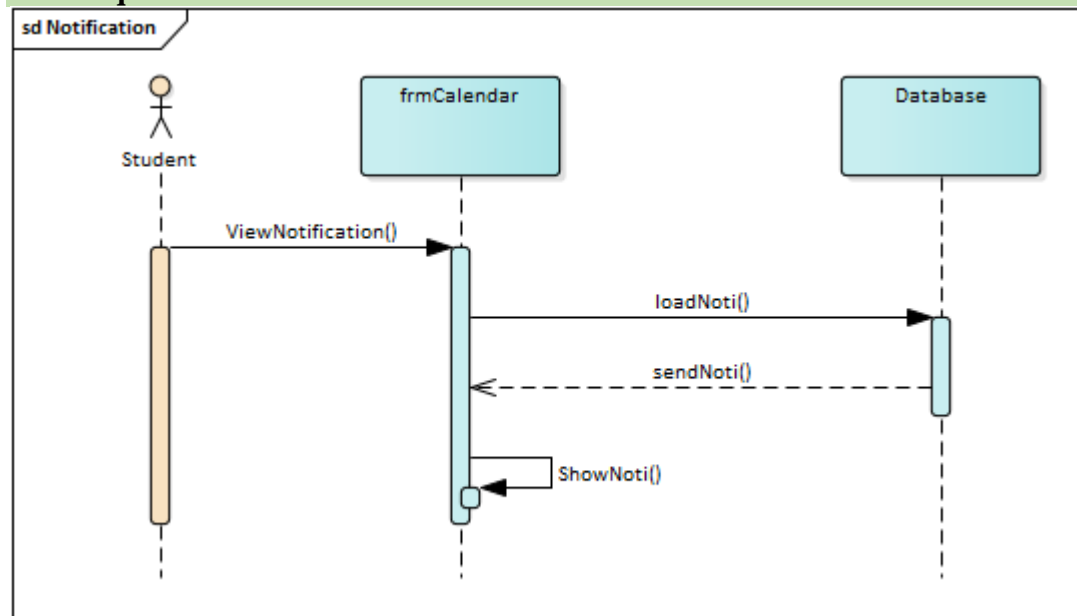


User sequence Manage Student

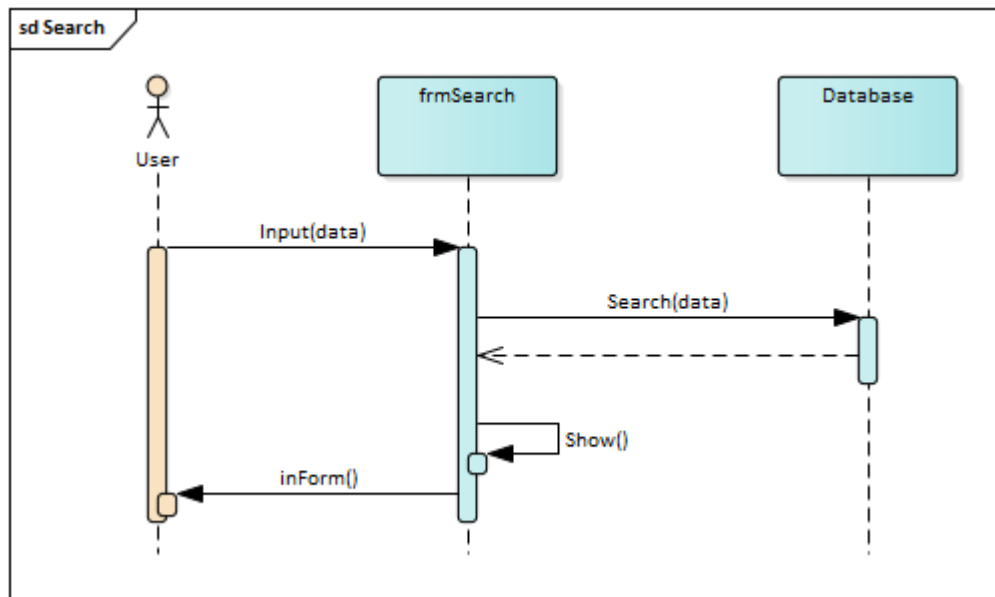
**User sequence Manage Teacher**



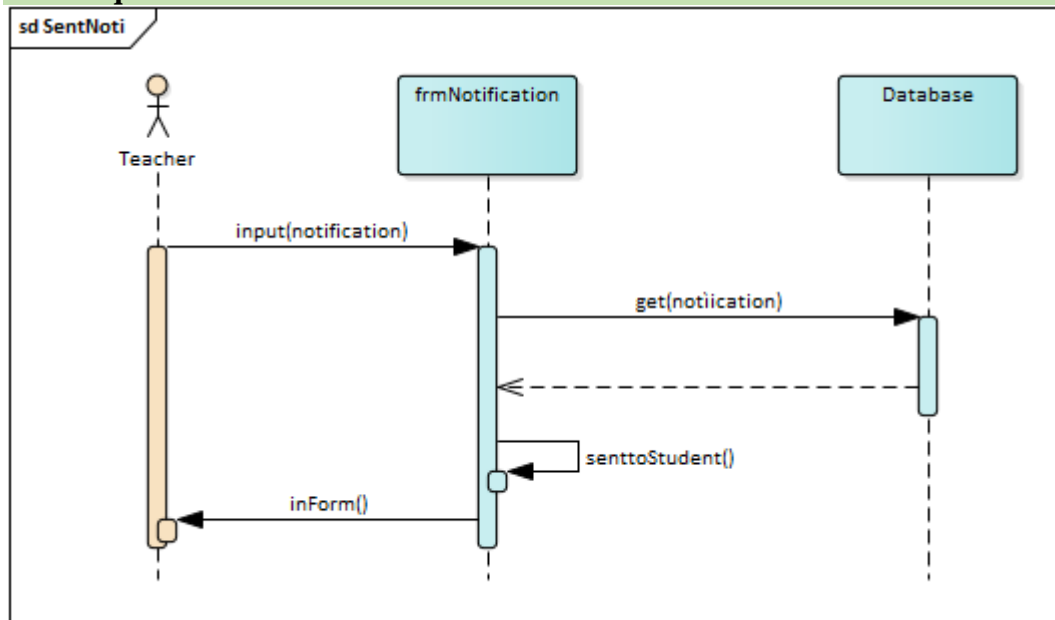
User sequence Notification



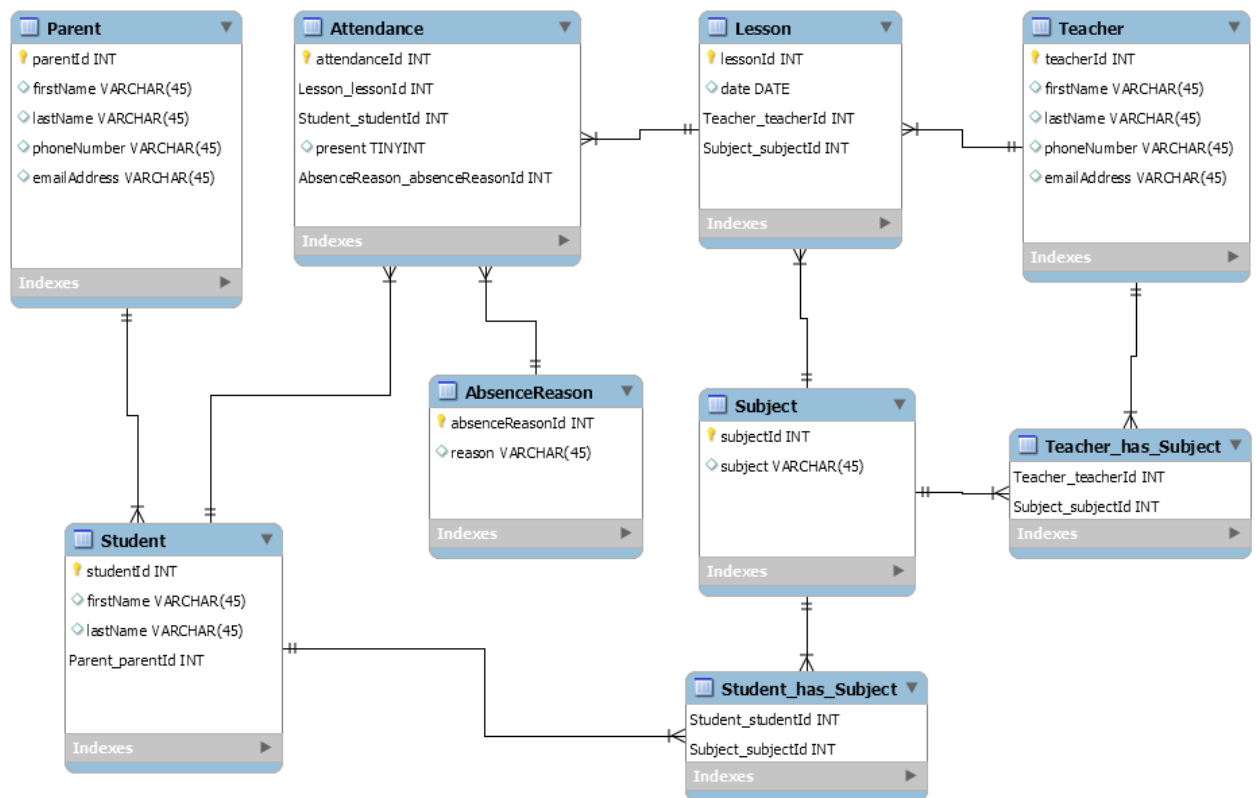
User sequence search



User sequence Sent Noti



Week 06: Database Design



Week 07:

System evolution

Our recommended “student management software” for schools, training centers, universities. Before we do anything, we do a thorough research on the problems we encountered. We have taken a careful look at how to create an error-free management system, student attendance, as well as different functions for different users depending on their perks.

TeacherKit application supports devices on iOS, Windows operating systems. With TeacherKit you have 4 convenient types of reports including: class diagram, seat chart and score, student list.

TeacherKit is a very convenient software for teachers, schools, students and students' parents to easily organize classes and manage students. TeacherKit helps to record student attendance, expressions, and behavior for each student in just a few taps. In addition, when using TeacherKit, teachers can manage the number of students, note negative and positive actions of students and teachers can also communicate with parents about the student's capacity to help parents. mothers care more about their children's learning.

Remind is an application designed based on the mobile device platform, friendly with iOS and Android operating systems, making the process convenient and smooth.

Remind's outstanding features:

Notice about lessons

Text messaging, documents, presentations

Teachers can send SMS messages in two-way or one-way mode to students

Helping teachers interact and support students effectively

Week 8: Appendices

8.1 Application Requirements

Operating system	Windows XP, Windows 7, ios, android
Front end	Microsoft Visual Basic 6.0
Database	Microsoft Access 2003
Connectivity	ActiveX Data Object
Report	Data Report

8.2 Hardware Requirements

RAM	512MB or higher
Hard Disk	10GB or higher
Computer Processor	Pentium IV
Clock Speed	700 MHZ Processor

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