

Sports Center Membership System	Version: 1.0
Software Design Description	Date: 27/04/2018



Hacettepe University
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Software Design Document

Group 4

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1. REVISION HISTORY

<i>Version</i>	<i>Date</i>	<i>Author</i>	<i>Change Description</i>
1.0	27.04.2018	Uğurcan ÇİFTÇİ	Sequence Diagrams added. Annexes created. Use Case Diagram updated. ER Diagram updated.

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2. INTRODUCTION

2.1 Purpose and Scope

This document will explain details of software design. The purpose is to give general information about the design of software and walk through main details of design such as interfaces.

In this document, topics that are covered are; annexes that we created, design constraints and decisions we made, user interfaces that we are going to be implemented and how that interfaces will communicate with each other, how our product behave, how controllers and data models will behave and will communicate each other and etc.

2.2 Document Overview

In system overview part you can see a simplified total software behaviour.

Definitions, Acronyms and Abbreviations shows the short versions of long terms.

Design constraints and decisions will describe the general constraints implied by the design process and what are the impacts on the system architecture and modules design. Hardware limitations and software environment constraints will be described here.

In design details, you can see the sequence diagrams, state diagram, ER diagram, updated use case diagram and such...

2.3 System Overview



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2.4 Definitions, Acronyms, and Abbreviations

<i>Term/Acronym</i>	<i>Definition</i>
SRS	System Requirements Specifications
SDD	Software Design Description
SQL	Structured Query Language
SCMS	Sports Center Membership System
MVC	Model – View – Controller

3. Design Constraints and Decisions

- The system has to be develop using C# asp.net programming language.
- SCMS will be able to run in every operating system.
- MySQL database will be used in the system.
- The SCMS will be a stand-alone web application that requires a database connection.
- MVC will be used as an architectural pattern.
- The system will be distributed over GitHub, documentations will also be on GitHub.
- The system will provide functionality and user friendly graphical user interface. • Manipulating branch managers can only be done by system manager.
- Manipulating branch can only be done by system manager.
- Manipulating course can only be done by system manager.
- Manipulating trainer can only be done by branch manager.
- Manipulating member can only be done by branch manager.
- Non-member can use the web site to learn information about courses and such.
- The performance of the system should not decrease under multiple users logged in.
- Security of user logins will be provided by variables given as argument to SQL query.
- Development will be made in Visual Studio. Visual Studio provides graphical user interface development tools. Also we used MySQL workbench.

