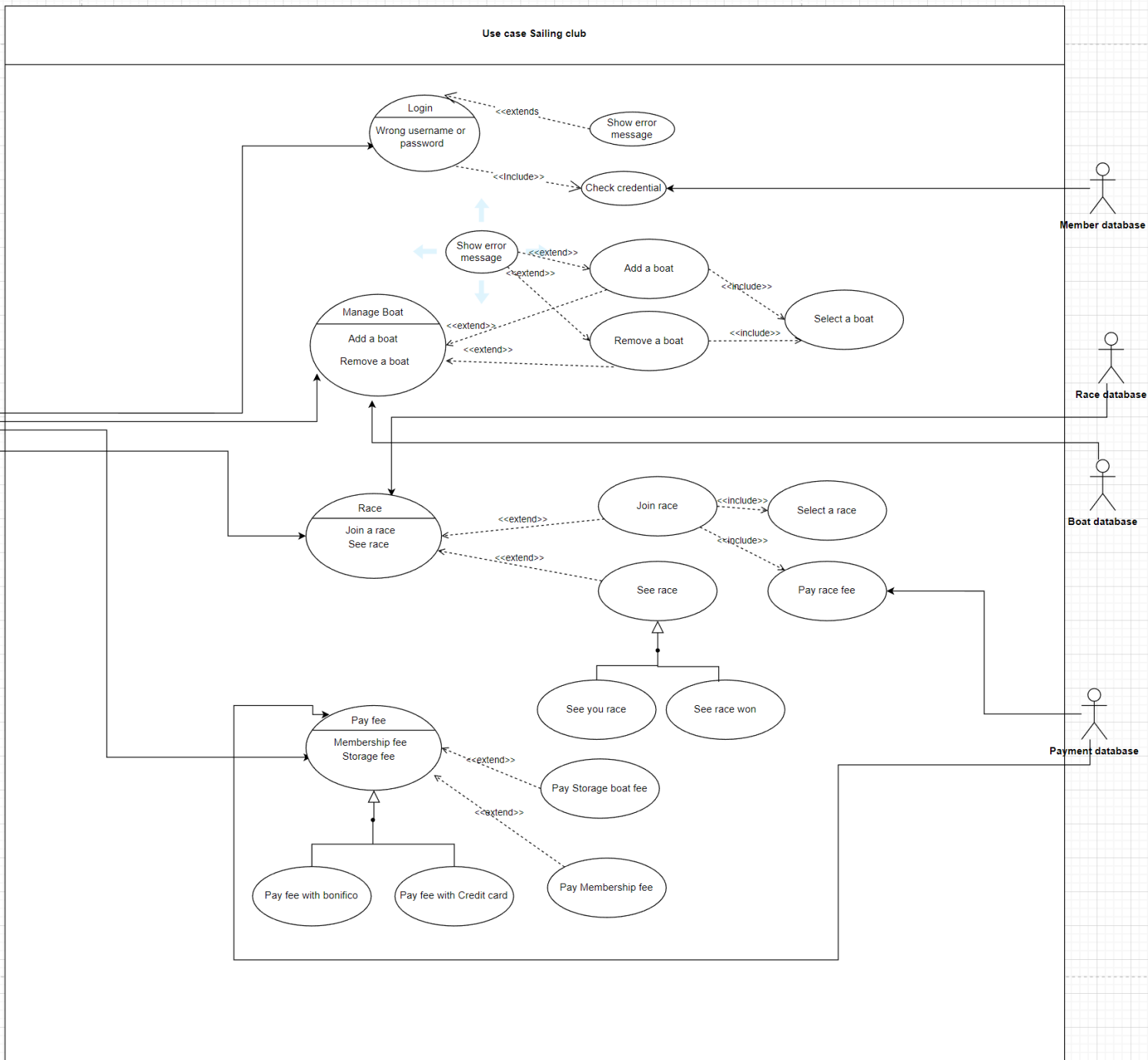


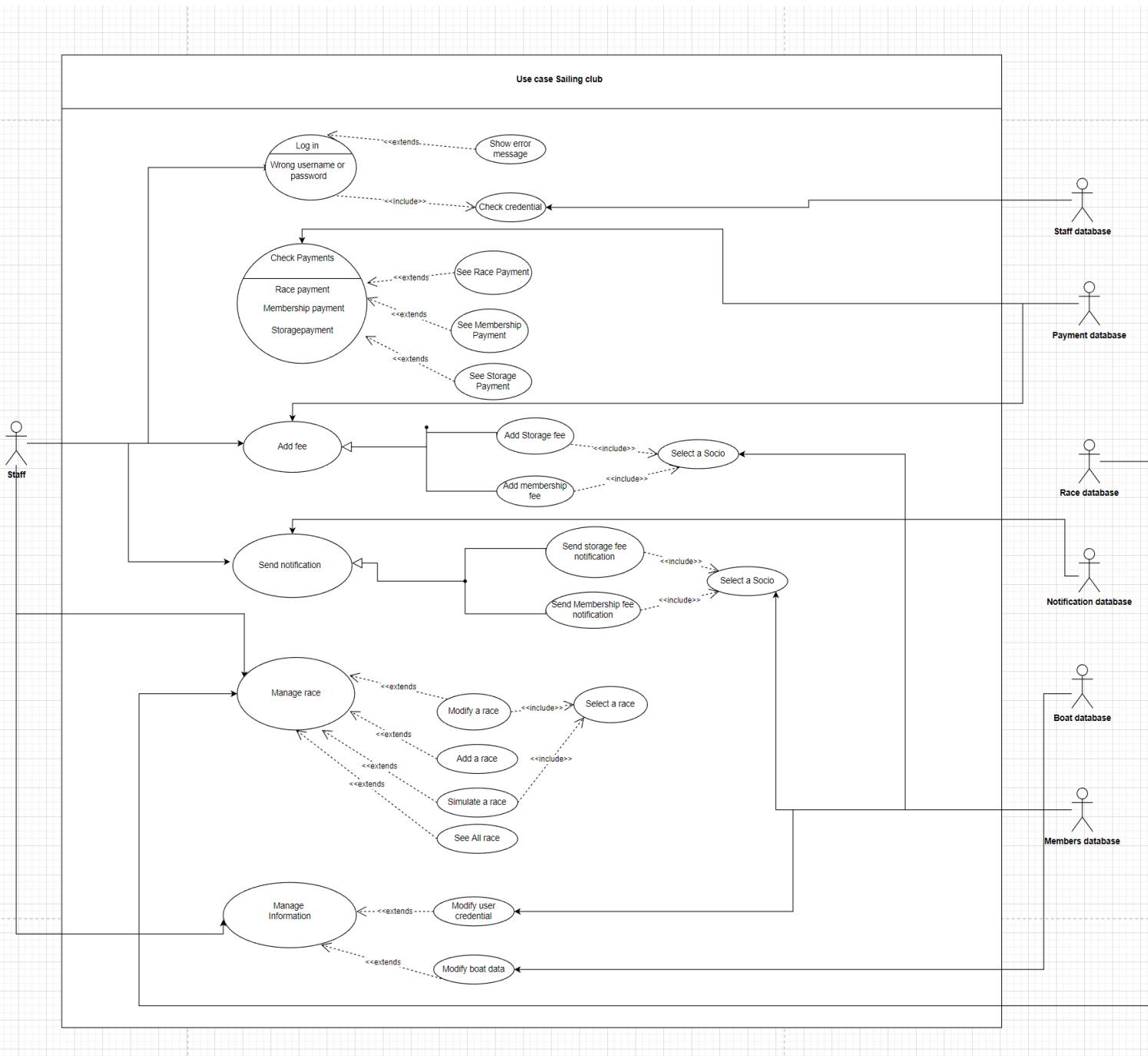
Use Case Diagram:

Two use case diagrams can be seen here. The first concerns the interaction between a member and the server, while the second concerns the interaction between a staff member and the server.

