

SPORT CENTER EXECUTIVE SYSTEM

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SPORT CENTER EXECUTIVE SYSTEM

REQUIREMENTS WORKFLOW

APPLICATION DOMAIN

An application will be developed that can be used in gyms and will enable all kinds of operations in the sport center. The features to be included in the application to be developed have been decided and these functions have been determined appropriately.

The gym should have the following areas:

- Sport Center name
- Sport Center identification number
- Sport Center type
- Sport Center description
- Sport Center address

People inside the gym should have the following areas:

- Person's name and surname
- Person's phone number
- Person's email
- Person's address
- Person's username
- Person's membership password

We have sport center system and 4 main characters in the application. These characters; is a gym manager, gym member, trainer and dietitian. These characters have personality traits.

Sport Center System:

1. The system sends automatic SMS to members 1 week before their membership expires.
2. Packages managements
3. Payment managements
4. Membership management

Managers:

1. Membership Packages can be defined.
2. Can define halls and sessions.

3. Vitamin Bar products can be entered into the system.
4. Communication with members will be provided via SMS via phone numbers registered in the system.

Members:

- Members must have the following fields:
- Body muscle ratio information
- Body water ratio information
- Body fat percentage information
- Member information is kept on the wristbands belonging to the members.

The operations of members:

1. Membership registration procedures
2. Purchasing packages
3. Members update their system usage status and determine package occupancy when using the card integrated into the wristband.
4. Only the halls related to the package are allowed to be used with the card pass integrated into the wristband.
5. At the end of the session, a vibration will be sent to the members' wristbands.
6. Safety locker usage will also be provided by scanning the card on the wristband.
7. You can purchase food supplements, supplements, drinks, etc. from the vitamin bar in the hall with the money that can be loaded onto the wristband. Purchase is also possible.
8. Can view the nutrition program.
9. Can view the training program.

Trainers:

1. A training program can be defined specifically for the member, and the member can view the program.
2. Both the member and the trainer can follow up the health and sports information of the members through the system.

Dieticians:

- A special diet program can be prepared for members, and the member can also view it.
- Members can see their health and sports information.
- During certain periods, the body of the members loses muscle, fat, water, etc. can transfer information to the system.
- You can get a report of these values through the system. Members can also access this report.

All people gathered under the main characters above will be able to perform each of these transactions through the application.

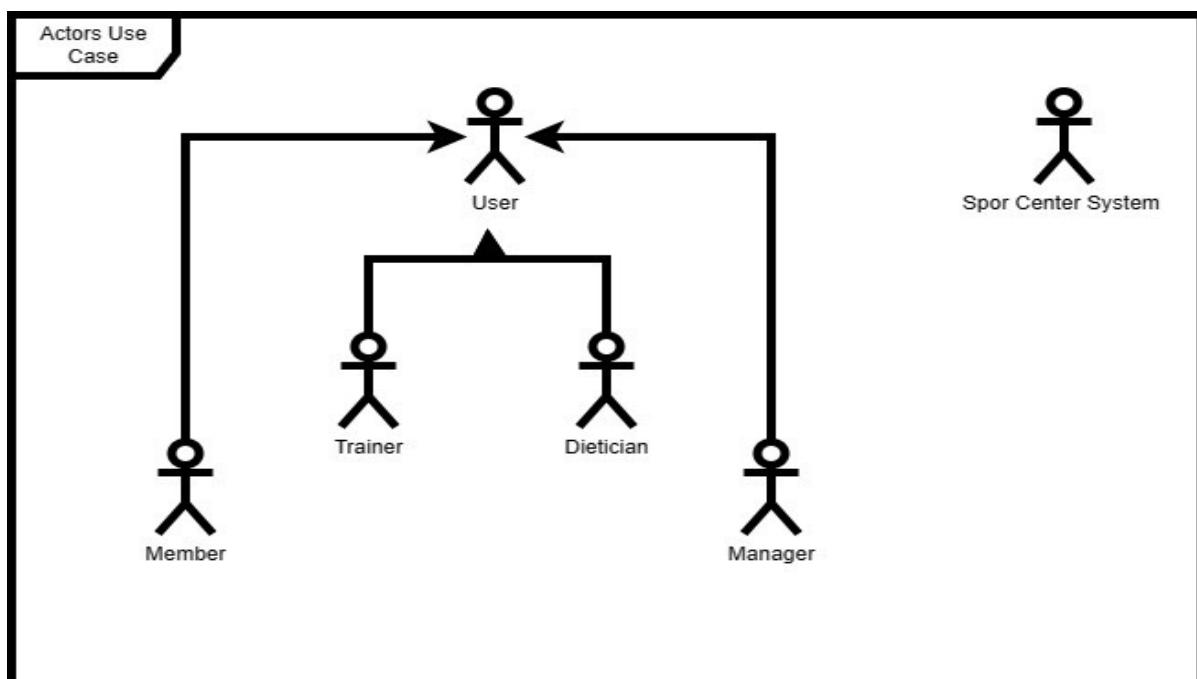
SPORTS CENTER SYSTEM DICTIONARY OF TERMS

- **Amino Acid:** An amino acid is a molecule that, when combined, forms protein.
- **ATG:** ATG is an acronym that stands for “ass to grass” and refers to squatting as low as possible, with your thighs below parallel.
- **Biceps:** The biceps brachii (BB), commonly known as the biceps, is a large, thick muscle on the ventral portion of the upper arm.
- **Blood Sugar:** Blood glucose, or blood sugar, is the main sugar found in your blood. It is your body's primary source of energy.
- **Body Muscle Ratio:** It is the ratio of muscle in the body to fat in the body.
- **Body Water Percentage:** The average percentage of body weight made up of water.
- **Calorie:** Calories are the amount of energy released when your body breaks down (digests and absorbs) food.
- **Carbohydrate:** Carbohydrates (fiber, starches and sugars) are essential food nutrients that your body turns into glucose to give you the energy to function.
- **Cycle:** A cycle refers to a period in your training plan geared towards a given goal.
- **Dietician:** A person who deals with nutrition and health issues of members in the gym.
- **Deloading:** Deloading refers to a period in the training plan where you decrease the intensity or volume of training to help recover from peak periods of hard training.
- **Drop Set:** A drop set is an advanced strength training technique designed to maximize potential hypertrophy or muscle growth.
- **Free weights:** Dumbbells or other equipment used freely or without the guidance of a machine or cable.
- **Gym Rat:** A gym rat is someone who spends a lot of time, energy, and focus on their workouts and often talks extensively about their fitness plan.
- **Heart Report:** An echocardiogram (or echo) is an ultrasound of the heart.
- **Isometric:** An isometric exercise is a static hold.
- **Load:** The load is the amount of weight that you lift for an exercise.
- **Manager:** The person who carries out all management tasks of the gym.
- **Member:** A person who receives service from the gym in return for a certain amount.
- **Muscle Mass:** Muscle mass includes the weight of the muscles in your body in kilograms or pounds.
- **Muscle Memory:** It refers to how your muscles respond to resistance exercises after a break from training.
- **One Repetition Maximum:** Usually abbreviated to 1RM, your one-repetition maximum is the most amount of weight you can lift for a given exercise.
- **Package:** These are groups that include services provided by the gym to its members, such as training programs, dietitian control, and trainer control.
- **Protein Powders:** Protein powders are powdered forms of protein that come from plants (soybeans, peas, rice, potatoes, or hemp), eggs, or milk (casein or whey protein).
- **Pump:** Muscle pump is a gym word used to describe the gain in size your muscles get when you flex, and they fill with blood, which inflates the tissue.
- **Saloon:** These are the areas within the gym where sports are done.

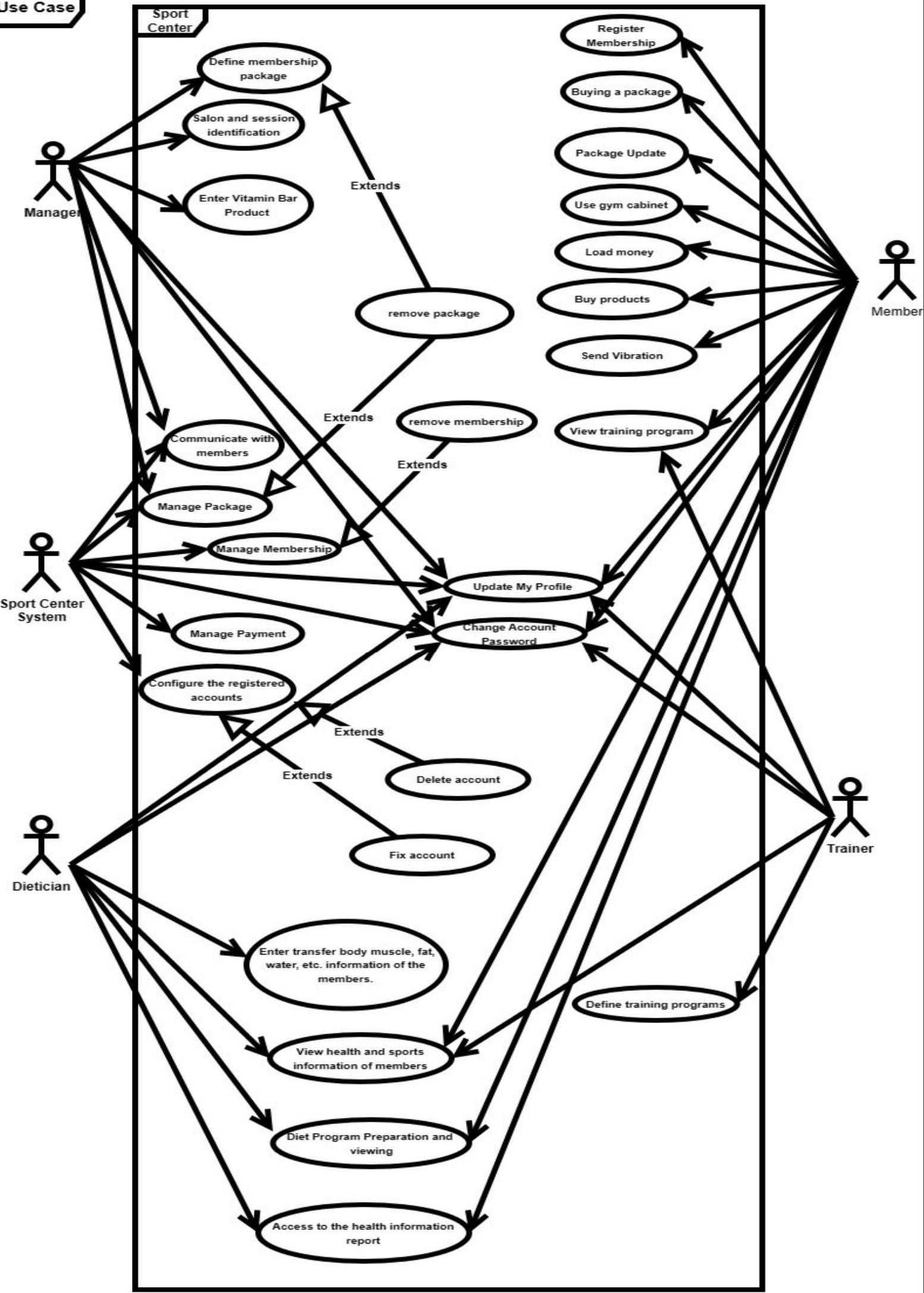
- **Semispinalis:** The Semispinalis muscles belong to the intrinsic/ deep muscles of the back.
- **Set:** His refers to a group of repetitions of a single exercise performed together.
- **Session:** These are the periods of time with start and end times given to members to do sports.
- **Superset:** A superset is an effective strength training technique that involves performing two different exercises immediately after one another without taking a rest in between.
- **Supplement:** It is a range of bodybuilding supplement products used to enhance pre-workout performance.
- **Trainer:** A person at the gym who trains members about sports.
- **Triceps:** The triceps brachii is a large, thick muscle on the dorsal part of the upper arm.
- **Vitamin Bar:** The vitamin bars are light meals or chunky snacks that provide you with every nutrient you need.
- **Volume:** Volume is an important workout term that refers to the total amount of workload you do in the gym.

USE CASE MODELS OF THE PROJECT:

A use case diagram is a way to summarize details of a system and the users within that system. It is generally shown as a graphic depiction of interactions among different elements in a system. Use case diagrams will specify the events in a system and how those events flow, however, use case diagram does not describe how those events are implemented.



