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**<<YOGA CENTER>>**

**Software Design Document**

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# I. Overview

## 1. Code Packages/Namespaces

*[Provide the package diagram for each sub-system. The content of this section including the overall package diagram, the explanation, package and class naming conventions in each package. Please see the sample and description table format below – following Java project naming convention]*

A diagram of a computer program

Description automatically generated

***Package descriptions & package class naming conventions***

|  |  |  |
| --- | --- | --- |
| **No** | **Package** | **Description** |
| *01* | DTO | * Contains data fields and simple getter and setter methods to access and manipulate the data for all object. * Name of an object, using camel case and append it with DTO ex: trainerDTO, lopHocDTO, … |
| *02* | *DAO* | * Classes that define the CRUD (Create, Read, Update, Delete) operations that can be performed on the data source. These interfaces or classes provide methods to insert, retrieve, update, and delete data objects. Used to abstract and encapsulate the access to a data source, such as a database or a web service. * Name of an object, using camel case and append it with DAO ex: trainerDAO, lopHocDAO, … |
| *03* | *Controller* | * Handles incoming requests and manages the flow of the application. It is responsible for receiving requests from clients, processing them, and generating appropriate responses. * Name of an object, using camel case and append it with Controller ex: trainerController, lopHocController, … |
|  | *Util* | * Contain configuration of the web, constant , public class contains public function like convert date and class to connect database. * Name of the purpose append Util ex: MailUtil, DataUtil,… |
|  | *Filter* | * Intercepts inappropriate requests and responses between the client and the servlets. * Name of filter purpose ex: authentication,… |
|  | *Paypal* | * Contain Paypal method for purchase * PaypalServices |
|  | *EvenListener* | * Contain initialize method when web application boost * Scope of the method appen Listener ex: AppContextListener |

## 2. Database Schema

*[Provide the tables relationship like example below – following MySQL database naming convention]*

A computer screen shot of a computer

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***Table descriptions & package class naming conventions are as below***

|  |  |  |
| --- | --- | --- |
| **No** | **Table** | **Description** |
| *01* | lopHoc | *- Contain all lopHoc field*  *- Primary keys:* [maLopHoc] NVARCHAR(10) primary key  *- Foreign keys:*  + CONSTRAINT fk\_loaiLopHoc\_lopHoc FOREIGN KEY([maLoaiLopHoc]) REFERENCES loaiLopHoc([maLoaiLopHoc]),  + CONSTRAINT fk\_maRoom\_lopHoc FOREIGN KEY([maRoom]) REFERENCES room(maRoom) |
| *02* | hocVien | *- Contain all hocVien field*  *- Primary keys:* [maHV] NVARCHAR(10) primary key |
| *03* | Trainer | *- Contain all Trainer field*  *- Primary keys:* [maTrainer] NVARCHAR(10) primary key |
| *04* | ScheduleHV | *- Contain all* ScheduleHV *field*  *- Primary keys:* (maLopHoc,maHV,ngayHoc)  *- Foreign keys:*  + CONSTRAINT fk\_maSlot\_ScheduleHV FOREIGN KEY([maSlot]) REFERENCES slot(maSlot)  + Constraint fk\_maLopHoc\_ScheduleHV foreign key([maLopHoc]) references [lopHoc]([maLopHoc])  + constraint fk\_maHocVien\_ScheduleHV foreign key([maHV]) references [hocVien]([maHV]) |

# II. Code Designs

## 1. Create Class

### a. Class Diagram

A diagram of a computer program

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### b. Sequence Diagram

A diagram of a project

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## 2. View and change profile

### a. Class Diagram

A screenshot of a computer

Description automatically generated

### b. Sequence Diagram

A diagram of a diagram

Description automatically generated

## 3. View/Create Blogs for trainee/trainers

### a. Class DiagramA screenshot of a computer Description automatically generated

### b. Sequence Diagram

## A diagram of a diagram Description automatically generated4. Admin’s blog management

### a. Class DiagramA screenshot of a computer Description automatically generated

### b. Sequence DiagramA diagram of a diagram Description automatically generated

## 5. Payment Services

### a. Class Diagram A diagram of a software company Description automatically generated

### b. Sequence Diagram A diagram of a company Description automatically generated

# III. Database Tables

## 1. hocVien

* This table contains information about the trainees of the Yoga Center.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | maHV | nvarchar | 10 | X | X | PK |  |
| 2 | Ho | nvarchar | 10 |  | X |  |  |
| 3 | Ten | nvarchar | 25 |  | X |  |  |
| 4 | dob | date | N/A |  | X |  |  |
| 5 | username | nvarchar | 50 | X | X |  | Username must be unique |
| 6 | phone | nvarchar | 11 |  | X |  |  |
| 7 | psw | nvarchar | 75 |  | X |  |  |
| 8 | gender | nvarchar | 10 |  | X |  |  |
| 9 | maLoaiTK | nvarchar | 10 |  | X |  |  |
| 10 | email | nvarchar | 50 | X | X |  | Email must be unique |