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4. Design Details

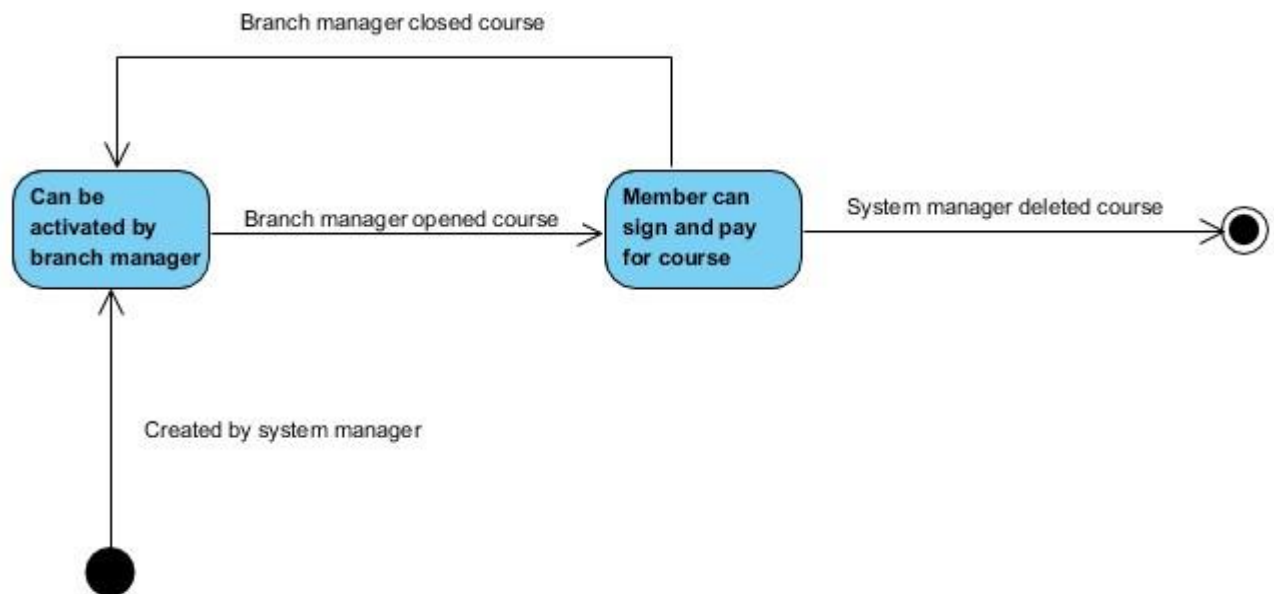
4.1 Software Components

Please refer to “SDD - Class Diagram” to see class diagram.

4.2 Software Behavior

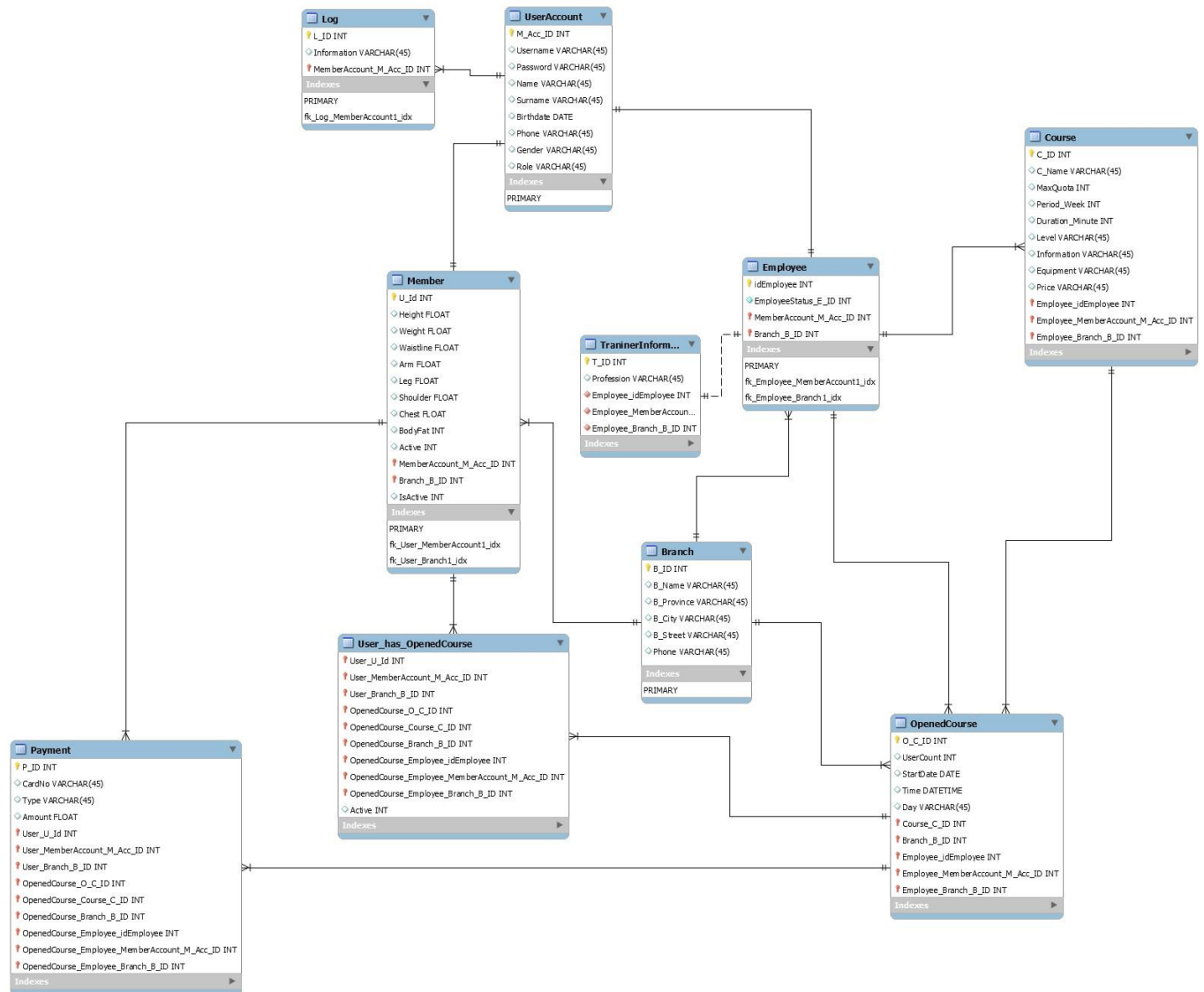
Please refer to “SDD - Sequence Diagrams” to see sequence diagrams of use cases.