Use Case



DESCRIPTION OF USE-CASE MEMBERS

Define Membership Package Use-Case <p>With the "define membership package" use case, managers can define memberships for members.</p> <p>1. for every person who wants to become a member 1.1 the appropriate package is selected. 1.2 the appropriate membership package is defined for the person who wants to become a member. 1.3 membership package can be removed by the administrator.</p>	Comunicate with Members Use-Case <p>In the use case of sports center system and managers, managers and sports center system communicate with members.</p> <p>1 for each member to be contacted 1.1 access phone numbers via the application 1.2 send an SMS to the number you reached.</p>
Saloon and Session Identification Use-Case <p>With the "Saloon and Session Identification" use case, managers identify sessions and halls suitable for the packages chosen by the members.</p> <p>1. for each member to be assigned a hall and session 1.1 managers review the member's package. 1.2 managers find the hall and session at times suitable for the member's package. 1.3 determines the appropriate session and hall for the member.</p>	Update My Profile Use-Case <p>With the "Update My Profile" use case, users can see their information registered in the system and update this information whenever they want.</p> <p>1. for each user who will update their information in the system 1.1 users update the information about their profiles in the system. 1.2 users open the interface containing their profile information in the system. 1.3 they update their information in this interface as they wish. 1.4 users save up-to-date information.</p>
Enter Vitamin Bar Product Use-Case <p>With the "Enter Vitamin Bar" use case, managers enter the information of Vitamin Bar Products into the gym system.</p> <p>1. for each vitamin bar product entered into the system 1.1 the administrator enters vitamin bar product information into the system. 1.2 enter the vitamin bar product number. 1.3 enter the price of the vitamin bar product. 1.4 enters the informational text of the vitamin bar product. 1.5 manager updates vitamin bar products.</p>	Change Account Password Use-Case <p>With the "Change Account Password" use case, users can change the passwords they use to log in to the system.</p> <p>1. for each user who will change their password 1.1 users enter their own account settings 1.2 open the change password tab in settings 1.3 click on change passwords. 1.4 enter old passwords 1.5 enter new password 1.6 click Save</p>

<p>Manage Payment Use-Case</p> <p>With the "Manage Payment" use case, sport center system manage members' payments.</p> <ol style="list-style-type: none"> 1. for each payment <ol style="list-style-type: none"> 1.1 log in to the payment tracking page. 1.2 make the payment 	<p>Manage Membership Use-Case</p> <p>Sports center system use case manages memberships.</p> <ol style="list-style-type: none"> 1. for each member of the system <ol style="list-style-type: none"> 1.1 send an SMS 10 days before the membership expires. 1.2 system removes membership
<p>Configure the Registered Accounts Use-Case</p> <p>With the "Configure the Registered Account" use case, the sports center system has authority over the accounts and retains management.</p> <ol style="list-style-type: none"> 1 for each account to be configured <ol style="list-style-type: none"> 1.1 enter Configure sports center system accounts. 1.2 exercise authority over accounts 2. If the account is to be deleted Delete account 3. If there is a problem with the account, fix it. 	<p>Manage Package Use-Case</p> <p>The sports center system and managers manages use case, packages and package contents.</p> <ol style="list-style-type: none"> 1. for each package <ol style="list-style-type: none"> 1.1 manage package 1.2 remove package
<p>Send SMS to Member Use-Case</p> <p>The system sends an SMS to each member who has 10 days left until their package ends.</p> <ol style="list-style-type: none"> 1. for each member who has 10 days left until the end of the membership package. <ol style="list-style-type: none"> 1.1 the system sends SMS to members. 	<p>Enter Transfer Body Muscle, Fat, Water etc. Information of the Members Use-Case</p> <p>Enter Transfer Body Muscle, Fat, Water etc. In the Information of the Members Use-Case, dietitians enter reports containing all this information into the system.</p> <ol style="list-style-type: none"> 1. for each member whose body information will be entered <ol style="list-style-type: none"> 1.1 enter health information page in the system 1.2 selects the relevant member from the member name or id in the entered field. 1.3 enters the information.
<p>View Health and Sports Information of Members Use-Case</p> <p>In View Health and Sport Information of Members Use-Case, dietitians view reports and information containing all this information.</p> <ol style="list-style-type: none"> 1. for each member whose health or sports information will be displayed <ol style="list-style-type: none"> 1.1 enter health information page in the system 1.2 selects the relevant member from the member name or id in the entered field. 1.3 displays information. 	<p>Access to the Helath Information Report Use Case</p> <p>With Access to the Health Infirmation Report Use-Case, dietitians can access members' health reports at any time.</p> <ol style="list-style-type: none"> 1. for each member whose health information will be accessed <ol style="list-style-type: none"> 1.1 enter the names or identities of members registered in the system. 1.2 provides access to the relevant member's report.

<p>Diet Program Preparation and Viewing Use-Case</p> <p>In the Diet Program Preparation and Viewing Use-Case, dieticians prepare special diet programs for members and view these programs whenever they want.</p> <ol style="list-style-type: none"> 1. for each prepared diet program <ol style="list-style-type: none"> 1.1 select the relevant member from the member name or ID in the entered field. 1.2 prepare a special diet program for the member and uploads it to the system. 1.2 display the member's diet program from the system 	<p>Define Training Programs Use Case</p> <p>In Define Training Programs Use-Case, trainers can define special programs for members.</p> <ol style="list-style-type: none"> 1. for each member whose training program will be defined <ol style="list-style-type: none"> 1.1 enter the names or IDs of members registered in the system. 1.2 describe the training program of the relevant member.
<p>Buying a Package Use Case</p> <p>With "Buying a package Use Case", members can purchase the package they want.</p> <ol style="list-style-type: none"> 1. for each member to purchase a package. <ol style="list-style-type: none"> 1.1 enter the packages section in the system. 1.2 purchase the package they want from the packages section. 	<p>Register Membership Use Case</p> <p>The "Register Membership Use Case" feature allows members to register for membership.</p> <ol style="list-style-type: none"> 1. for each person who wants to become a member of the system <ol style="list-style-type: none"> 1.1 initiate membership activations with the ID defined for them in the system.
<p>Package Update Use Case</p> <p>With the "Package Update Use Case", members can change their package to another package at any time.</p> <ol style="list-style-type: none"> 1. for each package to be updated <ol style="list-style-type: none"> 1.1 select the package they want to update from the system. 1.2 select and updates the package to be modified. 	<p>Buy Products Use Case</p> <p>With the "Buy Products Use Case", members can purchase in-gym products with the money they add to their wristbands.</p> <ol style="list-style-type: none"> 1. for each item purchased from the gym. <ol style="list-style-type: none"> 1.1 buy gym products with the money in their wristbands.
<p>Use Gym Cabinet Use Case</p> <p>With "Use Gym Cabinet Use Case", members can use gym cabinets thanks to the program installed on their wristbands.</p> <ol style="list-style-type: none"> 1. for each gym cabinet to be used <ol style="list-style-type: none"> 1.1 arrive at their gym locker. 1.2 use their wristbands to open and use gym lockers. 	<p>Send Vibration Use Case</p> <p>With the "Send Vibration Use Case", at the end of each session, the member's wristband vibrates.</p> <ol style="list-style-type: none"> 1. for the end of each session <ol style="list-style-type: none"> 1.1 vibration goes to members' wristbands.
<p>Load Money Use Case</p> <p>With the "Load Money Use Case", members can load money into their wristbands.</p> <ol style="list-style-type: none"> 1. for money to be loaded onto the card <ol style="list-style-type: none"> 1.1 load money into their wristbands. 1.2 use the money for purchases at the gym. 	<p>View Training Program Use Case</p> <p>In the "View Training Program Use Case", members see the program defined for them.</p> <ol style="list-style-type: none"> 1. for each member who will view the training program <ol style="list-style-type: none"> 1.1 They log in to the application 1.2 Views the training program via the application

ANALYSIS WORKFLOW

INFORMATION OF CLASSES AND UML CLASS DIAGRAM OF THE PROJECT

CLASSES and THEIR ATTRIBUTES of SPORT CENTER SYSTEM:

Sport Center System Attributes: sport_center_system_id, sport_center_system_name, sport_center_system_type, sport_center_system_mobile, is_true, sport_center_system_description, sport_center_system_address

System Controller Attributes: is_accomplished

User Attributes: user_id, user_password, is_true, member, manager, dietician, trainer

Product Attributes: product_id, product_name, product_type, product_price, product_description

Saloon Attributes: saloon_id, saloon_name, saloon_type, saloon_description

Session Attributes: session_id, session_name, session_type, session_description, session_start, session_end

Package Attributes: package_id, package_gym_id, saloon_id, session_id, package_name, package_amount, package_total, package_type, package_percentge, package_description

Person Attributes: person_id, person_name, person_mobile, person_email, person_username, person_password, person_address

Manager Attributes: Inherits from Person class

Manager Controller Attributes: is_accomplished

Trainer Attributes: Inherits from Person class

Trainer Controller Attributes: is_accomplished

Dietician Attributes: Inherits from Person class

Dietician Controller Attributes: is_accomplished

Member Attributes: (Inherits from Person class) and other attributes; package_id, package_percentage, health_information_list, spor_information_list, whistband_id, gym_cabinet_id

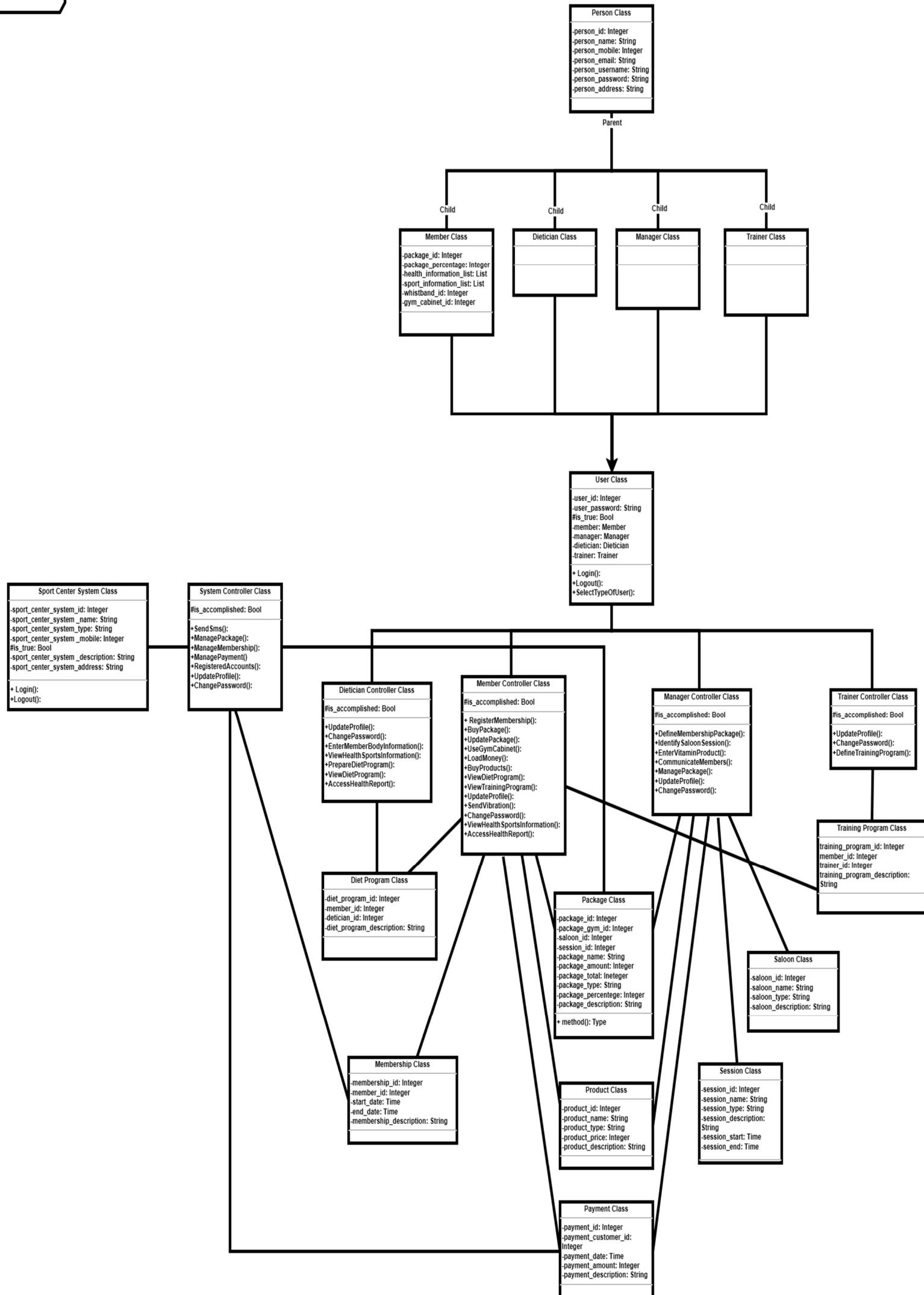
Member Controller Attributes: is_accomplished

Payment Attributes: payment_id, payment_customer_id, payment_date, payment_amount, payment_description