## 2. loaiLopHoc

* This table contains information about types of class, which helps calculate the fee for attending classes.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | maLoaiLopHoc | nvarchar | 10 | X | X | PK |  |
| 2 | tenLoaiLopHoc | nvarchar | 25 |  | X |  |  |
| 3 | maDescription | nvarchar | 10 | X | X | FK | Primary key of the ‘description’ table |
| 4 | hocPhi | decimal | N/A |  | X |  |  |

## 3. lopHoc

* This table gives more details about class.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | maLopHoc | nvarchar | 10 | X | X | PK |  |
| 2 | soLuongHV | int | N/A |  | X |  |  |
| 3 | soBuoi | int | N/A |  | X |  |  |
| 4 | maLoaiLopHoc | nvarchar | 10 |  | X | FK | Primary key of the ‘loaiLopHoc table’ |
| 5 | soLuongHvHienTai | int | N/A |  | X |  | soLuongHvHienTai <= soluongHV |
| 6 | ngay | date | N/A |  | X |  |  |
| 7 | status | bit | N/A |  | X |  |  |

## 4. description

* This table contains a description for the type of class.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | maDescription | nvarchar | 10 | X | X | PK |  |
| 2 | title | varchar | 225 |  | X |  |  |
| 3 | [content] | text | N/A |  | X |  | Contains the information about the types of class and will be used among classes shared the same type |

## 

Software Requirements Specification

for

A Yoga Centre

Version 1.0 approved by me

Prepared by me

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# 1.Introduction

## Purpose

This SRS describes the functional and nonfunctional requirements for software release 1.0 of the Yoga Center. This document is intended to be used by the members of the project team who will implement and verify the correct functioning of the system. Unless otherwise noted, all requirements specified here are committed for release 1.0.

## Document Conventions

No special typographical conventions are used in this SRS.

## Project Scope and Product Features

The System will permit Authorized individuals to schedule yoga classes and assign members to said classes either manually or automatically. A detailed description is available in the *Yoga Center Vision and Scope Document* [1], along with the features that are scheduled for full or partial implementation in this release.

# Overall Description

## Product Perspective

The Yoga Center Project aims to create a thriving hub for yoga enthusiasts and individuals seeking to enhance their physical and mental well-being. By offering diverse classes, personalized instruction, workshops, wellness services, and fostering a strong sense of community, the center will provide a comprehensive yoga experience that caters to the needs of individuals at all levels. With its serene environment and commitment to promoting holistic health, the Yoga Center will be an ideal destination for those looking to embark on or deepen their yoga journey..

## User Classes and Characteristics

|  |  |
| --- | --- |
| Trainee (favoured) | Characteristics: Individuals who attend yoga classes and utilize the services offered by the yoga center.  Needs and Preferences: Seek a welcoming and inclusive environment for practicing yoga. Have varying levels of experience, from beginners to advanced practitioners. Look for classes that align with their skill level and goals, whether it's building strength and flexibility, stress reduction, or overall well-being. |
| Trainers | Characteristics: Certified and experienced yoga teachers who lead classes at the yoga center.  Needs and Preferences: Have in-depth knowledge of various yoga styles, postures, breathing techniques, and meditation practices. Seek a supportive environment that encourages professional growth and ongoing learning. May require access to training resources, continuing education programs, and opportunities for collaboration with other instructors. |
| Admin | Characteristics: Individuals responsible for the overall management and administration of the yoga center.  Needs and Preferences: Possess organizational and managerial skills to ensure smooth operation of the center. Responsible for scheduling classes, managing registrations, and maintaining the center's facilities and resources. Require effective communication and customer service skills to address inquiries, handle payments, and provide information to users and trainers. |

## Operating Environment

OE-1: The System shall operate correctly with the following web browsers: Windows Internet Explorer versions 7, 8, and 9; Firefox versions 12 through 26; Google Chrome (all versions); and Apple Safari versions 4.0 through 8.0.

OE-2: The System shall operate on a server running the current corporate-approved versions of Red Hat Linux and Apache HTTP Server.

OE-3: The System shall permit user access from the corporate Intranet, from a VPN Internet connection, and by Android, iOS, and Windows smartphones and tablets.

## Design and Implementation Constraints

CO-1: The system’s design, code, and maintenance documentation shall conform to the Process Impact Intranet Development Standard, Version 1.3 [2].

CO-2: The system shall use the current Microsoft SQL Server database engine.

CO-3: All HTML code shall conform to the HTML 5.0 standard.

## Assumptions and Dependencies

AS-1: The Yoga Center is open from 6AM to 4PM with all classes optimally be available at the predetemined time

DE-1: Technological Infrastructure: The project may depend on technological infrastructure such as a website, online scheduling and registration system, payment processing, and customer relationship management tools. The availability and reliability of these systems impact the center's efficiency and user experience.

DE-2: Facility and Infrastructure: The project depends on securing a suitable facility with adequate space for yoga studios, changing rooms, storage, and other amenities. The availability and condition of the facility influence the center's operations and the user experience.

DE-3: User Feedback and Satisfaction: The project depends on receiving feedback from users to assess their satisfaction levels and make necessary improvements. User satisfaction and positive reviews are vital for attracting new users and retaining existing ones.