State Diagram of “Course” Class:



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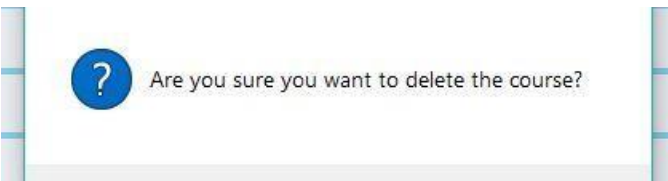



4.3 Data Model (E-R Diagram)



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4.4 User Interface Design

4.4.1 Changes in UI

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We changed our Turkish warnings with English ones.



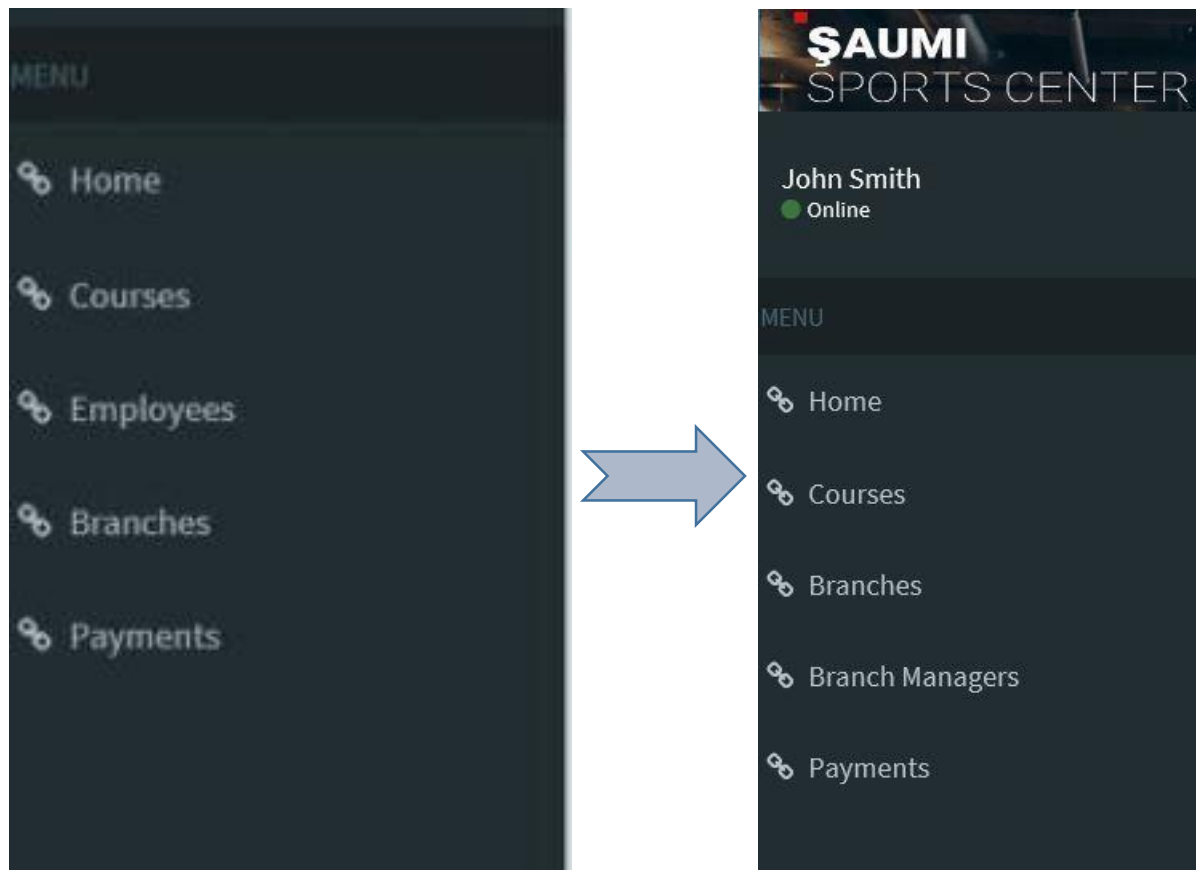
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Course	Quota	Period(Week)	Duration of Training(Minute)	Level	Price	Equipment	Information	Delete Button	Edit Button
Boxing	20	5	80	2	150	gloves	--	Delete Course	Edit Course
Body Combat	25	8	75	2	70	sneakers	--	Delete Course	Edit Course
Yoga	15	5	45	1	95	towel	should not be late	Delete Course	Edit Course
Cycling	5	4	60	2	70	-	-	Delete Course	Edit Course
Swimming	19	4	45	3	150	bone	-	Delete Course	Edit Course