- **Member's use case diagram:**



- Personal's use case diagram:



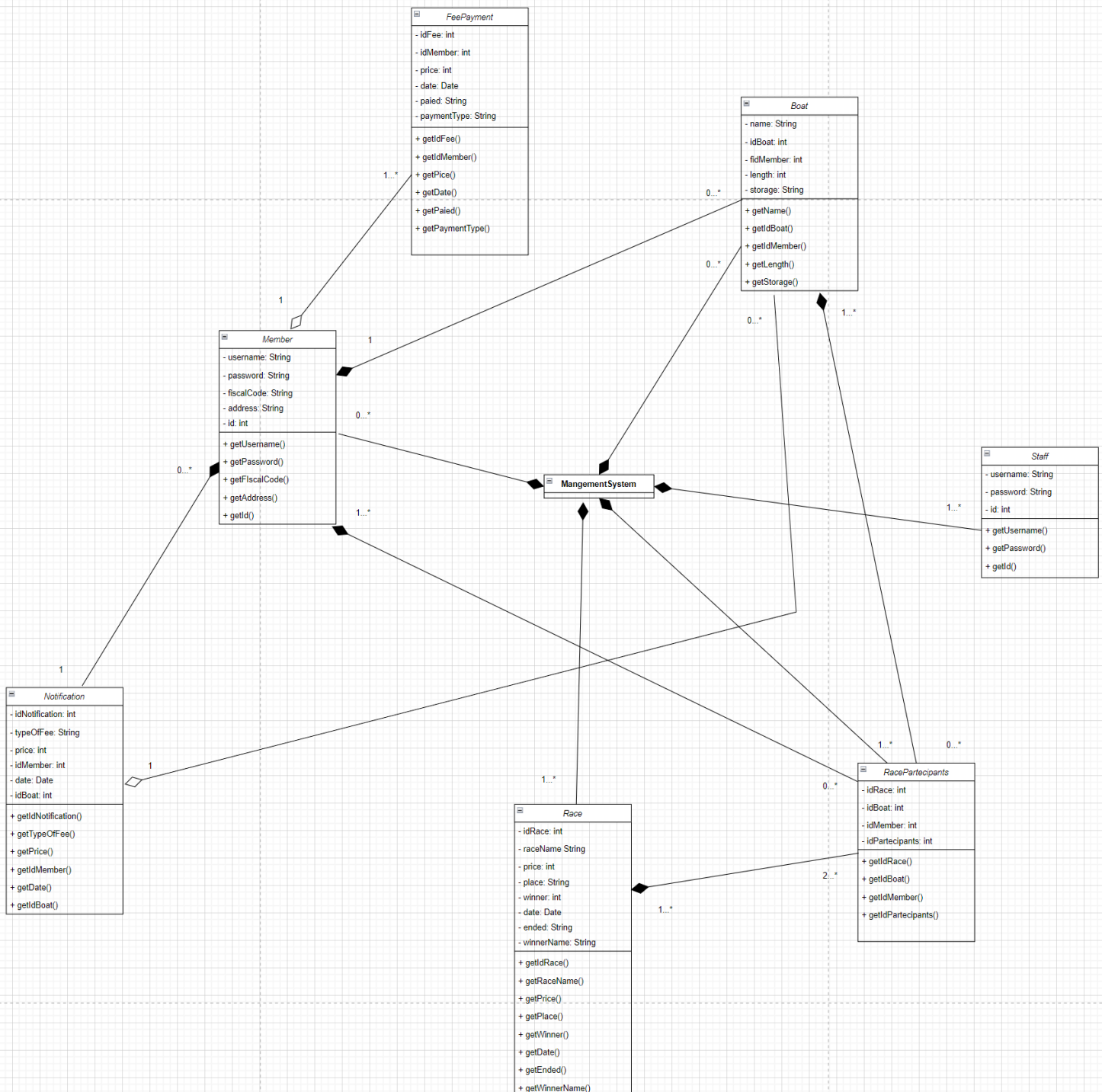
Functional Requirements:

In the table below, we can see the various functional requirements with the various names associated with each of them to make it easier to identify them. For each functional requirement, we have also included the user story.