## Use case diagram

A diagram of a diagram

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A diagram of a person's workflow

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A diagram of a diagram

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A diagram of a company

Description automatically generated

## ERD

A diagram of a computer

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A computer screen shot of a computer

Description automatically generated

## A diagram of a process Description automatically generatedSwimlane

## State Transition

A diagram of a course

Description automatically generated

# Functional requirements

## Users Features

User Registration:

Inputs: User-provided information such as name, contact details, and preferences.

Outputs: User account creation with login credentials.

Description: Users provide their personal information and preferences to create an account in the system. This feature allows users to access personalized features and make use of the yoga center's services.

Class Management:

Inputs: Users can search for classes based on specific criteria such as date, time, instructor, class type, and skill level. The system presents a list of available classes matching the user's preferences.

Booking and Reservation:

Inputs: User-selected classes and booking requests.

Outputs: Confirmation of class reservations, waitlist notifications, and class reminders.

Description: Users can select and book desired classes from the available schedule. The system confirms the booking, notifies the user of successful reservation, manages waitlist requests, and sends reminders for upcoming classes.

Payment and Billing:

Inputs: User-selected payment method and details.

Outputs: Secure payment processing, generation of electronic receipts.

Description: Users provide their payment information and select a payment method to complete the transaction for class bookings. The system securely processes the payment and generates electronic receipts as proof of payment.

Account Management:

Inputs: User-provided updates to personal information and preferences.

Outputs: Updated user profile and booking history.

Description: Users can manage their account information, including updating personal details and preferences. They can also access and review their booking history within their accounts.

## Trainers Features

[Some features described here may already be described in section 3.1.]

Trainer Profiles:

Inputs: Trainer-provided information, such as bio, certifications, and class offerings.

Outputs: Published trainer profiles visible to users, including availability.

Description: Trainers can create and manage their professional profiles, including their bio, certifications, specialties, and class offerings. The system publishes their profiles, making them visible to users, along with their availability for classes.

Class Management:

Inputs: Trainer-provided class details, including class type, duration, location, and specific requirements.

Outputs: Published class schedules, including class information and availability.

Description: Trainers can create and manage their classes, providing necessary details such as class type, duration, location, and any specific requirements. The system publishes the class schedules, making them available for users to book.

## Administrator Features

Dashboard and Analytics:

Inputs: Data from various system components, such as user registrations, class bookings, and financial transactions.

Outputs: Comprehensive analytics, reports, and visualizations to monitor and manage the overall performance of the yoga center.

Description: The admin dashboard provides a centralized interface for administrative staff to monitor and manage the yoga center's operations. It presents analytics, reports, and visualizations based on data from user registrations, class bookings, and financial transactions.

User and Trainer Management:

Inputs: User-provided registration details, trainer-provided information and updates.

Outputs: User and trainer account management, access privileges, and communication preferences.

Description: Admins can manage user accounts, including registrations, access privileges, and communication preferences. They can also oversee trainer profiles, certifications, availability, and class assignments.

Class and Schedule Management:

Inputs: Admin-provided class details, including class type, duration, location, and specific requirements.

Outputs: Published class schedules, including class information and availability.

Description: Admins can create and update the overall class schedule, including adding new classes, modifying timings, and assigning trainers. They also ensure accurate scheduling, manage class capacities, and allocate resources as needed.

Payment and Billing Management:

Inputs: Payment-related data, such as user payments, refunds, and billing inquiries.

Outputs: Tracking of payments, processing refunds, and managing billing-related tasks.

Description: Admins track and manage user payments, monitor overdue payments, and handle billing inquiries. They can process refunds or issue credits for canceled classes or payment discrepancies.

Communication and Notifications:

Inputs: Announcement content, notifications, and updates.

Outputs: Delivery of announcements, notifications, and updates to users and trainers.

Description: Admins can send announcements, newsletters, or general updates to users and trainers via email or notifications. They ensure effective communication between the yoga center and its users and trainers.

## Reports

### Class reservation report

|  |  |
| --- | --- |
| Report ID: | YC-RPT-1 |
| Report Title: | Yoga Class Booking History |
| Report Purpose: | The report provides a list of previously booked yoga classes at the yoga center over a specified time period. It allows users to review their booking history and track the classes they have attended. |
| Priority: | Medium |
| Report Users: | Patrons |
| Data Sources: | Database of class bookings |
| Frequency and Disposition; | The report is generated on demand by a user and contains static data. It is displayed on the user's web browser screen on a computer, tablet, or smartphone. |
| Latency: | Complete report must be displayed to Patron within 3 seconds after it is requested. |
| Visual Layout: | Landscape mode |
| Header and Footer: | Report header shall contain the report title, Patron's name, and date range specified. If printed, report footer shall show the page number. |
| Report Body: | Fields shown and column headings:   * Booking ID * Class * Date * Class Time * Class Type * Instructor * Name * Booking Status (Confirmed, Waitlisted, Canceled)   Selection Criteria: date range specified by Patron, inclusive of end points  Sort Criteria: reverse chronological order |
| End-of-Report Indicator: | None |
| Interactivity: | Users can click on a booking to view additional details about the class, such as location, duration, and any specific requirements. |
| Security Access Restrictions: | Users can only retrieve their own booking history and cannot access other users' information. |