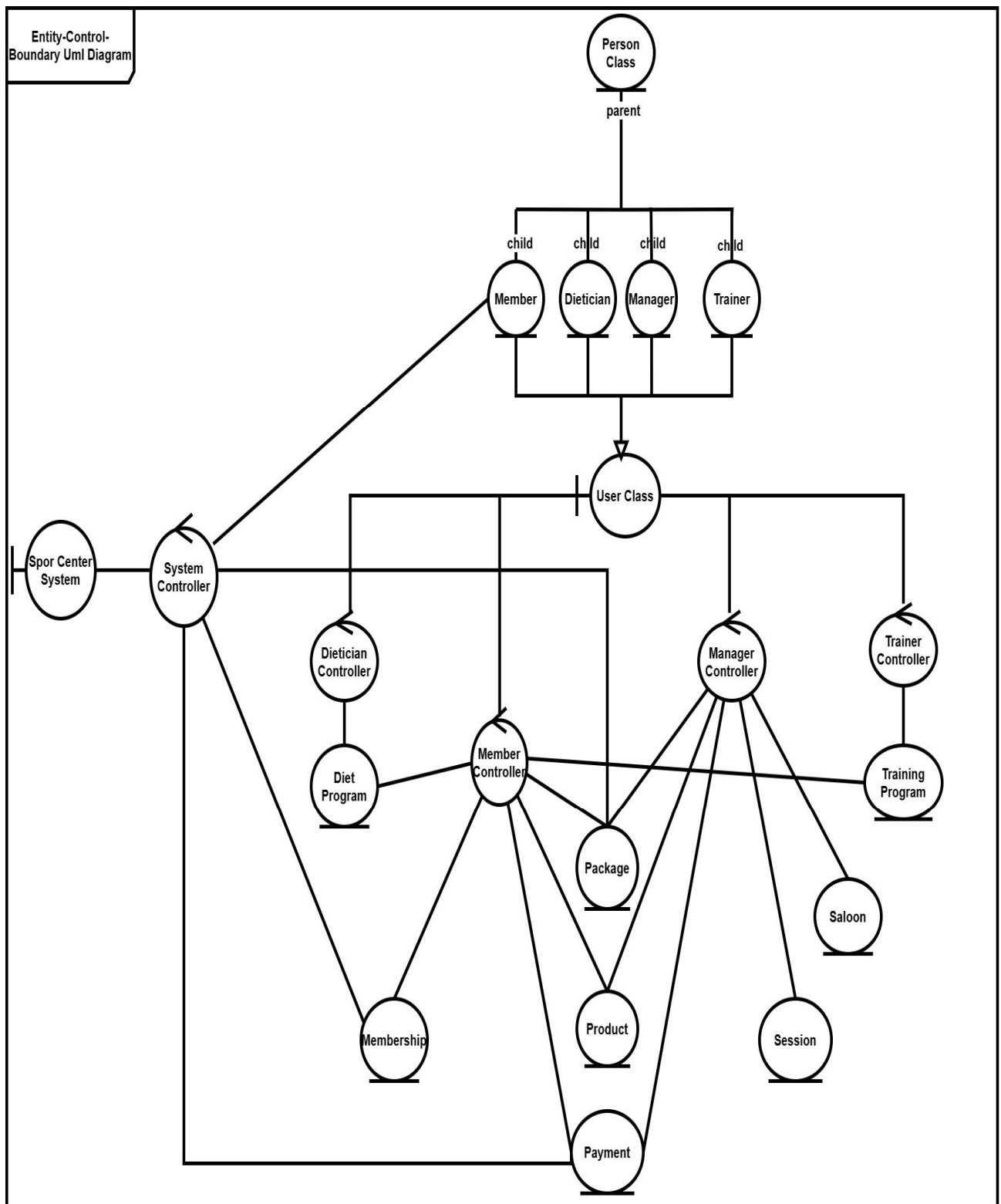
Membership Attributes: membership_id, member_id, start_date, end_date, membership_description

Training Program Attributes: training_program_id, member_id, trainer_id, training_program_description

Diet Program Attributes: diet_program_id, member_id, dietician_id, diet_program_description



DETERMINING ENTITY, BOUNDARY AND CONTROL CLASS WITH DIAGRAM



CRC (CLASS RESPONSIBILITY COLLABORATION) CARDS OF THE PROJECT

<p>CLASS: PERSON CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the person's information. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Manager Class(child) 2. Member Class(child) 3. Trainer Class(child) 4. Dietician Class(child) 	<p>CLASS: DIETICIAN CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the dietician's information. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Person Class(parent) 2. User Class(unidirectional)
<p>CLASS: MEMBER CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the member's information. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Person Class(parent) 2. User Class(unidirectional) 	<p>CLASS: TRAINER CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the trainer's information. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Person Class(parent) 2. User Class(unidirectional)
<p>CLASS: MANAGER CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the manager's information. 2. Have the user to log in the platform. 3. Have the user to log out the platform 4. Your username or password is incorrect send message. 5. Exit the platform. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Person Class(parent) 2. User Class(unidirectional) 	<p>CLASS: USER CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Have the user to log in the platform. 2. Have the user to log out the platform. 3. Have the user choose the user type. 4. Authenticate the user. 5. Your username or password is incorrect send message. 6. Exit the platform. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Manager Class(bidirectional) 2. Member Class(birectional) 3. Trainer Class(bidirectional) 4. Dietician Class(bidirectional) 5. Manager Controller(bidirectional) 6. Member Controller(bidirectional) 7. Trainer Controller(bidirectional) 8. Dietician Controller(bidirectional)
<p>CLASS: SPORT CENTER SYSTEM CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the information of sport center system. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. System Controller Class(bidirectional) 	

<p>CLASS: SYSTEM CONTROLLER CLASS</p> <p>RESPONSIBILITY;</p> <ol style="list-style-type: none"> 1. Send automatic SMS to members 10 days before the end of membership. 2. Manage all membership packages. 3. Manage all membership transactions 4. Manage all payment transactions. 5. Register accounts and perform transactions on registered accounts. 6. Update information of sport center system. 7. Change password of sport center system. <p>COLLABORATION;</p> <ol style="list-style-type: none"> 1. Sport Center System Class(bidirectional) 2. Package Class(bidirectional) 3. Membership Class(bidirectional) 4. Payment Class(bidirectional) 	<p>CLASS: DIETICIAN CONTROLLER CLASS</p> <p>RESPONSIBILITY;</p> <ol style="list-style-type: none"> 1. Enter members' body fat, water, muscle, etc. information. 2. View members' sports and health information 3. Prepare a special diet program for members. 4. View diet programs of members. 5. Access members' health reports 6. Update dietician's information. 7. Change dietician's password. <p>COLLABORATION;</p> <ol style="list-style-type: none"> 1. User Class(bidirectional) 2. Diet Program Class(bidirectional)
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<p>CLASS: MANAGER CONTROLLER CLASS</p> <p>RESPONSIBILITY;</p> <ol style="list-style-type: none"> 1. Define membership packages 2. Identify saloons and sessions suitable for members' packages. 3. Enter vitamin bar products and other sold products into the system 4. Communicate with members via SMS. 5. Manage all membership packages 6. Update dietician's information. 7. Change dietician's password. <p>COLLABORATION;</p> <ol style="list-style-type: none"> 1. User Class(bidirectional) 2. Package Class(bidirectional) 1. Product Class(bidirectional) 2. Payment Class(bidirectional) 1. Session Class(bidirectional) 2. Saloon Class(bidirectional) 	<p>CLASS: MEMBER CONTROLLER CLASS</p> <p>RESPONSIBILITY;</p> <ol style="list-style-type: none"> 1. Register for membership 2. Buy membership packages. 3. Update membership packages. 4. Use the gym cabinet with the wristband integrated into the card 5. Load money to member's card. 6. View members' diet program 7. View members' training program. 8. Update member's profile. 9. At the end of each session, members' wristbands will vibrate. 10. Change member's password. 11. View member's health and sports informations. 12. Buy products sold at the gym. 13. Access member's health reports. <p>COLLABORATION;</p> <ol style="list-style-type: none"> 1. User Class(bidirectional) 2. Diet Program Class(bidirectional) 3. Membership Class(bidirectional) 4. Payment Class(bidirectional) 5. Product Class(bidirectional) 6. Package Class(bidirectional) 7. Training Program Class(bidirectional)
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<p>CLASS: DIET PROGRAM CLASS</p> <p>RESPONSIBILITY;</p> <ol style="list-style-type: none"> 1. Keep the informations of diet program, member and dietician. <p>COLLABORATION;</p> <ol style="list-style-type: none"> 1. Dietician Controller Class(bidirectional) 2. Member Controller Class(bidirectional) 	<p>CLASS: TRAINER CONTROLLER CLASS</p> <p>RESPONSIBILITY;</p> <ol style="list-style-type: none"> 1. Define a special training program for members. 2. Update dietician's information. 3. Change dietician's password. <p>COLLABORATION;</p> <ol style="list-style-type: none"> 1. User Class(bidirectional) 2. Training Program Class(bidirectional)
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<p>CLASS: MEMBERSHIP CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the informations of membership and member <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. System Controller Class(bidirectional) 2. Member Controller Class(bidirectional) 	<p>CLASS: PAYMENT CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the payment informations. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Manager Controller Class(bidirectional) 2. Member Controller Class(bidirectional) 3. System Controller Class(bidirectional)
<p>CLASS: PRODUCT CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the product informations. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Manager Controller Class(bidirectional) 2. Member Controller Class(bidirectional) 	<p>CLASS: PACKAGE CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the informations of package, saloon and session. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Manager Controller Class(bidirectional) 2. Member Controller Class(bidirectional)
<p>CLASS: SALOON CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the saloon informations. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Manager Controller Class(bidirectional) 	<p>CLASS: SESSION CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the session informations. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Manager Controller Class(bidirectional)
	<p>CLASS: TRAINING PROGRAM CLASS</p> <p>RESPONSIBILITY:</p> <ol style="list-style-type: none"> 1. Keep the informations of training program, member and trainer. <p>COLLABORATION:</p> <ol style="list-style-type: none"> 1. Trainer Controller Class(bidirectional) 2. Member Controller Class(bidirectional)

STATECHART DRAWING OF EACH CLASS

Person Class: This class is an entity class, thus the class has no functionality.

Member Class: This class is an entity class, thus the class has no functionality.

Dietician Class: This class is an entity class, thus the class has no functionality.

Manager Class: This class is an entity class, thus the class has no functionality.

Trainer Class: This class is an entity class, thus the class has no functionality.

Diet Program Class: This class is an entity class, thus the class has no functionality.

Training Program Class: This class is an entity class, thus the class has no functionality.

Package Class: This class is an entity class, thus the class has no functionality.

Product Class: This class is an entity class, thus the class has no functionality.

Payment Class: This class is an entity class, thus the class has no functionality.

Saloon Class: This class is an entity class, thus the class has no functionality.

Session Class: This class is an entity class, thus the class has no functionality.

Membership Class: This class is an entity class, thus the class has no functionality.

Classes with State Charts:

Sport Center System Class

User Class

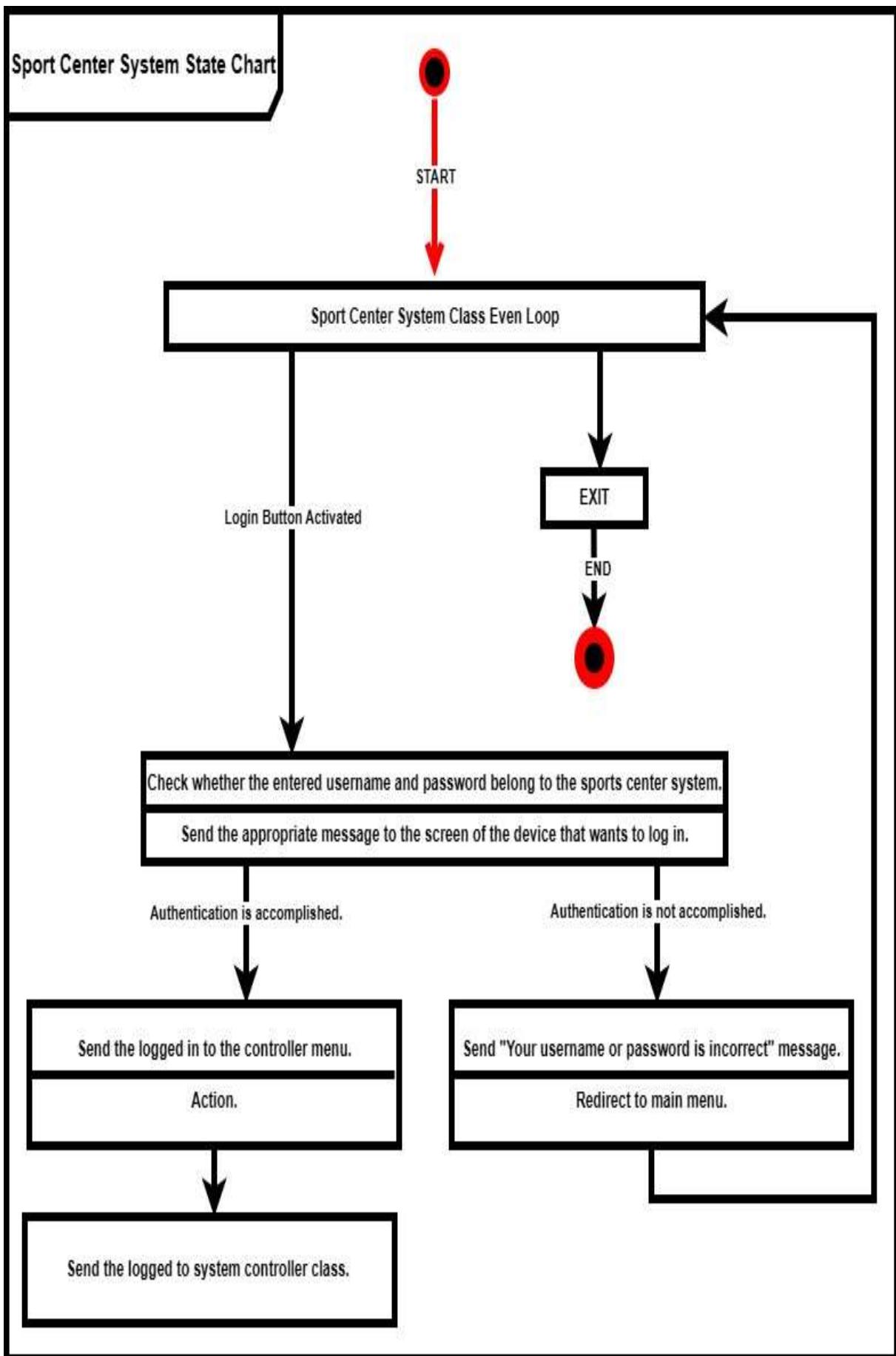
System Controller Class

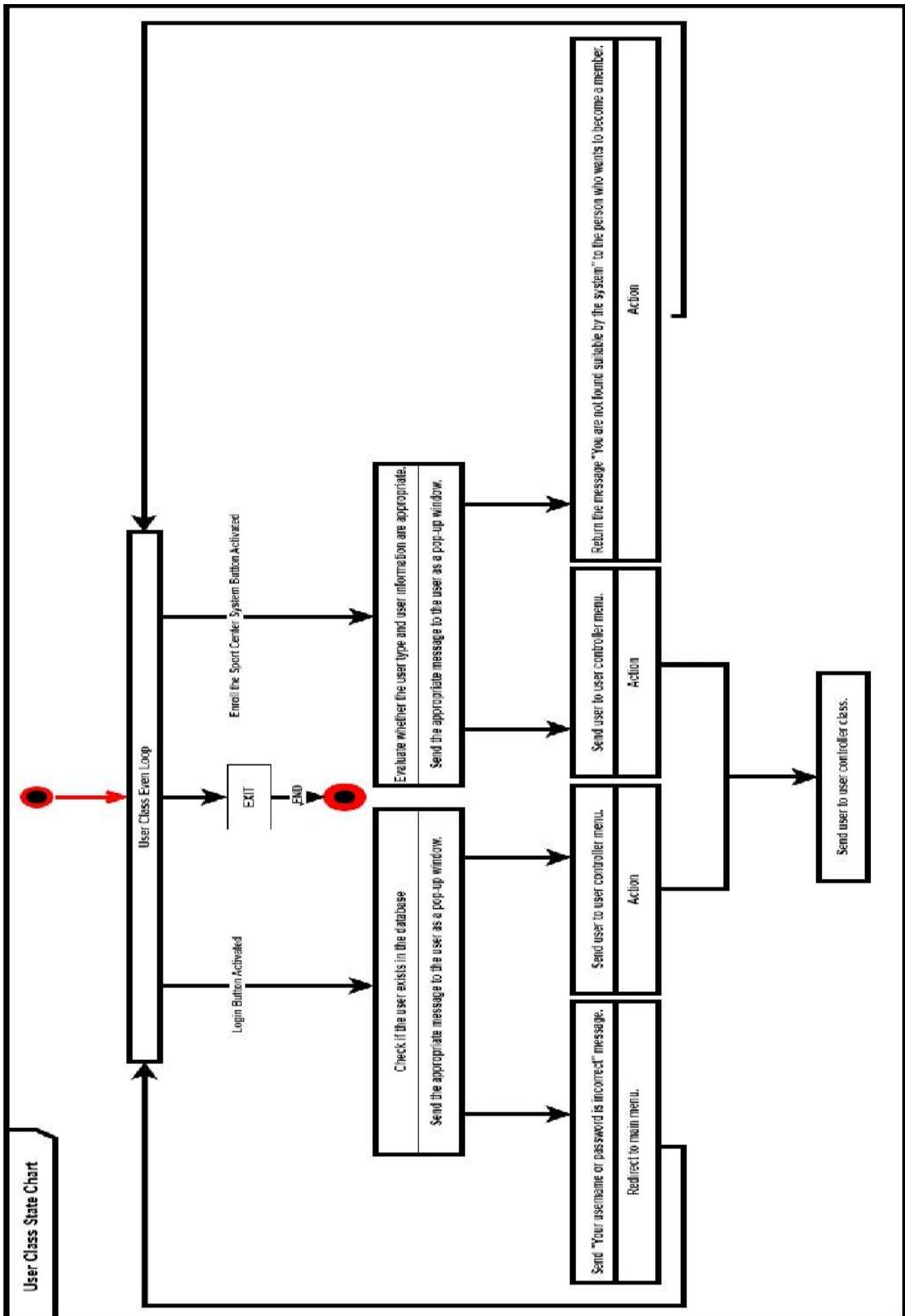
Manager Controller Class

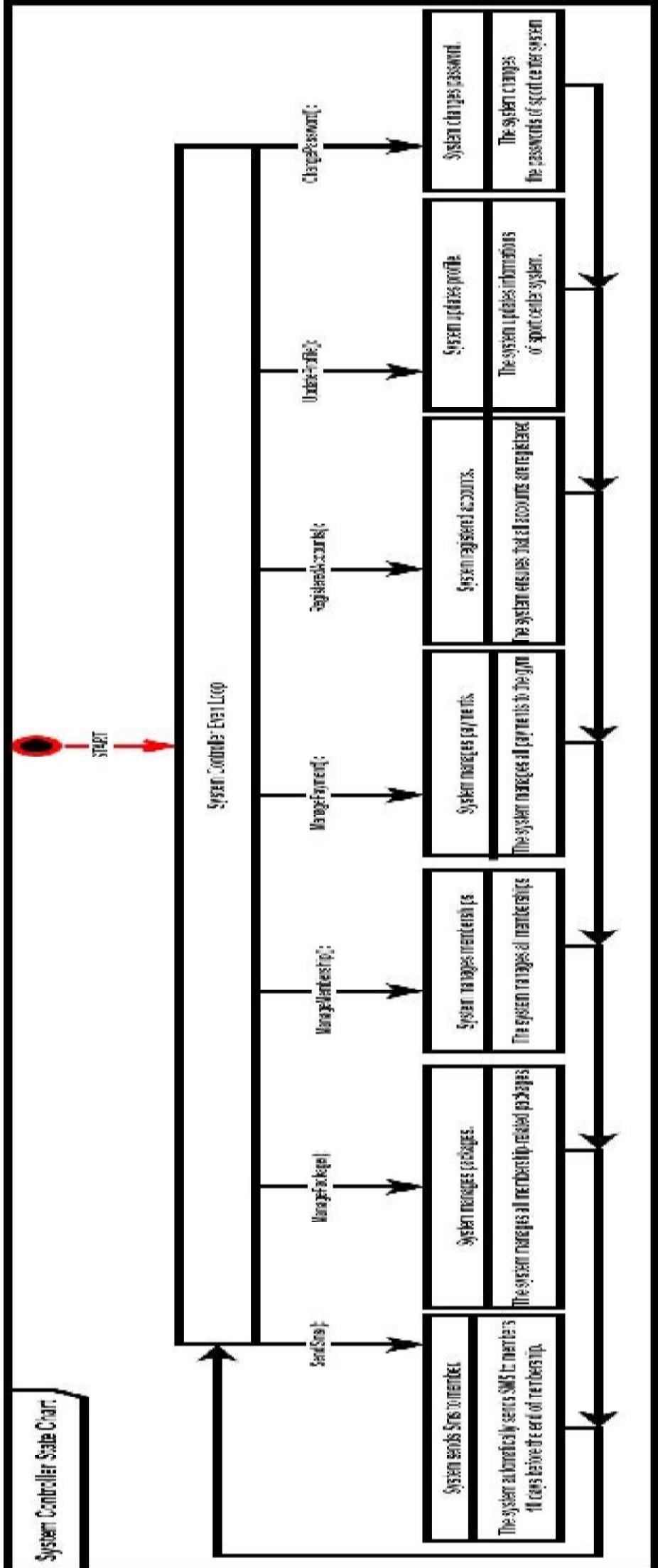
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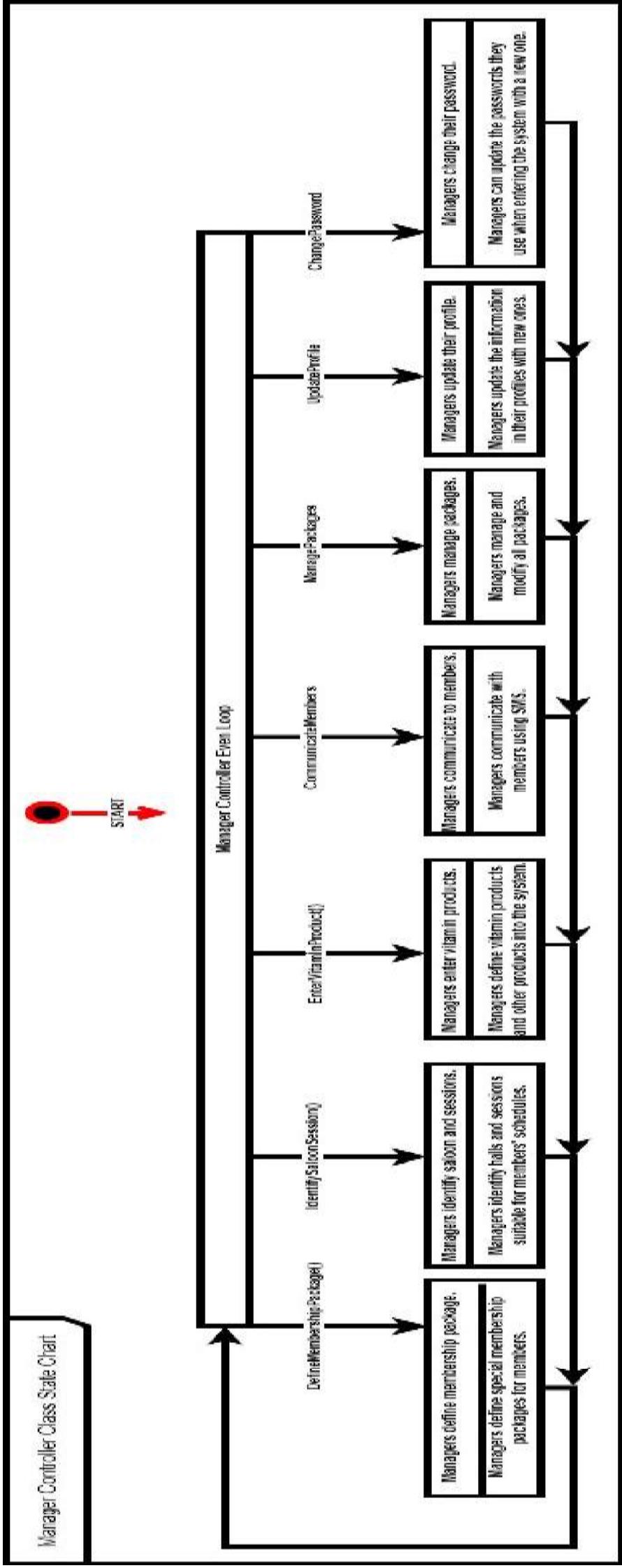
Trainer Controller Class