Also we deleted “Options” part of Main Member Window, Main System Manager Window, Main Branch Manager Window and Main Trainer Window.

Also we changed profile part and we added users username next to his/her name and surname.

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We system manager tabs to its new names.

4.4.2 Explanation of Graphical User Interfaces

For an overview of user interfaces please reference “SRS - Appendix B - GUI Interfaces” document. In this section, user interfaces will be mentioned with their respective section title.

Main Page is the first window the user will encounter. In the Main Page, user can open “Courses Window”. When user clicks on SCMS logo on any window, system will bring the user to Main Page again.

In Login window, user can enter his ID and password to enter to the system as member. Also non-member users can click on Register Button while in Login Window.

In Courses Window, user can get some information about courses.

If a user logs into the system using Login Window, then s/he might encounter four windows. If a user is a member, then “Main Member Window” will open. In the “Main Member Window” a member will find tabs to open windows for Pay Fine, Sign Course, List Physical Properties.

If the member clicks to Pay Fine tab, then “Member Pay Fine Window” will open. In this window member can show his/her fines to pay and if member clicks on “Show History” button, he/she can see his/her pay fine history.

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If the member clicks on Sign Course tab, then “Sign Course Window” will open. In this window member can sign a course and pay for it. Also he/she can show the list of courses.

If the member clicks on List Physical Properties tab, then “List Physical Properties Window” will open. In this window member can show his/her physical properties added and updated by his/her trainer.

If a user is a system manager, then “Main System Manager Window” will open. In the “Main System Manager Window” a system manager will find tabs to open windows for Branch Manager Operations, Branch Operations, Course Operations and Define Payment.

If the system manager clicks to Branch Manager Operations tab, then “Branch Manager Operations Window” will open. In this window he can see the list of all branch managers by clicking on “Get User” button. If there is a branch manager in system, system manager can click on “Update” and “Delete” buttons right after the informations of branch manager. If system manager clicks on “Update” button for desired branch manager, he/she can update the informations of target branch manager. If system manager clicks on “Delete” button for desired branch manager, he/she can delete target branch manager from system. System manager also can create branch manager by clicking on “Create Branch Manager” button. If he/she clicks on it, then he/she should fill the blanks for new branch manager than clicks on “Create” button to create it. Before delete process done, system will show a warning message to system manager. If system manager clicks on “Yes” the process will done, if clicks on “No” the process cancelled. After create and update processes done, system show a warning like “Create/Update successfull”.

If the system manager clicks to Branch Operations tab, then “Branch Operations Window” will open. In this window he can see the list of all branches by clicking on “Get Branch” button. If there is a branch in system, system manager can click on “Update” and “Delete” buttons right after the informations of branch. If system manager clicks on “Update” button for desired branch, he/she can update the informations of target branch. If system manager clicks on “Delete” button for desired branch, he/she can delete target branch from system. System manager also can create branches by clicking on “Create Branch” button. If he/she clicks on it, then he/she should fill the blanks for new branch than clicks on “Create” button to create it. Before delete process done, system will show a warning message to system manager. If system manager clicks on “Yes” the process will done, if clicks on “No” the process cancelled. After create and update processes done, system show a warning like “Create/Update successfull”.