## Use case list

1. Admin:

+ Create class

+ Add trainer

+ Approve blog

+ Add type of yoga

1. Trainee

+ Viewing classes

+ Changing classes

+ Booking a class

+ Payment for a class

+ Change Class for Trainee

+ Reserve Class for Trainee

+ Change Class for Trainee

1. Trainer

+ View class list and class detail

+ Request changes to a class assignment

+Take attendance

### Admin’s usercases

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | **UC-1 Create classes** | | |
| Created By: | Long | Date Created: |  |
| Primary Actor: | Administrator | Secondary Actors: | Yoga Center Classes System |
| Description: | An administrator create classes and assign trainer. | | |
| Trigger: | The administrator notices outdated/misinformation | | |
| Preconditions: | * The Yoga Center Management System is updated with class, room, schedule and room information * Reports generated by the system provide accurate data for analysis and decision-making. | | |
| Postconditions: | POST-1. Class created with schedule. | | |
| Normal Flow: | **1.0 Administrator create a new class**   1. Administrator accesses Yoga Center Management System. 2. Administrator enter the schedule page which show available room on that day and slot. 3. Administrator choose days. 4. Administrator choose type of Yoga, slot and initial date. 5. Administrator create classes unassigned. 6. Administrator assign trainer to that class. 7. Administrator returns to main menu. | | |
| Alternative Flows: |  | | |
| Exceptions: | 1. Room is not available: The Administrator is notified if the selected day does not have available room and returns to the schedule page. 2. Initial date is invalid, initial date has to be chosen 1 week after semester start. | | |
| Priority: | High | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 7AM to 5PM. | | |
| Business Rules: | **BR-2,BR-10,BR-90** | | |
| Other Information: |  | | |
| Assumptions: | 1. Admin has access to a reliable Yoga Center Management System. 2. Admin is proficient in using the system and understands its features. 3. Admin has necessary permissions to create classes. 4. Admin has accurate information on class capacities and resources. 5. Admin coordinates with instructors for scheduling and resolving conflicts. 6. Admin optimizes schedules for member convenience and resource utilization. 7. Admin handles class cancellations and rescheduling effectively. 8. Admin considers member feedback and market trends for decision-making. 9. Admin collaborates with stakeholders for smooth operations and promotion. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | **UC-1 Add type of Yoga** | | |
| Created By: | Long | Date Created: |  |
| Primary Actor: | Administrator | Secondary Actors: | Yoga Center Classes System |
| Description: | An administrator add type of Yoga. | | |
| Trigger: | The administrator notices outdated/misinformation | | |
| Preconditions: | * The Yoga Center Management System is updated with class, room, schedule and room information * Reports generated by the system provide accurate data for analysis and decision-making. | | |
| Postconditions: | POST-1. Class created with schedule. | | |
| Normal Flow: | **1.0 Administrator Add a new yoga type**   1. Administrator accesses Yoga Center Management System. 2. Administrator enter the “Add new Yoga” page. 3. Administrator choose name. 4. Administrator choose fee. 5. Administrator input content for description. 6. Administrator add images for category. 7. Administrator enter submit. | | |
| Alternative Flows: | 1. Yoga name already existed.  * Web will popup a notification and ask to view that yoga type detail. | | |
| Exceptions: | 1. Yoga name already existed: The Administrator is notified if the yoga existed. 2. Input field are invalid. 3. Image fill only accept .png file and the maximum capability is 5mb. | | |
| Priority: | High | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 7AM to 5PM. | | |
| Business Rules: |  | | |
| Other Information: |  | | |
| Assumptions: | 1. Admin has access to a reliable Yoga Center Management System. 2. Admin is proficient in using the system and understands its features. 3. Admin has necessary permissions to add yoga. 4. Admin has accurate information on yoga capacities and resources. 5. Admin collaborates with stakeholders for smooth operations and promotion. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | **UC-2 Add trainer** | | |
| Created By: | Long | Date Created: |  |
| Primary Actor: | Administrator | Secondary Actors: | Yoga Center Classes System |
| Description: | An administrator add a new trainer. | | |
| Trigger: | The administrator notices outdated/misinformation | | |
| Preconditions: | * Type of yoga which trainer assign is existed | | |
| Postconditions: | * Mail contain user name and password will be sent to trainer | | |
| Normal Flow: | 1. **Administrator create a new class** 2. Administrator accesses Yoga Center Management System. 3. Administrator enter the add new trainer page. 4. Administrator fill all field: user name, password, full name, last name, dob, mail. 5. Administrator choose type of Yoga that trainer train. 6. Input salary. 7. Administrator submit trainer. 8. Administrator returns to main menu. | | |
| Alternative Flows: |  | | |
| Exceptions: | 1. Input field is invalid. 2. User name is already existed. 3. Password does not match. | | |
| Priority: | High | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 7AM to 5PM. | | |
| Business Rules: | **BR-26** | | |
| Other Information: |  | | |
| Assumptions: | 1. Admin has access to a reliable Yoga Center Management System. 2. Admin is proficient in using the system and understands its features. 3. Admin has necessary permissions to create trainer. 4. Admin has accurate information on trainer resources. 5. Admin collaborates with stakeholders for smooth operations and promotion. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | **UC-3 Approve blog** | | |
| Created By: | Long | Date Created: |  |
| Primary Actor: | Administrator | Secondary Actors: | Yoga Center Classes System |
| Description: | An administrator approve blog. | | |
| Trigger: | The administrator notices outdated/misinformation | | |
| Preconditions: | * Trainee or trainer create/update blog. | | |
| Postconditions: | * Mail blog approvement will be sent to author | | |
| Normal Flow: | 1. **Administrator approve blog** 2. Administrator accesses Yoga Center Management System. 3. Administrator enter the list unapproved page. 4. Administrator choose 1 specific blog to check and approve. 5. Administrator set category for blog. 6. Set approved or unapproved. 7. Submit. 8. Administrator returns to main menu. | | |
| Alternative Flows: |  | | |
| Exceptions: |  | | |
| Priority: | High | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 7AM to 5PM. | | |
| Business Rules: | **BR-91** | | |
| Other Information: |  | | |
| Assumptions: | 1. Admin has access to a reliable Yoga Center Management System. 2. Admin is proficient in using the system and understands its features. 3. Admin has necessary permissions to approve blog. 4. Admin has accurate information on trainee/trainer and blog resources. 5. Admin collaborates with stakeholders for smooth operations and promotion. | | |