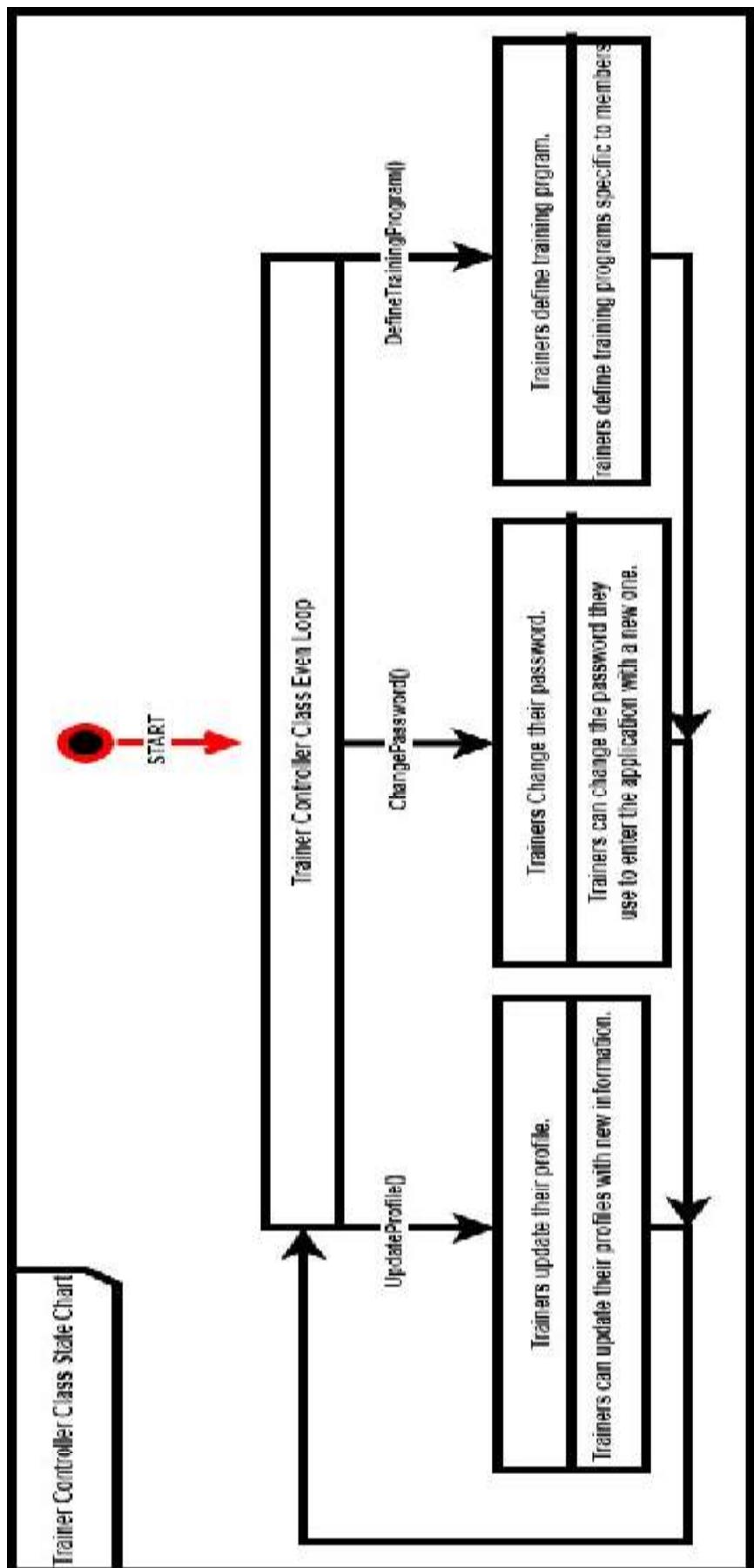
Dietician Controller Class

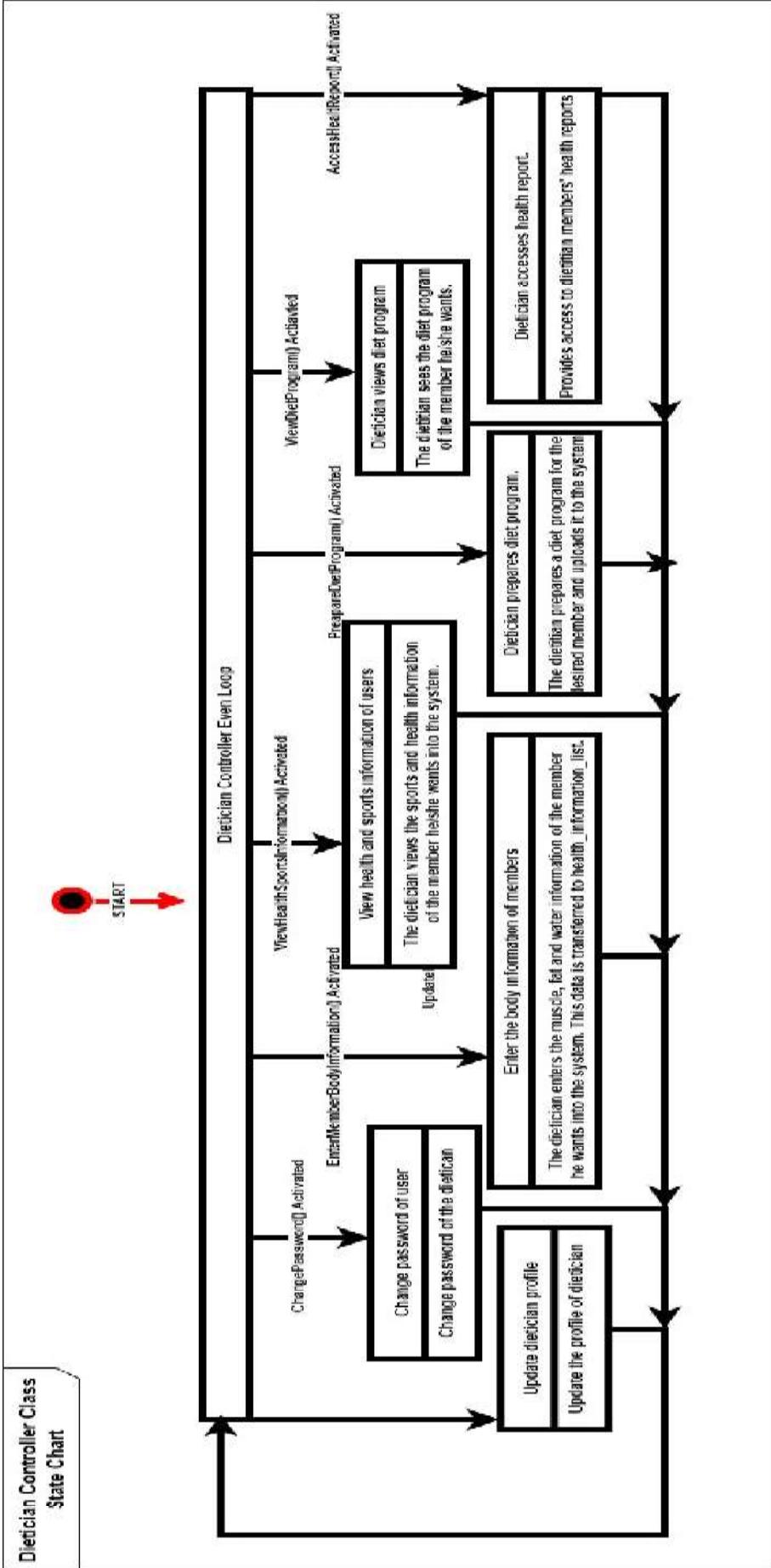


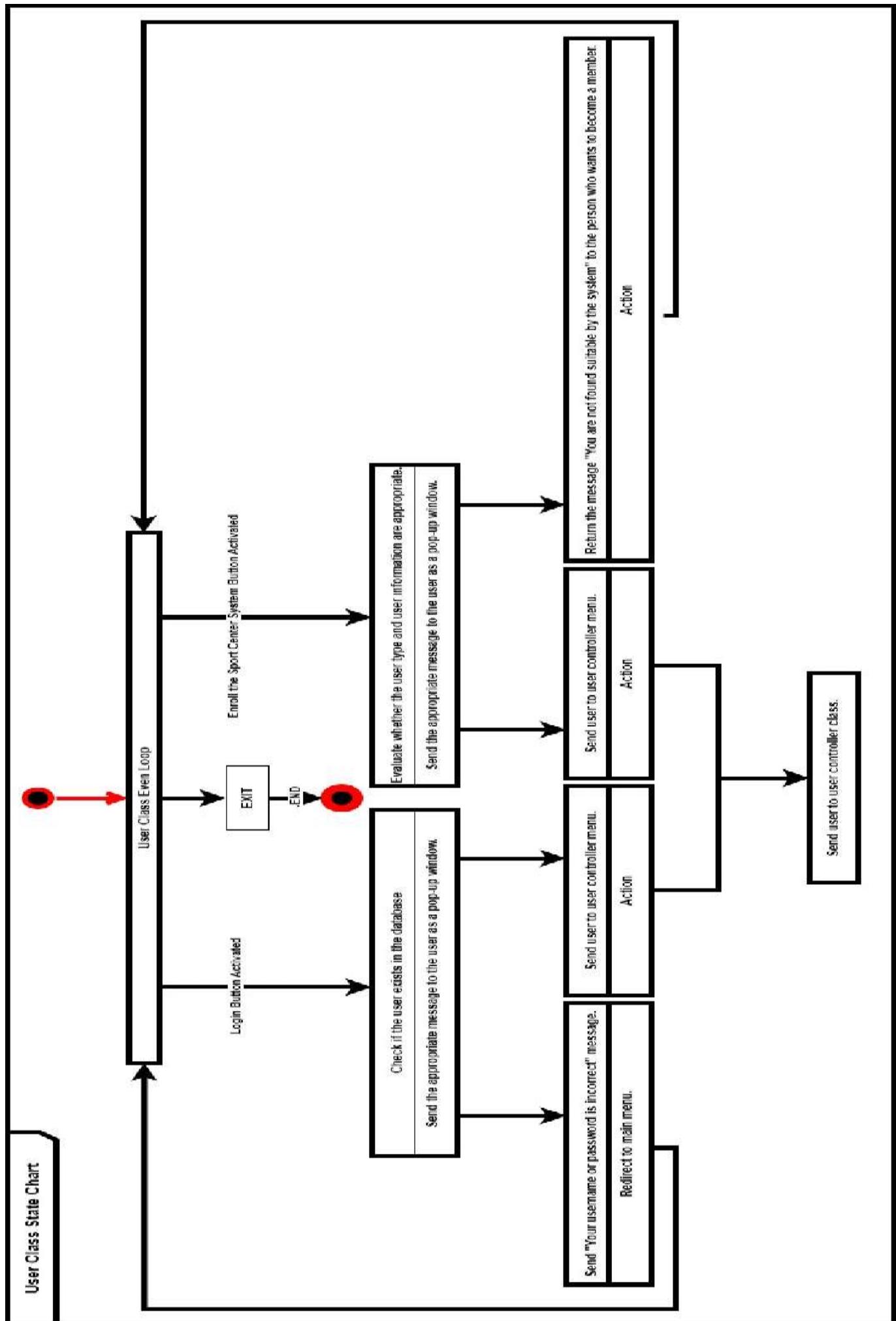


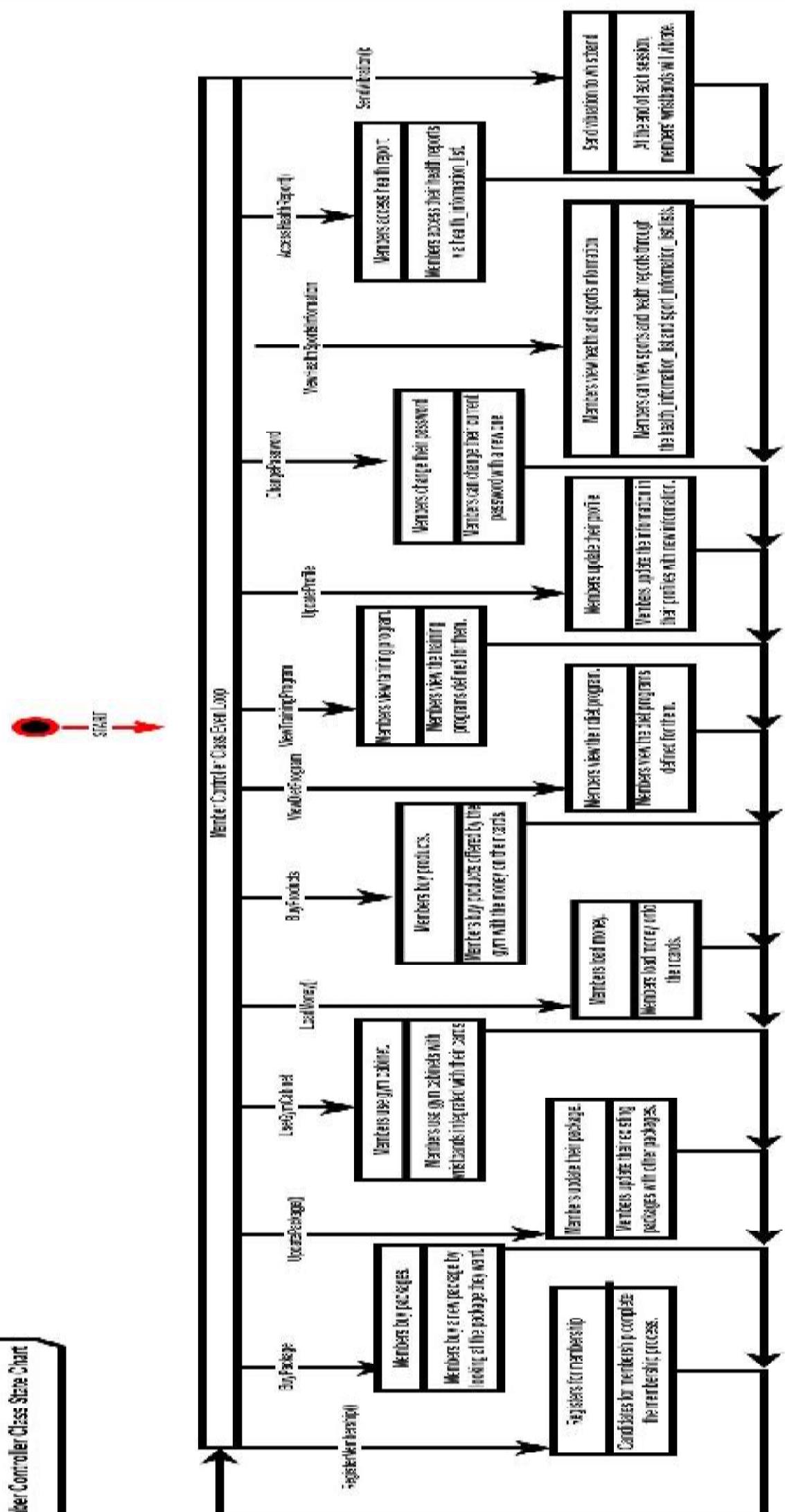




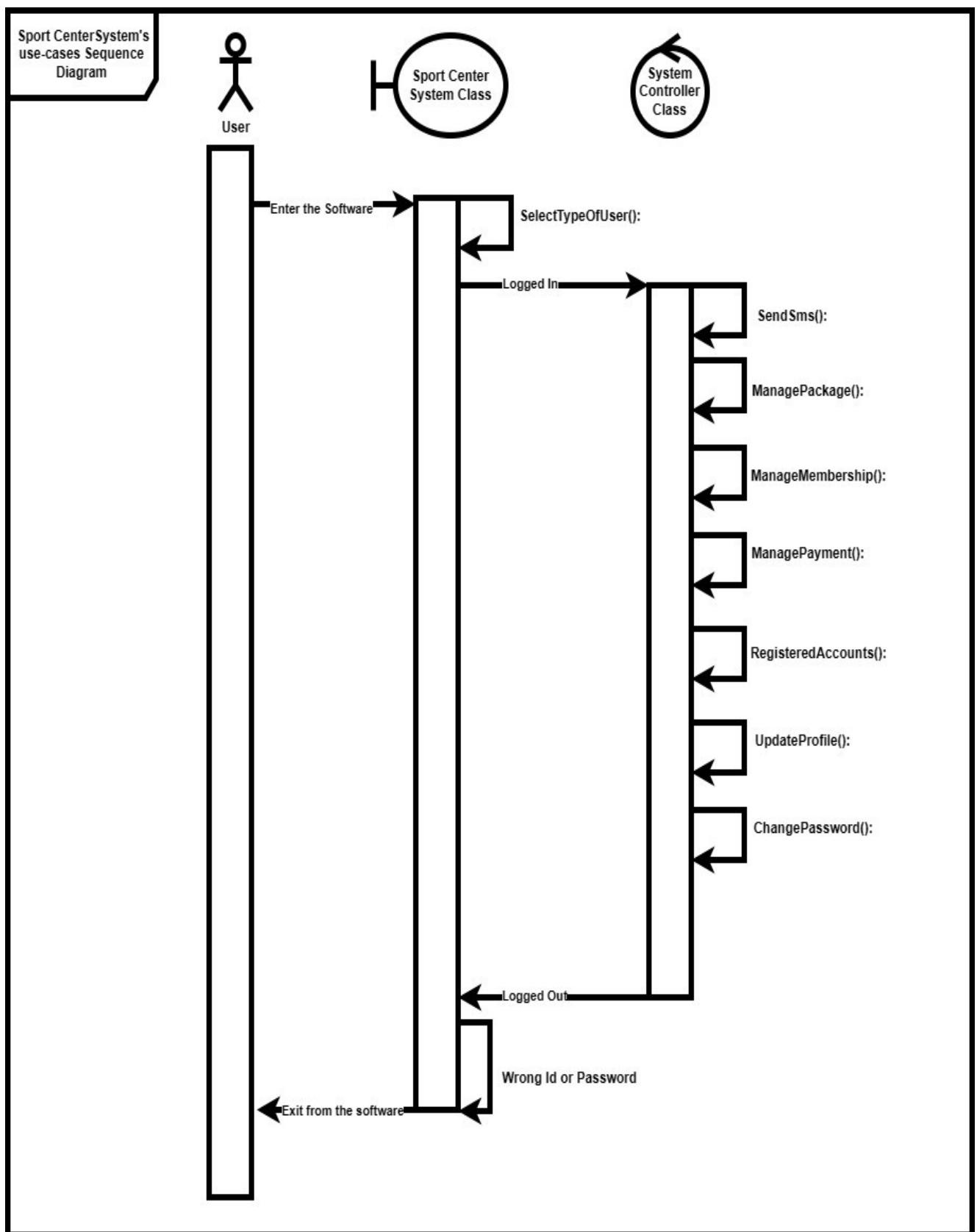


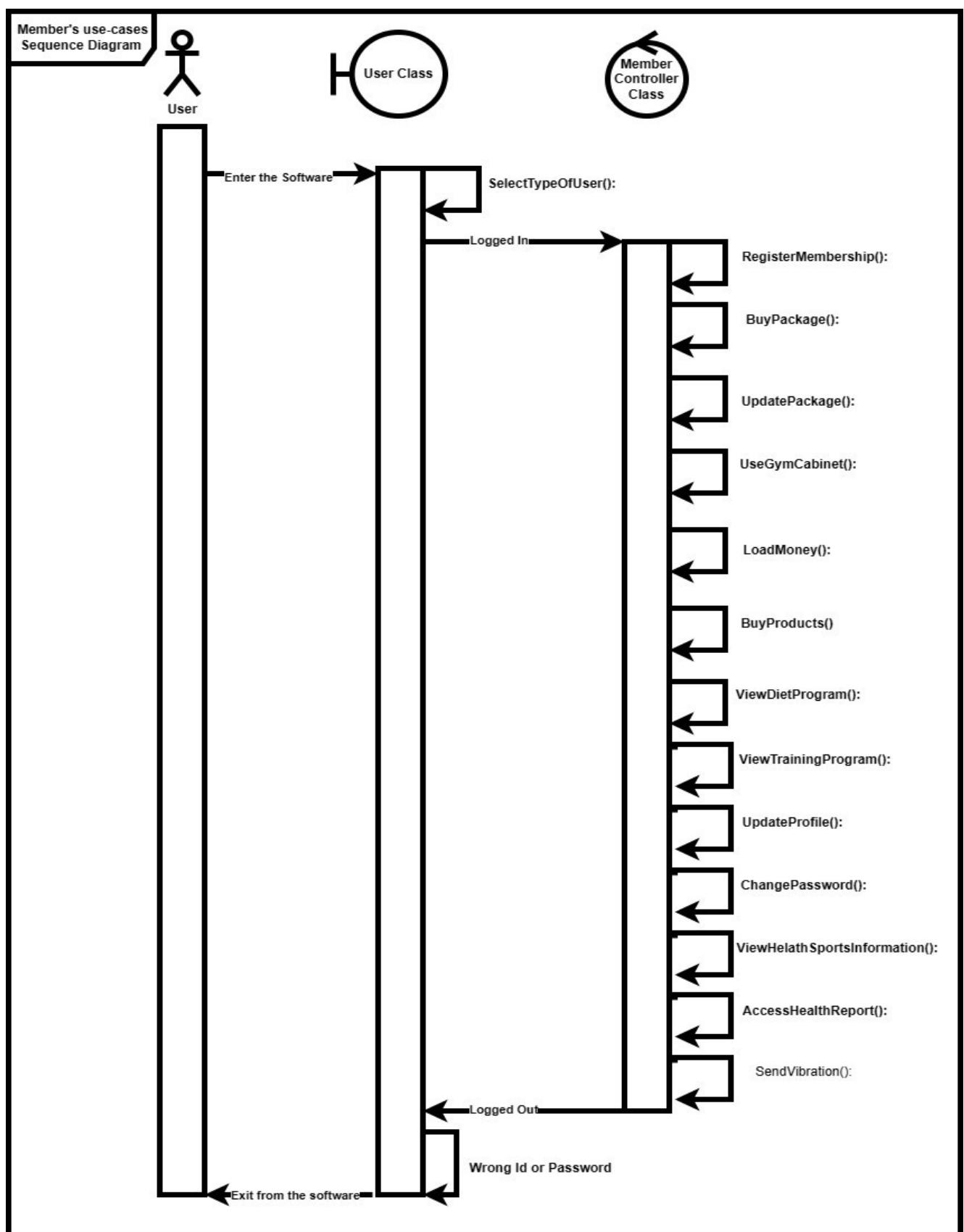


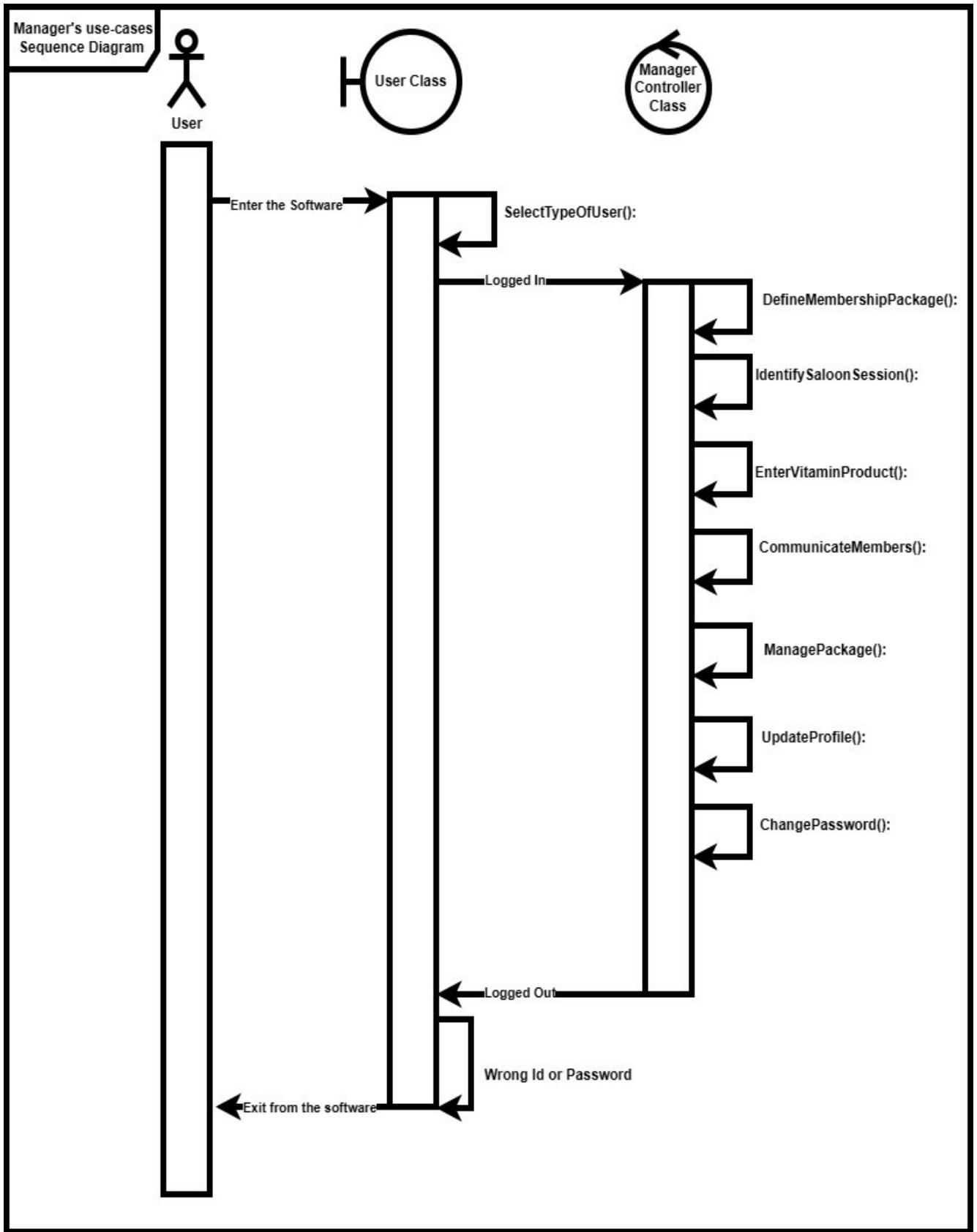


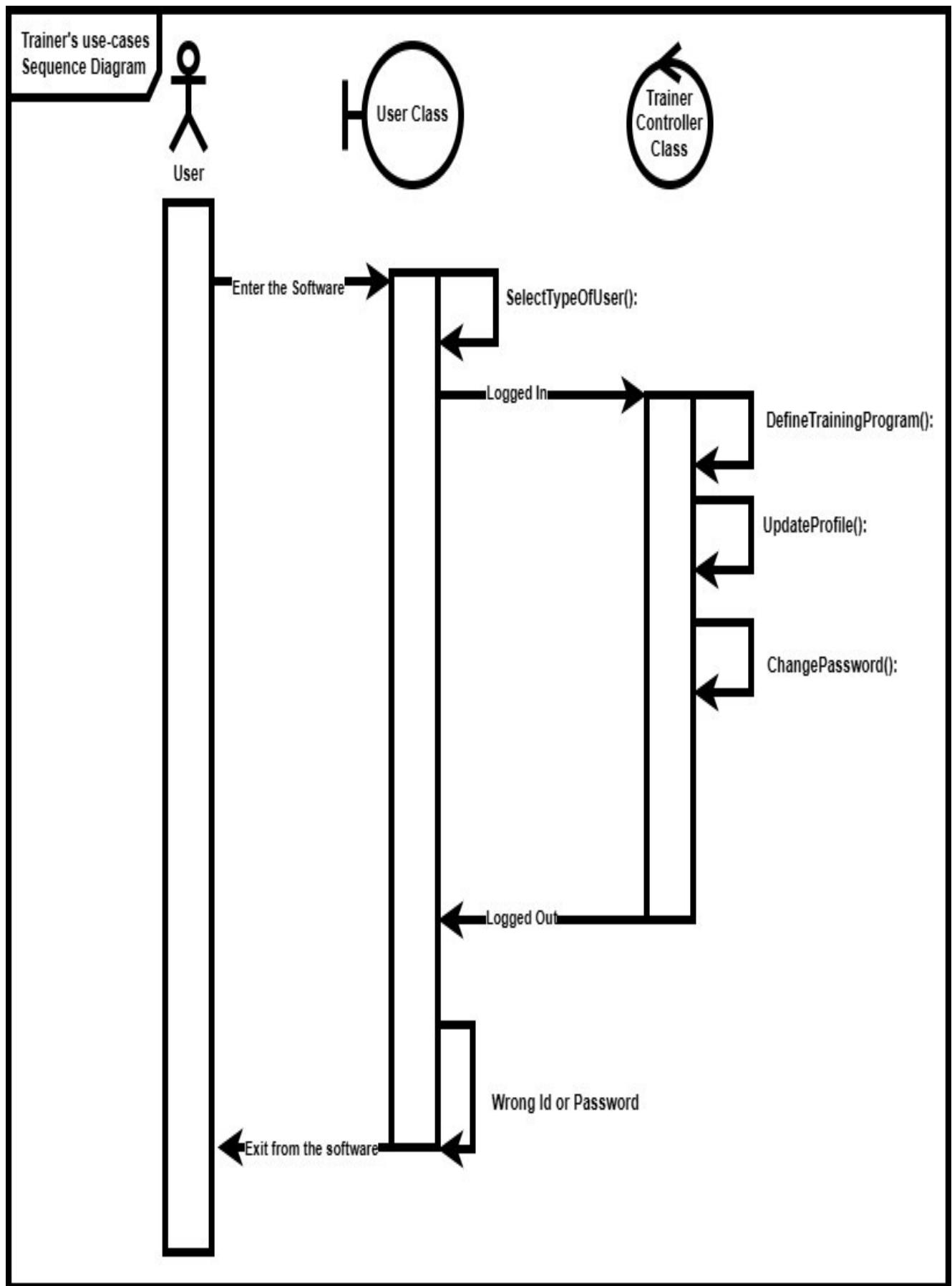


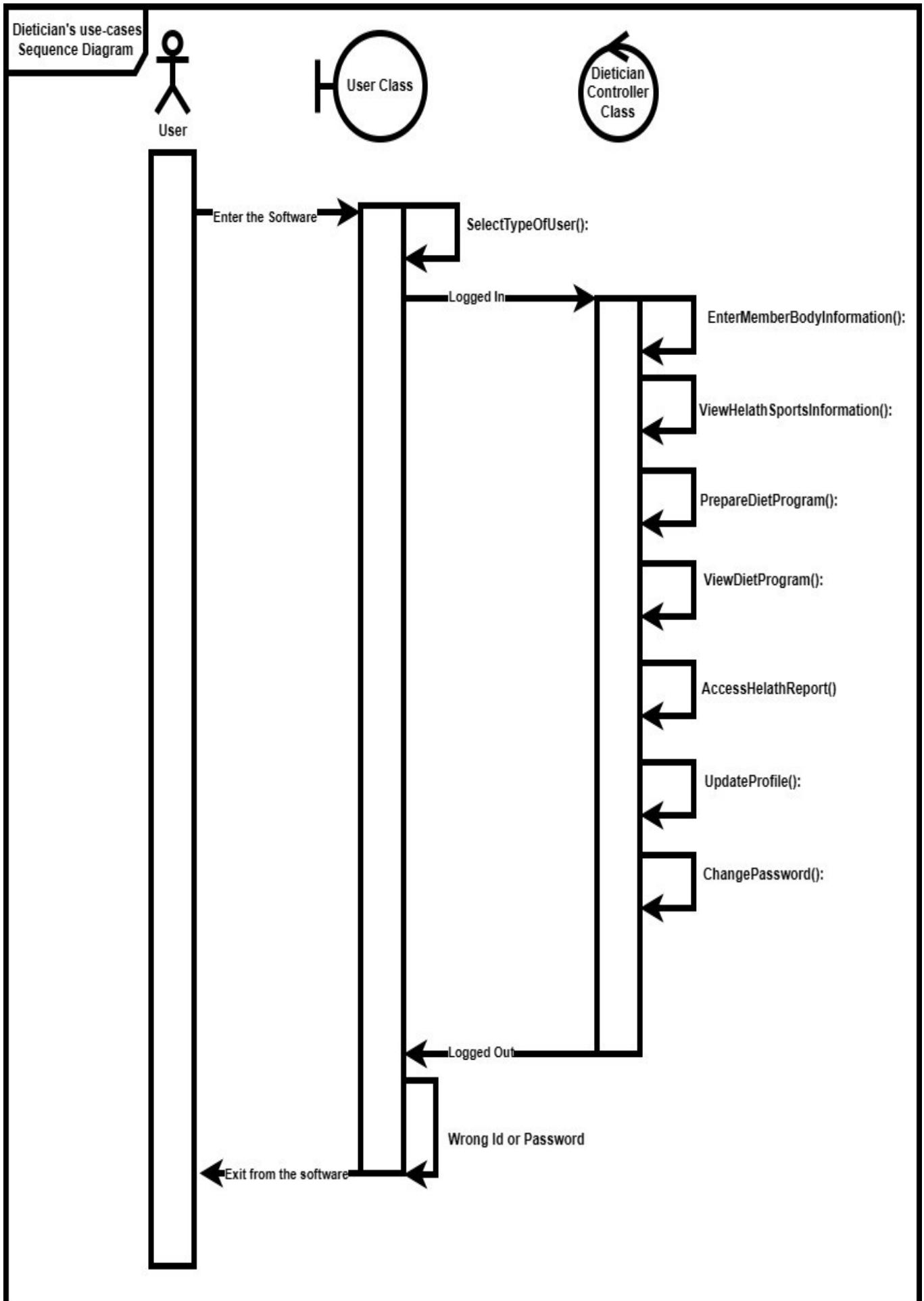
SEQUENCE DIAGRAMS FOR EACH SCENARIO











SOFTWARE PROJECT MANAGEMENT PLAN(IEEE)

1. Overview

1.1 Project Summary

1.1.1 Purpose, Scopes and Objectives

The aim of this project is to develop a software product that will facilitate the operations in sports centers. The product has a structure that undertakes the duties of members, managers, trainers and dietitians. The software to be developed allows each of these characters to perform the following tasks.

It allows managers to perform the following tasks:

1. Membership Packages can be defined.
2. Can define halls and sessions.
3. Vitamin Bar products can be entered into the system.
4. Communication with members can be achieved via SMS via phone numbers registered in the system.

It allows members to perform the following tasks:

1. Membership registration can be done.
2. You can purchase packages.
3. When using the card integrated into the wristband, members can update their system usage status and determine package occupancy.
4. Only the halls related to the package are allowed to be used with the card pass integrated into the wristband.
5. At the end of the session, a vibration is sent to the members' wristbands.
6. Safety lockers can also be used by scanning the card on the wristband.
7. Members can purchase food supplements, supplements, drinks, etc. from the vitamin bar in the hall with the money that can be loaded onto the wristband.
8. Can view the diet program.
9. Can view the training program.

It allows dieticians to perform the following tasks:

1. A special diet program can be prepared for members, and the member can also view it.
2. Members can see their health and sports information.
3. During certain periods, the body of the members loses muscle, fat, water, etc. can transfer information to the system.
4. You can get a report of these values through the system. Members can also access this report.

It allows trainers to perform the following tasks:

1. A training program can be defined specifically for the member, and the member can view the program via the mobile application.
2. Both the member and the trainer can follow up the health and sports information of the members through the system.

In addition, the system defined in our product has the following tasks:

1. The system automatically sends SMS to members 1 week before their membership expires.
2. Packages managements
3. Payment managements
4. Membership management

The developed software will have the capacity to perform all these operations.

1.1.2 Assumptions and Constraints

Constraints include the following;

- Sports Center Managers must be satisfied with the product
- The product must be able to perform all the methods it covers.
- The product must be delivered in accordance with the deadline.
- The budget constraint must be met.
- The product must be reliable.
- The architecture needs to be open so that additional functionality can be added later.
- The product should be user friendly.

1.1.3 Project Deliverables

The entire product, including the user manual and installation of the product, will be delivered by the deadline.

1.1.4 Schedule and Budget Summary

- Requirements workflow (1 team members \$0)
- Analysis workflow (1 team members \$0)
- Design workflow (1 team members \$0)
- Implementation workflow (0 team members \$0)
- Testing workflow (0 team members, \$0)
- The total development time is up to deadline, and the total internal cost is \$0

1.2 Evolution of the Project Management Plan

All changes to the project management plan must be agreed with sports center managers before being implemented. All changes should be documented to keep the project management plan accurate and up to date. All documented changes must be kept by both parties

2. Reference Materials

- draw.io
- Pencil

3. Definitions and Acronyms

SCES-Sport Center Executive System: The university gym is our client.

4. Project Organization

4.1 External Interfaces

All work in this project will be carried out by Metin YURDUSEVEN.

4.2 Internal Structure

The development team consists of Metin YURDUSEVEN.

4.3 Roles and Responsibilities

Metin YURDUSEVEN: Requirements Workflow, Analysis Workflow, Design Workflow

5. Managerials Process Plan

5.1 Start-up Plan

5.1.1 Estimation Plan

The total developing time is foreseen up to deadline and the total internal cost dollar.

5.1.2 Staffing Plan

Metin YURDUSEVEN needs 2 days to complete the operations in the requirements workflow section, 1 week for all operations in the analysis workflow section, and 2 days to complete the operations in the design workflow section.

5.1.3 Resource Acquisition Plan

5.1.4 Project Staff Training Plan

There is no need for additional person training for this project

5.2 Work Plan

5.2.1 Resource Allocation

The project had not resource allocation.

5.2.2 Budget Allocation

The project had not budget allocation.

5.3 Control Plan

5.4 Risk Management Plan

5.5 Project Close-out Plan

6. Technical Process Plan

6.1 Process Model