Name of functional requirements	Functional requirements	User story
Sign in	The system must allow both members and staff to access the system using their username and password.	Both as a staff member and as a member I want to be able to access the system via my account.
Sign up	The system must allow staff to sign up into the system using their username,password, fiscal code and address.	As a user i want to sign up, in order to be part of the club.
Remove a boat	The system must allow members to remove their boats from those registered in the club.	As a member I want to be able to remove the boats I have registered with the club
Add a boat	The system must allow members to register their boats in the club database.	As a user, I want to be able to register my boats with the club.
Join a race	The system must allow members to participate in the competitions that the club organises.	As members, I want to have the opportunity to participate in races using my own boats.
Fee Race	The system must provide members with the possibility of paying the participation fee for the competition they have registered for. The system must also offer the possibility of being able to decide whether to pay by bank transfer or by credit card.	As a member, I must be able to pay the entry fee for the race I entered.
Fee Membership	The system must provide members with the possibility of paying the annual club membership fee. The system must also offer the possibility of being able to decide whether to pay by bank transfer or by credit card.	As a member, I must be able to pay the annual club membership fee.
Fee Storage	The system must provide members with the possibility of paying the storage fee for each boat registered with the club. The system must also offer the possibility of being able to decide whether to pay by bank transfer or by credit card.	As a member, I must be able to pay the storage fee for each boat I have registered with the club.
See Race	The system must provide the user with the possibility of being able to see the competitions he/she has entered and see if he/she has won in some of them	As a member I want to be able to see my races
Manage information	The system must provide the possibility for the club staff to be able to manage the personal data of users, to be able to manage competitions and finally it must provide the possibility to be able to manage the data of the various boats. In order to this it has to provide a GUI.	As a member of staff, I must be able to manage my customers and their competitions.
See Payments	The system must provide the possibility for staff members to see all payments that have been made by members. This means both payments related to competitions and those related to entry fees, as well as those related to storage fees. Obviously it must take into account payments made by credit card as well as those made by bank transfer. In order to this it has to provide a GUI where a staff member can see all these kind of payment	As a member of staff, I must be able to see all payments made.
Send notifications	The system must provide the ability for staff members to be able to send notifications to club members to remind them to renew their membership and storage fees	As a staff member, I need to be able to send notifications to club members to remind them to pay the various fees.
Add races	The system must provide staff members with the possibility of being able to create new competitions via a graphical interface, so that members can then register for them.	As a member, I must be able to add new competitions through which club members will compete against each other.
Add fee	The system must provide the possibility for staff members to enter new fees for the various members into the club's database.	As a staff member, I need to be able to register in the system the various fees that members will have to pay.

Class Diagram:

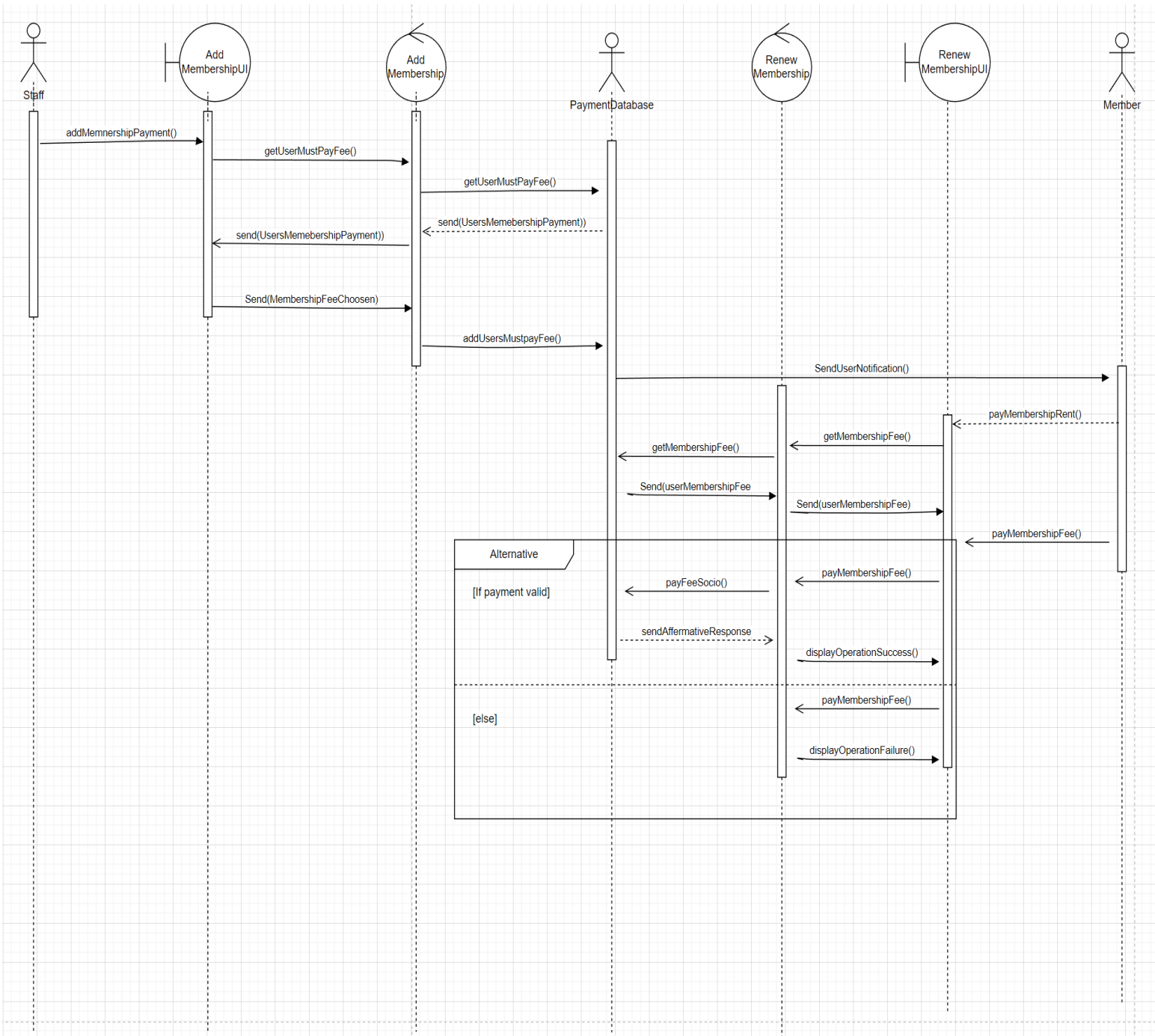
Below you will see a representation of the class diagram, with the classes mainly involved in the project:



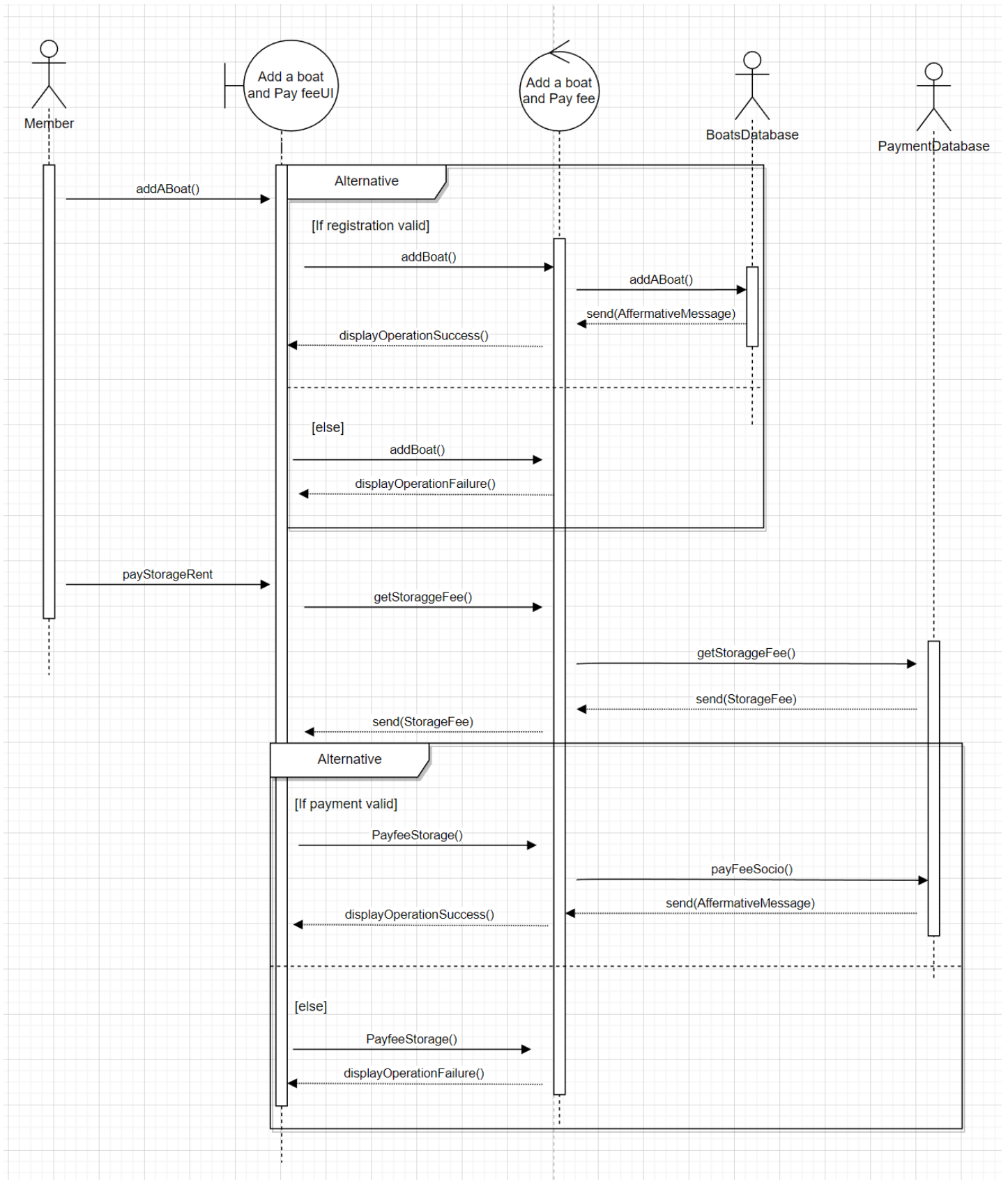
Sequence Diagram:

Three different sequence diagrams can be seen below. They are relative to three main Use case:

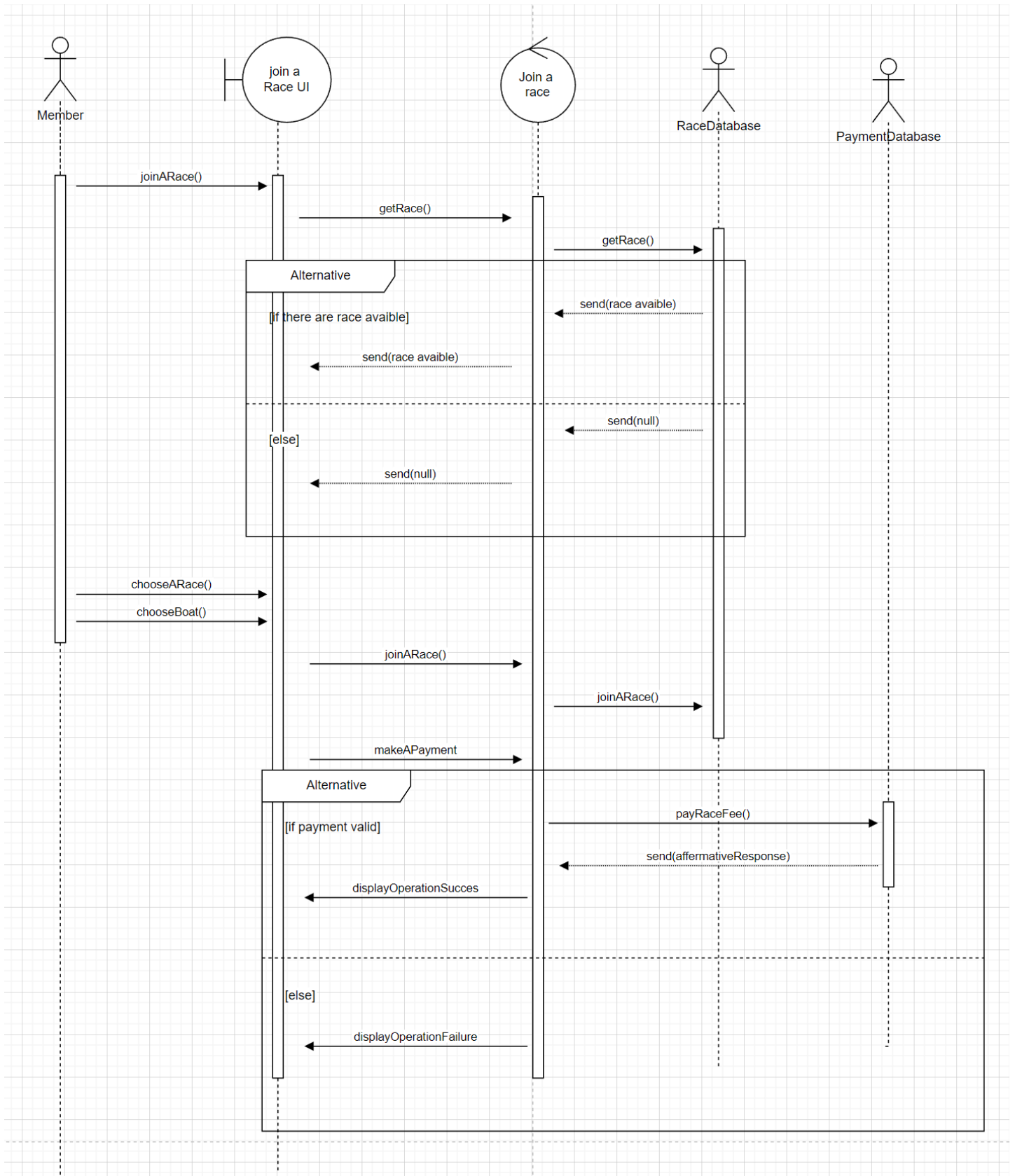
- **Renew membership fee sequence diagram:**



- Add a boat sequence diagram:



- Join a race sequence diagram:



Use Cases Tabular description:

Below you can see the in-depth description of the use cases illustrated by the sequence diagrams on the previous pages:

- **‘Renew membership fee’ Use Case:**

Use case ID	U1
Use Case name	Renew membership fee.
Use case overview	The system provides club members with the opportunity to renew their annual membership fee by paying a fee.
Actors	Members, Payment database, Server.
triggers	The user in the annual fee payment form clicks on the 'Pay fee' button.
Pre-condition	The user must have logged in and gone to the annual registration fee payment form.
Post-Condition	The fee paid by the user will be saved in the payment database.
Main Flow	<ol style="list-style-type: none">1. A club member decides to renew his membership fee. A member may only renew this fee after the previous year's fee has expired.2. The member moves to the fee payment form and selects the fee to be paid and the preferred method of payment.3. The system processes the payment request and after a few seconds the payment made by the member will be saved in the payment database.4. The member is shown a message that payment has been made, and after clicking the 'OK' button he is returned to the main menu.
Alternative flows	<ol style="list-style-type: none">1. A club member decides to renew his membership fee. A member may only renew this fee after the previous year's fee has expired.2. The member moves to the fee payment form and selects the fee to be paid.3. Since the user has not selected the method of payment, this will be made by credit card payment.4. The system processes the payment request and after a few seconds the payment made by the user will be saved in the payment database.5. The member is shown a message that payment has been made, and after clicking the 'OK' button he is returned to the main menu.
Exceptional flows	<ol style="list-style-type: none">1. A club member decides to renew his membership fee. A member may only renew this fee after the previous year's fee has expired.2. the club member makes the payment without selecting the fee to be paid, an error message will be displayed and he/she will be instructed to carry out the renewal.
Exceptional flows two	<ol style="list-style-type: none">1. There are problems with payment due to network problems.2. the user will be invited to make the payment at a later time.

- **‘Add a boat ’ Use Case.:**

Use case ID	U2
Use Case name	Add a boat
Use case overview	The system gives club members the possibility to add new boats.
Actors	Members, Boats database, Server.
triggers	The user in the Boat add form clicks on the 'Add the boat' button.
Pre-condition	The user must have logged in and gone to the Boat add form.
Post-Condition	The boat added by the user will be saved in the payment database.
Main Flow	<ol style="list-style-type: none"> 1. A club member decides to add a new boat in addition to those already registered at the club. Then move to the form for adding a new boat. 2. The user enters the name and length of the boat and sends the request for registration of the new boat. 3. The system processes the registration request adding a unique id to the boat. 4. The system registers the boat in the database. 5. The system informs the user that the registration operation was successful by sending a successfully completed operation message.
Exceptional flows	<ol style="list-style-type: none"> 1. The user only completes one of the two fields, boat name, boat length. 2. The system sends the user an error message indicating the steps to be taken to successfully register.
	<ol style="list-style-type: none"> 1. The user inserts a non integer number as the length of the boat. 2. The system sends the user an error message indicating the steps to be taken to successfully register.
Exceptional flows two	<ol style="list-style-type: none"> 1. There are problems with payment due to network problems. 2. the user will be invited to make the payment at a later time.

- 'Join a race' Use Case:

Use case ID	U3
Use Case name	Join a race.
Use case overview	The system provides club members with the opportunity to join a race available.
Actors	Members, Race database, Server, Payment database .
triggers	The user in the join race form clicks on the 'Join the race button_
Pre-condition	The user must have accessed the system and must have boats available, that is, not registered for other races.
Post-Condition	the user will be placed among the participants in the race.
Main Flow	<ol style="list-style-type: none"> 1. A member of the club decides to participate in a competition organised by the club. In this case, the user is taken to the registration form for the competitions. 2. The user selects the race he wants to participate in and selects the boat he will use during that race. 3. The user will also have to choose the payment method to pay for the race registration. 4. The system will process both the request for registration to the race, and the request for payment. 5. The user will be added to the participants in the race to which he is registered. 6. The system will inform the user that the registration has been successful through a message of 'successful registration'.
Alternative flows	<ol style="list-style-type: none"> 1. A member of the club decides to participate in a competition organised by the club. In this case, the user is taken to the registration form for the competitions. 2. The user selects the race he wants to participate in and selects the boat he will use during that race. 3. The user does not choose the payment method and then the payment of the registration fee to the race will be made by credit card. 4. The system will process both the request for registration to the race, and the request for payment. 5. The user will be added to the participants in the race to which he is registered. 6. The system will inform the user that the registration has been successful through a message of 'successful registration'.
Exceptional flows	<ol style="list-style-type: none"> 3. The user does not select the race he wants to enter or the race he wants to enter. 4. Registration for the race will not be made. 5. The system will show the user an error message, telling him what to do to complete the registration successfully.
Exceptional flows two	<ol style="list-style-type: none"> 3. There are problems with payment due to network problems. 4. the user will be invited to make the payment at a later time.