### Trainee’s usercases

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | UC-1 Booking a class | | |
| Created By: | Dang | Date Created: |  |
| Primary Actor: | Trainee | Secondary Actors: | Yoga Center Classes System |
| Description: | A trainee can book a class for a specific date and time. | | |
| Trigger: | The trainee wants to register a class. | | |
| Preconditions: | * The Trainee has access to the Yoga Center Classes System. * The Trainee has a valid user account and is logged in. * The Trainee has reviewed the available classes and their schedules. * The Trainee has confirmed their eligibility for the selected class (e.g., membership status, prerequisites). | | |
| Postconditions: | POST-1. The Trainee is successfully registered for the selected class.  POST-2 The Trainee receives a confirmation of registration. | | |
| Normal Flow: | 1. The Trainee accesses the Yoga Center Classes System. 2. The Trainee navigates to the class registration section. 3. The Trainee views the list of available classes. 4. The Trainee selects the desired class. 5. The Trainee provides the required information for registration (e.g., name, contact details). 6. The Trainee confirms their registration for the selected class. 7. The Yoga Center Classes System verifies the Trainee's eligibility for the class. 8. The Yoga Center Classes System registers the Trainee for the class. 9. The Yoga Center Classes System sends a confirmation of registration to the Trainee. 10. The Trainee receives the confirmation and acknowledges the successful registration. | | |
| Alternative Flows: | A. Class Full:  Step 7: The Yoga Center Classes System detects that the selected class is already full.  The Yoga Center Classes System notifies the Trainee that the class is full and suggests alternative class options.  The Trainee selects an alternative class and repeats the registration process.  B. Prerequisites Not Met:  Step 7: The Yoga Center Classes System determines that the Trainee does not meet the prerequisites for the selected class.  The Yoga Center Classes System notifies the Trainee of the prerequisites and provides instructions for meeting them.  The Trainee either fulfills the prerequisites and repeats the registration process or selects a different class. | | |
| Exceptions: | Technical Issues: If the Yoga Center Classes System encounters any technical issues during the registration process, it notifies the Trainee and prompts them to try again later or contact support. | | |
| Priority: | High | | |
| Frequency of Use: | Varies based on Trainee's preferences and availability of classes. | | |
| Business Rules: | BR-5, BR-12, BR-15 | | |
| Other Information: | * Trainees may be required to make a payment or provide payment details during the registration process. * Trainees can view their registered classes and make changes/cancellations if allowed by the Yoga Center's policies. | | |
| Assumptions: | * The Yoga Center Classes System is functioning properly. * Trainees have access to the necessary information about the available classes and their requirements. * Trainees understand and agree to the terms and conditions of class registration and attendance. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | UC-2 Change Class for Trainee | | |
| Created By: | me | Date Created: |  |
| Primary Actor: | Trainee | Secondary Actors: | Yoga Center Classes System |
| Description: | A trainee can book a class for a specific date and time. | | |
| Trigger: | The trainee wants to register a class. | | |
| Preconditions: | * The trainee is logged into the Yoga Center Classes System. * The trainee is currently enrolled in at least one class. * There are available classes for the trainee to switch to. | | |
| Postconditions: | POST-1. The trainee's class enrollment is updated with the new class.  POST-2 The trainee receives a confirmation notification of the class change. | | |
| Normal Flow: | 1. The trainee navigates to the "My Classes" section of the system. 2. The system displays the list of classes that the trainee is currently enrolled in. 3. The trainee selects the class they wish to change. 4. The system presents the trainee with a list of available classes that they can switch to. 5. The trainee selects the desired class from the list. 6. The system validates the availability of the selected class and checks for any conflicts. 7. If the selected class is available and does not conflict with the trainee's schedule, the system proceeds to the next step. Otherwise, an error message is displayed, and the trainee is prompted to choose another class. 8. The trainee confirms the class change. 9. The system updates the trainee's enrollment record, removing them from the previous class and adding them to the new class. 10. The system sends a notification to the trainee confirming the successful class change. 11. The trainee's class schedule and enrollment details are updated accordingly. | | |
| Alternative Flows: | * If there are no available classes for the trainee to switch to (Step 4), the system displays a message indicating the unavailability and prompts the trainee to choose another option or contact the administrator. * If there is a schedule conflict with the selected class (Step 7), the system displays an error message specifying the conflict and prompts the trainee to choose another class or adjust their schedule. | | |
| Exceptions: | Error handling and exception scenarios should be defined for cases such as system errors, network issues, or other technical problems. These should be handled gracefully, and the trainee should be notified of any errors or issues encountered during the class change process. | | |
| Priority: | High | | |
| Frequency of Use: | Trainees may request to change classes occasionally based on their personal preferences, availability, and needs. The frequency of class changes may vary depending on individual circumstances. | | |
| Business Rules: | BR-5 BR-12 | | |
| Other Information: | * Trainees may be required to pay any difference in fees between the original class and the new class, if applicable. * Trainees may need to provide a valid reason for changing their class, which will be reviewed and approved by the Yoga Center staff. | | |
| Assumptions: | * The Yoga Center Classes System is functioning properly and accessible to the trainee. * The trainee has the necessary permissions and access rights to change their class. * The trainee has accurate information about the available classes and their own schedule. * The trainee understands the policies and procedures for changing classes. * The trainee follows the guidelines and instructions provided by the Yoga Center staff. * The Yoga Center staff reviews and approves the class change requests in a timely manner. | | |