6.2 Methods, Tools and Techniques

The workflows have been performed with the Unified Process. The product stubs was extracted in C#.

6.3 Infrastructure Plan

It was developed using Pencil, which runs under Windows on a personal computer, and draw.io, which can be opened via the browser.

6.4 Product Acceptance Plan

Acceptance of the product by our client has already achieved by following the steps of the Unified Process.

7. Supporting Process Plan

7.1 Configuration Management Plan

7.2 Testing Plan

There is no testing workflow in this Project

7.3 Documentation Plan

Our documentation was produced as specified in the Unified Process.

7.4 -5 Quality Assurance Plan and Reviews and Audits Plan

7.6 Problem Resolution Plan

Any problems encountered by team members will be reported to Metin immediately.

7.7 Subcontractor Management Plan

Did not applied here.

7.8 Process Improvement Plan

8. Additional Plans

The Project did not need any additional plan.

TEST PLAN(IEEE 829-2008)

- Introduction
- Test Items
- Approach
- Item Pass/Fail Criteria
- Suspension Criteria And Resumption Requirements
- Test Deliverables
- Testing Tasks
- Responsibilities
- Schedule

1. Introduction

Summary of the items and features to be tested.

2. Test Items

- Sport Center System
- Manager
- Member
- Dietician
- Trainer
- Package
- Product
- Payment
- Diet program
- Training program
- Session
- Saloon
- Membership
- Training Program

3. Approach

General approach to testing:

- specify the main activities, techniques and tools to be used to test Sport Center System, Manager, Member, Dietician, Trainer, Package, Product, Payment, Diet program, Training program, Session, Saloon, Membership, Training Program
- specify the required minimum sophistication
- determine what techniques will be used to assess coverage
- specify additional completion criteria
- specify techniques to be used to monitor requirements
- identify key test constraints such as test item availability, test resource availability, and deadline

4. Item Pass/Fail Criteria

Specify the criteria that will be used to determine whether items in each item pass the test

5. Suspension Criteria and Resumption Requirements

- Specify the criteria to use to suspend the our items' items delivery event
- Specify test activities that need to be redone when testing is resumed

6. Test Deliverables

Identify deliverables:

- test plan
- test design specifications
- test case specifications
- test procedure specifications
- test item transfer reports
- test logs
- test case reports
- test summary reports

7. Testing Tasks

- Identify tasks necessary to prepare for and perform testing .
- Identify all task interdependencies.