If the system manager clicks to Course Operations tab, then “Course Operations Window” will open. In this window he can see the list of all courses by clicking on “Get Course” button. If there is a course in system, system manager can click on “Update” and “Delete” buttons right after the informations of course. If system manager clicks on “Update” button for desired course, he/she can update the informations of target course. If system manager clicks on “Delete” button for desired course, he/she can delete target course from system. System manager also can create courses by clicking on “Create Course” button. If he/she clicks on it, then he/she should fill the blanks for new course than clicks on “Create” button to create it. Before delete process done, system will show a warning message to system manager. If system manager clicks on “Yes” the process will done, if clicks on “No” the process cancelled. After create and update processes done, system show a warning like “Create/Update successfull”.

If the system manager clicks to Define Payment tab, then “Define Payment Window” will open. In this window he/she can create a new payment method for members.

If a user is a branch manager, then “Main Branch Manager Window” will open. In the “Main Branch Manager Window” a branch manager will find tabs to open windows for Member Operations, Trainer Operations and Course Operations.

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If the branch manager clicks to Member Operations tab, then “Member Operations Window” will open. In this window he can see the list of all members by clicking on “Get User” button. If there is a member in system, branch manager can click on “Update” and “Delete” buttons right after the informations of member. If branch manager clicks on “Update” button for desired member, he/she can update the informations of target member. If branch manager clicks on “Delete” button for desired member, he/she can delete target member from system. Branch manager also can create member by clicking on “Create Member” button. If he/she clicks on it, than he/she should fill the blanks for new member than clicks on “Create” button to create it. Before delete process done, system will show a warning message to branch manager. If branch manager clicks on “Yes” the process will done, if clicks on “No” the process cancelled. After create and update processes done, system show a warning like “Create/Update successfull”.

If the branch manager clicks to Trainer Operations tab, then “Trainer Operations Window” will open. In this window he can see the list of all trainers by clicking on “Get User” button. If there is a trainer in system, branch manager can click on “Update” and “Delete” buttons right after the informations of trainer. If branch manager clicks on “Update” button for desired trainer, he/she can update the informations of target trainer. If branch manager clicks on “Delete” button for desired trainer, he/she can delete target trainer from system. Branch manager also can create trainer by clicking on “Create Trainer” button. If he/she clicks on it, than he/she should fill the blanks for new trainer than clicks on “Create” button to create it. Before delete process done, system will show a warning message to branch manager. If branch manager clicks on “Yes” the process will done, if clicks on “No” the process cancelled. After create and update processes done, system show a warning like “Create/Update successfull”.

If the branch manager clicks to Course Operations tab, then “Course Operations Window” will open. In this window, he/she can activate or deactivate the courses which created by system manager for his/her branch. Branch manager can see the list of all courses in his/her branch by clicking on “Get Course” button. He will see all the courses created by system manager. He/she can activate a course by clicking on “Open” button on the desired course. And activated courses can closed by branch manager as well. An opened course can be closed by clicking on “Close” button on the desired course. Also he/she can activate a member for a course as well in this window.

If a user is a trainer, than “Main Trainer Window” will open. In the “Main Trainer Window” a trainer will find tabs to open windows for Member Informations and Attendance Operations.

If the trainer clicks on Member Informations tab, then “Member Informations Window” will open. In this window, he/she can see the list of all members in his/her course by clicking on “Get User” button. If there is a member in his/her course, trainer can click on “Add Physical Property” and “Update Physical Properties” buttons right after the informations of member. If trainer clicks on “Add Physical Property” button for desired member, he/she can enter the physical informations of target member. If trainer clicks on “Update Physical Properties” button for desired member, he/she can update the physical informations of target member. In both situtation, after editing the tabs, system will show a pop up to trainer “Operation Successfull” message.

If the trainer clicks on Attendance Operations tab, then “Attendance Operations Window” will open. In this window, he/she can see the list of all members in his/her course by clicking on “Get User” button. If there is a member in his/her course, trainer can click on “Not Attended” button right after the informations of member. When trainer clicked to that button, target members non attended day number increased by 1.