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| ID and Name: | UC-3 Reserve Class for Trainee | | |
| Created By: | Dang | Date Created: |  |
| Primary Actor: | Trainee | Secondary Actors: | Yoga Center Classes System |
| Description: | The trainee reserves a spot in a fully booked class in the Yoga Center Classes System. | | |
| Trigger: | The trainee wants to secure a spot in a fully booked class. | | |
| Preconditions: | The trainee is registered and logged into the Yoga Center Classes System.  The desired class is fully booked. | | |
| Postconditions: | POST-1. The trainee's spot in the fully booked class is successfully reserved. | | |
| Normal Flow: | 1. The trainee accesses the Yoga Center Classes System. 2. The trainee navigates to the "Classes" section. 3. The trainee selects the fully booked class they want to reserve. 4. The system checks if there is a waitlist for the class. 5. If there is a waitlist, the trainee is given the option to join the waitlist. | | |
| Alternative Flows: | In Step 5, if there is no waitlist for the class, the trainee is notified that the class is fully booked and no spots are available for reservation. | | |
| Exceptions: | Error handling and exception scenarios should be defined for cases such as system errors, network issues, or other technical problems. These should be handled gracefully, and the trainee should be notified of any errors or issues encountered during the reservation process. | | |
| Priority: | Medium | | |
| Frequency of Use: | Occasional - Trainees may need to reserve spots in fully booked classes on an occasional basis, depending on availability and demand. | | |
| Business Rules: | BR-5 BR-12 | | |
| Other Information: | * Trainees on the waitlist may be notified if a spot becomes available in the class due to cancellations or changes in enrollment. * Trainees on the waitlist may be given priority for future class registrations. | | |
| Assumptions: | * The Yoga Center Classes System is functioning properly and accessible to the trainee. * The trainee has the necessary permissions and access rights to reserve a spot in a fully booked class. * The trainee understands the policies and procedures for reserving spots in fully booked classes. * The Yoga Center staff manages the waitlist and notifies trainees accordingly. | | |