8. Responsibilities

Identify groups responsible for directing, designing, preparing, executing, controlling, and analyzing

9. Schedule

- Specify test stages
- Specify all item transfer events
- Estimate the time required to complete each test task
- Plan all test tasks and test milestones
- Specify usage times for each test source

DESIGN WORKFLOW

DETERMINING THE INTERIOR DETAILS OF THE CLASSES

The inferior design of the classes has already been set as you have seen in code-stubs and uml chart(i have set all the access levels as private because of the information hiding in addition, we can access the objects using set and get methods)

PSEUDO-CODES OF THE PROJECT

Manager Controller Class Pseudo Code:

```
using System;  
using System.Collections.Generic;
```

```
public class ManagerController  
{  
    // Manager entity class  
    public class Manager  
    {  
        public int manager_id;  
        public int manager_gym_id;  
        public string manager_name;  
        public int manager_mobile;  
        public string manager_email;  
        public string manager_username;  
        public string manager_password;  
        public string manager_address;  
        public bool is_accomplished;  
    }  
}
```

Methods:

- DefineMembershipPackage(): It can define membership packages.
- IdentifySaloonSession(): It can identify salon and session details.
- EnterVitaminProduct(): It can enter vitamin products into the system.
- CommunicateMembers(): It can communicate with members via SMS using registered phone numbers.
- ManagePackage(): It can manage membership packages.
- UpdateProfile(): It can update its own profile.
- ChangePassword(): It can change the password used to log into the system.

Member Controller Class Pseudo Code:

```
using System;  
using System.Collections.Generic;  
  
public class MemberController  
{  
    // Member entity class  
    public class Member  
    {  
        public int member_id;  
        public string member_name;  
        public int member_mobile;  
        public string member_email;  
        public string member_username;  
        public string member_password;  
        public string member_address;  
        public int package_id;  
        public int package_percentage;  
        public List<object> health_information_list;  
        public List<object> sports_information_list;
```

```

    public int whistband_id;
    public int gym_cabinet_id;
}
```

Methods:

- RegisterMembership(): Registers the membership.
- BuyPackage(): Buys a package.
- UpdatePackage(): Updates the current package.
- UseGymCabinet(): Manages the usage of gym cabinets.
- LoadMoney(): Loads money to the wristband.
- BuyProducts(): Buys products using the wristband.
- ViewDietProgram(): Views the diet program.
- ViewTrainingProgram(): Views the training program.
- ViewHealthSportsInformation(): Views health and sports information.
- AccessHealthReport(): Accesses health reports.
- SendVibrate(): Sends vibration to the wristband.
- UpdateProfile(): Updates the member's profile.
- ChangePassword(): Changes the login password.

Trainer Controller Class Pseudo Code:

```

using System;
using System.Collections.Generic;
```

```

public class TrainerController
{
    // Trainer entity class
    public class Trainer
    {
        public int trainer_id;
        public int trainer_gym_id;
        public string trainer_name;
```

```

    public int trainer_mobile;
    public string trainer_email;
    public string trainer_username;
    public string trainer_password;
    public string trainer_address;
}

}

```

Methods:

- DefineTrainingProgram(): Defines a personalized training program for a member.
- UpdateProfile(): Updates the trainer's profile.
- ChangePassword(): Changes the login password.

Dietician Controller Class Pseudo Code:

```

using System;
using System.Collections.Generic;

```

```

public class DieticianController
{
    // Dietician entity class
    public class Dietician
    {
        public int dietician_id;
        public int dietician_gym_id;
        public string dietician_name;
        public int dietician_mobile;
        public string dietician_email;
        public string dietician_username;
        public string dietician_password;
        public string dietician_address;
    }
}

```

Methods:

- EnterMemberBodyInformation(): Enters body information for a member.
- ViewHealthSportsInformation(): Views health and sports information of members.
- PrepareDietProgram(): Prepares a personalized diet program for a member.
- ViewDietProgram(): Views the diet program for a member.
- AccessHealthReport(): Accesses health reports of members.
- UpdateProfile(): Updates the dietitian's profile.
- ChangePassword(): Changes the login password.

System Controller Pseudo Code:

using System;

```
public class SystemController
{
    // Sport Center System entity class
    public class SportCenterSystem
    {
        public int sport_center_system_id;
        public string sport_center_system_name;
        public string sport_center_system_type;
        public int sport_center_system_mobile;
        public bool is_true;
        public string sport_center_system_description;
        public string sport_center_system_address;
    }
}
```

Methods:

- SendSms(): Sends SMS notifications to members one week before their membership expires.
- ManagePackage(): Manages membership packages.
- ManagePayment(): Manages payments.
- ManageMembership(): Manages memberships.
- RegisteredAccounts(): Registers new accounts.

- UpdateProfile(): Updates the system profile.
- ChangePassword(): Changes the login password.

Sport Center System Class Pseudo Code:

```
using System;
public class SportCenterSystem
{
    // System attributes
    private int sport_center_system_id;
    private string sport_center_system_name;
    private string sport_center_system_type;
    private int sport_center_system_mobile;
    private bool isTrue;
    private string sport_center_system_description;
    private string sport_center_system_address;
```

Methods:

Login(): The method for checking username and password and performing login

Logout(): The method for logging out of the system

User Class Pseudo Code:

```
using System;
public class User
{
    // User attributes
    private int user_id;
    private string user_password;
    private bool isTrue;
    private Member member;
```

```
private Manager manager;  
private Trainer trainer;  
private Dietician dietician;
```

Methods:

Login(): The method for checking username and password and performing login

Logout(): The method for logging out of the system

SelectTypeOfUser(): The method for selecting the type of user

Person Class Pseudo Code:

```
using System;  
public class Person  
{  
    // Person attributes  
    protected int person_id;  
    protected string person_name;  
    protected int person_mobile;  
    protected string person_email;  
    protected string person_username;  
    protected string person_password;  
    protected string person_address;  
}
```

Member Class Pseudo Code:

```
using System;  
using System.Collections.Generic;
```

```
public class Member : Person  
{  
    // Member-specific attributes  
    private int package_id;  
    private int package_percentage;
```

```
private List<string> health_information_list;  
private List<string> sports_information_list;  
private int whistband_id;  
private int gym_cabinet_id;  
}
```

Manager Class Pseudo Code:

```
using System;  
using System.Collections.Generic;  
  
public class Manager : Person
```

Dietician Class Pseudo Code:

```
using System;  
using System.Collections.Generic;  
public class Dietician : Person
```

Trainer Class Pseudo Code:

```
using System;  
using System.Collections.Generic;  
  
public class Trainer : Person
```

Payment Class Pseudo Code:

```
public class Payment  
{  
    //(Attributes)  
    public int payment_id  
    public int payment_customerId
```

```
public DateTime payment_date  
public int payment_amount  
public string payment_description  
}
```

Diet Program Class Pseudo Code:

```
public class Diet Program  
{  
    // Diet Program attributes  
    public int diet_program_id  
    public int member_id  
    public int dietician_id  
    public string diet_program_description  
}
```

Training Program Class Pseudo Code:

```
public class Training Program  
{  
    // Training Program attributes  
    public int training_program_id  
    public int member_id  
    public int trainer_id  
    public string training_program_description  
}
```

Membership Class Pseudo Code:

```
public class Membership  
{  
    // Membership attributes  
    public int membership_id
```

```
public int member_id  
DateTime start_date  
DateTime end_date  
public string membership_description  
}
```

Product Class Pseudo Code:

```
public class Product  
{  
    // Product attributes  
    public int product_id  
    public string product_name  
    public string product_type  
    public int product_price  
    public string product_description  
}
```

Saloon Class Pseudo Code:

```
public class Saloon  
{  
    // Saloon attributes  
    public int saloon_id  
    public string saloon_name  
    public string saloon_type  
    public string saloon_description  
}
```

Session Class Pseudo Code:

```
public class Session  
{
```

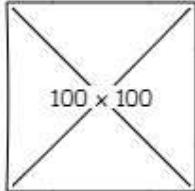
```
// Session attributes  
public int session_id  
public string session_name  
public string session_type  
public int session_price  
public string session_description  
public DateTime session_start  
public DateTime session_end  
}
```

Package Class Pseudo Code:

```
public class Package  
{  
    // Package attributes  
    public int package_id  
    public int saloon_id  
    public int session_id  
    public string pacakge_name  
    public int pacakge_amount  
    public int package_total  
    public string pacakge_type  
    public int package_percentage  
    public string product_description  
}
```

Form Interfaces of the Project

Sport Center System



Welcome to Sport Center Sysytem

Username:

Password: [Forgot Password?](#)

Sport Center System

REGISTRATION

Name: Username:

Mobile: Address:

Email:

Password:

Accept terms and conditions.

Sport Center System

My Profile

Id:

Name:

Username:

Mobile:

Address:

Email:

Password: *****

I AGREE THAT MY INFORMATION IS ACCURATE

Sport Center System

Change Password

In order to protect your account, make sure your password:

- Is longer than 8 characters
- Does not match or significantly contain your username.
- Is not a member of this [list of common passwords](#).

Your Password: *****

New Password: *****

Re-enter New Password: *****

Sport Center System

Defining Package

Package Id:	<input type="text"/>	Amount of Package:	<input type="text"/>
Package Name:	<input type="text"/>	Percentage of Package:	<input type="text"/>
Package type:	<input type="text"/>	Total of Packages:	<input type="text"/>
Package Description:	<input type="text"/>	Session of the Package:	<input type="text"/>
Saloon of the Package:	<input type="text"/>		

Sport Center System

Remove Package

Package id to remove:	<input type="text"/> ▼
Reason for removal of package:	<input type="text"/>

Sport Center System

Cancel Member's Package

Member's id:

Reason for cancellation:

Should the reason for cancellation be notified to the member via automatic SMS?

Sport Center System

Saloon and Session Identification

Saloon

Saloon Id:

Saloon Name:

Saloon Type:

Saloon Description:

Session

Session Id:

Session Name:

Session Type:

Session Description:

Start/end Date:



Defining of the Saloon and Session to Member

Member's Id:

text

Member's Package(s):

Packages



Saloon Id:

Saloon Id



Session Id:

Session Id



Cancel

Save



Enter Product

Product Id:

text

Product Name:

text

Product Type:

text

Product Description:

text

Product Price:

text

Cancel

Save

Sport Center System

Communication with Members

Member's id: ▾

Mobile: ▾

Message:

To send a message to all members, do not make the selection above and check this box.

Sport Center System

Payment

Member's id: ▾

Last month of payment: ▾

The receipt of payment ▾

Sport Center System

Generals Settings Texts Examples

Account
 Overview
 Settings
 Audit

User Management
 Managers
 Members
 Trainers
 Dieticians

Site Interaction
 API Keys
 Domains
 Named Areas

Product Setup
 Conversations
 Canned Responses

Member's Id:

Name:

Mobile:

Email:

Address:

Username:

Password:

Sport Center System

Body Informations

Member's id: ▼

Member's muscle ratio: Member's height:

Member's water ratio: Member's weight:

Member's fat ratio: Member's body mass index:

Member's cardiac informations:

Sport Center System

Member id: ▼

Sports Information of Member

Health Reports of Member

Sport Center System

Prepare Diet Program

Member's id:

Monday:

Tuesday:

Wednesday:

Thursday:

Friday:

Saturday:

Sunday:

[Health Report](#)

Sport Center System



Member's id:

▼

Diet Program of Member

[Download Diet Program](#)

[Ok](#)

Sport Center System



Define Training Program

Member's id:

▼

Member's Health Report: [Member's Health Report](#)

Monday:

Friday:

Tuesday:

Saturday:

Wednesday:

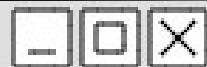
Sunday:

Thursday:

[convert information into report](#)

[Training Program](#)

[Define](#)



View Training Program

Member's id:

▼

Training Program of Member

[Download Training Program](#)

Ok



My Training Program

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Text	Text	Text	Text	Text	Text	Text

Ok



My Diet Program

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Text	Text	Text	Text	Text	Text	Text

Ok



Buy Products

Welcome, You can choose and buy the product below

Product Type:

Product Name:

Number of Product: ▾

Product Price:

Definition of product:

[go to payment screen](#)



Payment Screen

Card Number:

MM/DD: /

CVC:

Remember Me

Pay



Load Money

Card Number:

MM/DD: /

CVC:

Amount to be transferred: 0\$

Transfer to my account



Buy Package

Package Type: ▼

Package Name: ▼

Definition of Package:

Amount of Package:

[go to payment screen](#)



Update Package

current package:

new package:

amount of new package:

new package description:

[cancel](#)

[save and go to payment page](#)