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4.4.3 Error Prevention and Operation Messages

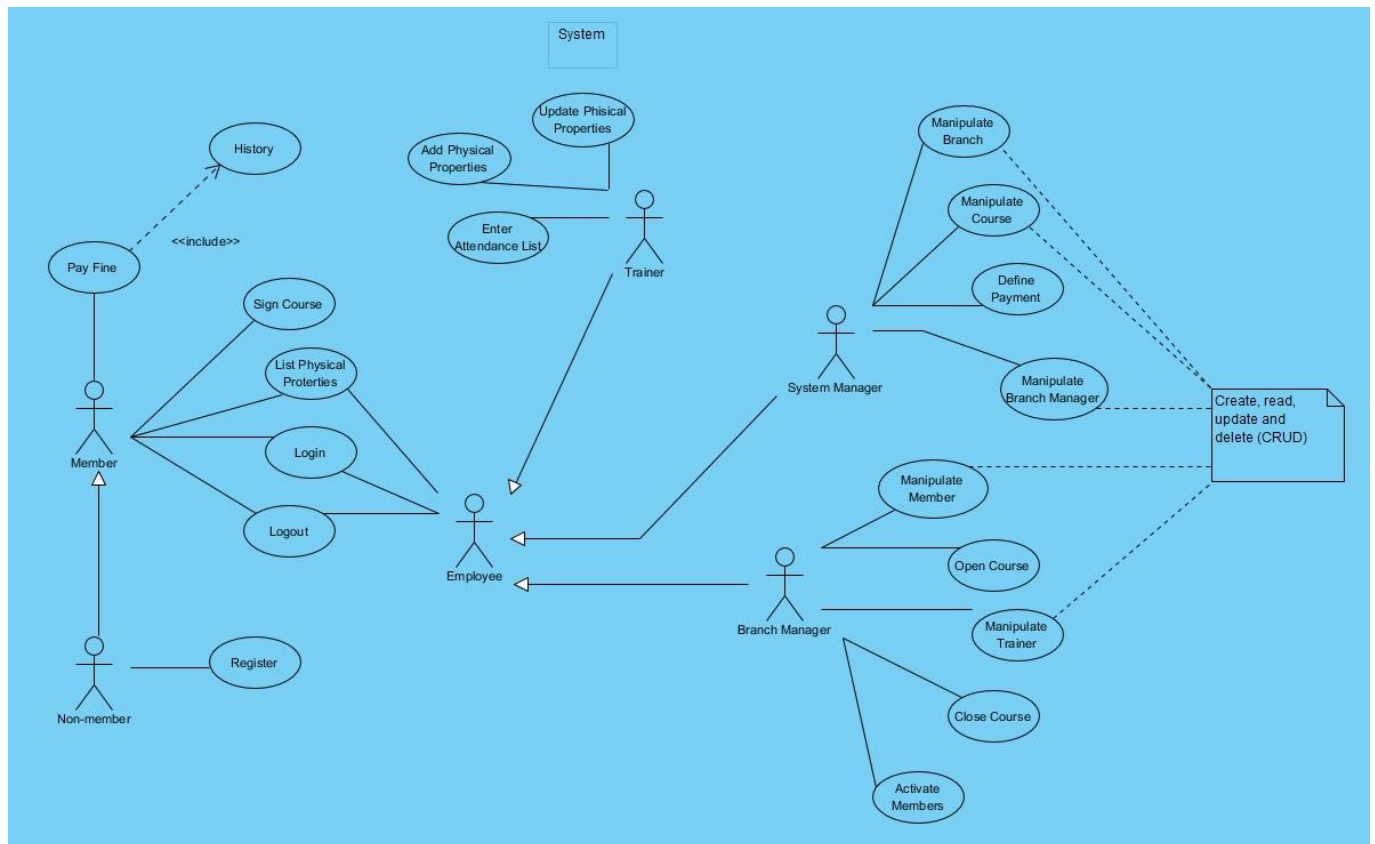
To get an error - success messages please refer to “SDD - Error and Success Dialogs” document. This document shows how the program provides error prevention.

4.4.4 Design Considerations

User interfaces are kept as simple as possible. Interfaces are distraction-free and minimalistic. This approach increases UX.

4.4.5 Use Case Diagram

We made some changes and updates on use case diagram of project. You can see our updated use case diagram below.



5. Requirements Traceability

Please refer to “SDD - Requirements Traceability Matrix” document.

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6. Annexes

SDD - Appendix A-Sequence Diagrams

SDD - Appendix B -Class Diagram

SDD - Appendix C-Requirements Traceability Matrix

SDD - Appendix D-Error and Success Dialogs