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| ID and Name: | **UC-4 Paying for a class** | | |
| Created By: | Dang | Date Created: |  |
| Primary Actor: | Trainee | Secondary Actors: | Yoga Center Classes System |
| Description: | A Trainee commits to a payment for registering a class | | |
| Trigger: | The Trainee clicks on confirm payment after having ordered a class reservation button. | | |
| Preconditions: | 1. The Yoga Center Management System is updated with the new class and membership information. 2. Reports generated by the system provide accurate data for analysis and decision-making. | | |
| Postconditions: | 1. Access to Schedule: Trainees should have access to the system’s class schedule. 2. View Class Details: Trainees can view detailed information about each class, including class name, date, time, duration, location. | | |
| Normal Flow: | 1. Trainee Login: The trainee logs into the class registering system using their credentials or creates a new account if they don't have one. 2. Class Search: The trainee browses or searches for available classes 3. Class Selection: The trainee selects the desired class from the search results 4. Seat Availability: The system checks if there are available seats in the selected class 5. Registration Form: The trainee fills out a registration form 6. Payment: The trainee proceeds to the payment process and selects a payment method 7. Confirmation: After successful payment, the system generates a confirmation message or receipt 8. Optional: The system may offer additional features, such as the ability to view or print the class schedule, receive reminders or notifications, or access learning materials or resources related to the registered class. | | |
| Alternative Flows: | 1. Class Unavailability: The system notifies the trainee about the unavailability and suggests alternative classes that meet their preferences. 2. Waitlist Option: If the selected class is full, the system offers the trainee the option to join a waitlist 3. Payment Failure: The system prompts the trainee to retry the payment using a different payment method or contact customer support for assistance. 4. Registration Confirmation Delay: The trainee is informed about the delay and provided an estimated time frame for receiving the confirmation. 5. Class Changes: The system sends notifications to the trainee about these changes and provides options to confirm or adjust their registration accordingly. 6. Refunds or Cancellations: The trainee receives a refund confirmation and any applicable refund policies are communicated. | | |
| Exceptions: | 1. Invalid Registration Information: The system should display an error message and prompt the trainee to correct the information. 2. Time Conflict: The system should notify the trainee about the time conflict and provide alternative class options or prompt them to adjust their schedule. 3. Maximum Capacity Reached: The system should display a notification to the trainee indicating that the class is full and suggest alternative class options or allow the trainee to join a waitlist if available. 4. Enrollment Restrictions: Certain classes may have specific enrollment restrictions, such as requiring prerequisites, a minimum age requirement, or specific qualifications. If the trainee does not meet these requirements, the system should display an error message and inform the trainee about the restriction. 5. Payment Issues: The system should handle these exceptions by displaying appropriate error messages and providing alternative payment methods or troubleshooting steps. 6. System Errors: The system should have proper error handling mechanisms in place to log the error, display an error message to the trainee, and provide instructions for resolving the issue or contacting support. | | |
| Priority: | High | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 7AM to 5PM. | | |
| Business Rules: | **BR-2,BR-26** | | |
| Other Information: | 1. Attendees are able to cancel their subscription with refunds depending on their attendance to the subscribed class. 2. Trainees are able to view their current subscribed classes as well as the ability to view past transactions | | |
| Assumptions: | 1. The trainee has access to the class registering system. 2. The trainee has the necessary information required for class registration. 3. The class availability and schedule information is accurate and up-to-date in the system. 4. The trainee meets any specific requirements or prerequisites for the class. 5. The payment process is secure and reliable. | | |

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| ID and Name: | **UC2- Request changes to a class assignment** | | |
| Created By: | Thanh | Date Created: |  |
| Primary Actor: | Trainer | Secondary Actors: | Yoga Center Classes System |
| Description: | A trainer needs to change to assignment. | | |
| Trigger: | A trainer needs to make change or an update to the current class | | |
| Preconditions: | * User have logged in as trainer. * Trainers select view a specific class and change assignment. | | |
| Postconditions: | * The administrator will receive detail about the changed assignment | | |
| Normal Flow: | **Trainer requests changes to a class assignment.**   1. Trainer navigates to the “Class” section in the application. 2. Trainer chooses a specific class and click “View Class”. 3. Trainer can view additional detail of each class. 4. Trainer chooses to make changes to the class assignments. 5. The administrator will receive requests about the assignments. 6. The administrator approves the trainer’s request. 7. The assignment displayed will also be changed for the trainer and all the trainees. | | |
| Alternative Flows: |  | | |
| Exceptions: | If the day of the deadline is too close, the assignment will not be changed and a message will be displayed for the trainer requesting to reset the deadline timer. | | |
| Priority: | Medium | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 3PM to 8PM. | | |
| Business Rules: | **BR-77** | | |
| Other Information: | * The requests will be displayed in order of their deadline timer. If the deadline is near and the admin still not approve, the request will be unavailable to approved. | | |

### Trainer’s usercases

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| ID and Name: | **UC1- View class list and class detail** | | |
| Created By: | Thanh | Date Created: |  |
| Primary Actor: | Trainer | Secondary Actors: | Yoga Center Classes System |
| Description: | The class list and class detail can be viewed by trainer. | | |
| Trigger: | A trainer wants to view their class or view a specific class information. | | |
| Preconditions: | * User has logged in as trainer. * Trainer goes into the classes section * Trainer chooses to view a specific class | | |
| Postconditions: | * The trainer has the class information | | |
| Normal Flow: | **Trainer views a class list and class detail.**   1. Trainer navigates to the “Class” section in the application. 2. Trainer chooses a specific class and click “View Class”. | | |
| Alternative Flows: |  | | |
| Exceptions: |  | | |
| Priority: | High | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 3PM to 8PM. | | |
| Business Rules: | **BR-4** | | |
| Other Information: |  | | |
| Assumptions: | * The Yoga Center Classes System is functioning properly and accessible to the trainer. * The trainee has accurate information about the available classes and their own schedule. | | |

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| ID and Name: | **UC1- Take attendance** | | |
| Created By: | Long | Date Created: |  |
| Primary Actor: | Trainer | Secondary Actors: | Yoga Center Classes System |
| Description: | Trainer take attendance | | |
| Trigger: | A trainer wants to take attendance of their class. | | |
| Preconditions: | * User has logged in as trainer. * Trainer goes into the schedule section * Trainer chooses a specific class * The class trainer chose has to active on date. | | |
| Postconditions: |  | | |
| Normal Flow: | 1. Trainer navigates to the “My schedule” section in the application. 2. Trainer chooses a specific class and click. 3. Trainer take attendance. 4. Trainer choose “absent” or “attended” for each trainee 5. Trainer click submit and the record is taken. | | |
| Alternative Flows: | 1. Trainer did not take attendance or all trainee’s attendance was not taken:  * Attendance’s status of trainee will be “ Unmarked attendance” * The system will assume that the trainer is absent on that slot and automatically increase the number of day-offs accordingly. | | |
| Exceptions: | 1. Trainer tries to take attendance either before or after the designated time of the day. | | |
| Priority: | High | | |
| Frequency of Use: | Frequency can range from daily to weekly depending on scheduling, instructor availability. Peak usage ranging from 3PM to 8PM. | | |
| Business Rules: |  | | |
| Other Information: |  | | |
| Assumptions: | * The Yoga Center Classes System is functioning properly and accessible to the trainer. * The trainee has accurate information about the available classes and their own schedule. | | |

# External Interface Requirements

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## User Interfaces

UI-1: The Yoga Center Systems screen displays shall conform to the *Process Impact Internet Application User Interface Standard, Version 2.0* [3].

UI-2: The system shall provide a help link from each displayed webpage to explain how to use that page.

UI-3: The webpages shall permit complete navigation and classes/trainer selection by using mouse and keyboard combinations.

## Software Interfaces

SI-1: Class Overview Interface

SI-1.1: Shows an overview of available classes

SI-1.2: Allows the user to choose specific class

SI-1.3: Allows the user to reserve the specifically chosen class

SI-2: Payment System

SI-2.1: Shows an interface for payments to a class

SI-2.2: Allows the user to be redirected to a payment page for that payment

SI-2.3: Allows the user to be able to view the history of his/her payments

## Hardware Interfaces

No hardware interfaces have been identified.

## Communications Interfaces

CI-1: The system shall send an email or text message (based on user account settings) to the Patron to confirm acceptance of a reservation, price, and scheduled timetable (if applicable).

CI-2: The System shall send an email or text message (based on user account settings) to the Patron to report any problems with the class reservation.

## Data Integrity, Retention, and Disposal

DI-1: Validation: Ensure that all data entered into the system is accurate, complete, and follows defined data validation rules.

DI-2: Access Control: Implement access controls to ensure that only authorized individuals can modify or update data.

DI-3: Error Handling: Implement appropriate error handling mechanisms to detect and address data inconsistencies or discrepancies. External Interface Requirements

# Quality Attributes

## Usability Requirements

USE-1: The system to allow the user to be able to attend to a registered class without failure

USE-2: 99% of new users shall be able to successfully reserve a class without errors on their first try.

## Performance Requirements

PER-1: The system shall accommodate a total of 400 users whilst expecting an expansion within the next release and a maximum of 100 concurrent users during the peak usage time window of 9:00 A.M. to 10:00 A.M. local time, with an estimated average session duration of 8 minutes.

PER-2: 90% of webpages generated by the system shall download completely within 4 seconds from the time the user requests the page over a 20Mbps or faster Internet connection.

PER-3: The system shall display confirmation messages to users within an average of 3 seconds and a maximum of 6 seconds after the user submits information to the system.

## Security Requirements

SEC-1: All network transactions that involve financial information or personally identifiable information shall be encrypted per BR-33.

SEC-2: Users shall be required to log on to the System for all operations except viewing a menu.

SEC-3: Only authorized individuals shall be permitted to work with schedules.

SEC-4: The system shall permit Patrons to view only reservations that they placed.

## Safety Requirements

SAF-1: The user is guaranteed

## Availability Requirements

AVL-1: The system shall be available at least 98% of the time between 6:00 A.M. and midnight local time and at least 90% of the time between midnight and 6:00 A.M. local time, excluding scheduled maintenance windows.

## Robustness Requirements

ROB-1: If the connection between the user and the system is broken prior to a new reservation being either confirmed or terminated, the system shall enable the user to recover an incomplete request and continue working on it.

# II. Code Designs

## 1. Create Class

### a. Class Diagram

A diagram of a computer program

Description automatically generated

### b. Sequence Diagram

A diagram of a project

Description automatically generated

## 2. View and change profile

### a. Class Diagram

A screenshot of a computer

Description automatically generated

### b. Sequence Diagram

A diagram of a diagram

Description automatically generated

## 3. View/Create Blogs for trainee/trainers

### a. Class DiagramA screenshot of a computer Description automatically generated

### b. Sequence Diagram

## A diagram of a diagram Description automatically generated4. Admin’s blog management

### a. Class Diagram

### b. Sequence DiagramA screenshot of a computer Description automatically generated

## 5. Payment Services

### a. Class Diagram A diagram of a diagram Description automatically generatedA diagram of a software company Description automatically generated

### b. Sequence Diagram A diagram of a company Description automatically generated