Business Requirements Document

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Document Properties

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2024-03-01	0.1	Draft	Functional and non-functional requirements of the envisioned system (to be) defined.	25847333. Kerry-Ann Uys
2024-03-08	0.2	Draft	Activity diagrams on the current and envisioned system added.	25847333. Kerry-Ann Uys
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2024-03-29	0.4	Draft	Domain class diagram of the information system added.	25847333. Kerry-Ann Uys
2024-04-19	0.5	Draft	State machine diagrams on the physiotherapist treatment and the event participation added.	25847333. Kerry-Ann Uys
2024-04-29	0.6	Draft	Initial prototyping of the user interface of the new system added.	25847333. Kerry-Ann Uys
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2024-05-13	2.0	Final	Practical 1- Subheadings added. Practical 2- Unnecessary actions removed, decision node changed to a question, use of correct sentence case, removal of text on final node, join node added. Practical 3- Unnecessary use cases removed. Practical 4- Multiplicities added, aggregation added, corrected class names, added necessary classes, attributes added, role names added. Practical 5- Guard expressions added, unnecessary states removed, transition names added, choice notation changed, correct states in the fork added. Practical 6- No changes made. Practical 7- No changes made.	25847333. Kerry-Ann Uys

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1. Executive Summary

Welcome to the executive summary for the complete Business Requirements Document. This document has been designed for the Rowing Olympic Committee (ROC) which is being held in Paris in 2024. This document has been developed to offer an in-depth summary that helps to outline the projects goals, needs as well as the scope of the project.

The Business Requirements Document is a strategic attempt that is aimed at analysing and designing an Athlete Management System for the Rowing Olympic Committee. The entire project has been made up of six different components. These components include, the functional and non-functional requirements, activity diagrams, use case diagrams, domain class diagrams, state machine diagrams as well as detailed story boards of the entire project.

2. Need Statement

The overall need for this project is to create an efficient Athlete Management System for then 2024 Olympic Rowing Committee. It needs to be designed in a way that avoids errors and minimizers problems arising. It is necessary for the system to be accurate, easily accessible to all stakeholders as well as store and safekeep personal information. The system needs to be created in a way that it ensures seamless communication channels between athletes, coaches and other stakeholders involved. This includes real time updates, automatic notifications, and emails.

3. Requirements

3.1. Functional Requirements

System requirements are separated into two different categories. The first one being functional requirements. Functional requirements can be defined as the tasks that the system is required to execute. They are based on the policies and procedures that organizations adopt in order to successfully run their business.

- The athlete's login to the system.
    - Athletes are required to use their unique login details.
- Complete authentication.
    - Asks users for their permission to enter into the system. It ensures that the person is who they say they are. Additionally, it helps to ensure the safety of the athlete's personal information.
- System will process the athletes profile updates.
    - Athletes are required to add their personal information as well as a close-up image of themselves.
- The system will notify the coaching staff via email.
- Once the athlete's profile has been updated, coaches will be informed.
- The coaching staff login on the system.
    - Coaching staff will follow the same process as the athletes did.
- The coaching staff are required to update the performance metrics.
    - This includes details such as training schedules, health, well-being, and which individuals will participate in each rowing events that are included in the Olympics.
- Athletes notified via email.
    - The athletes receive updates via email once all the performance metrics have been updated on the system.
- Athlete reviews data.
    - Each athlete will review their updated version that is on their profile.
- Approve / make suggestions.
    - If the athletes are pleased with the details on the system, they will approve it.
- The athlete is able to give suggestions.
    - If the information is not correct, suggestions are provided in an attempt to ensure that the information is accurate.

- The system will send a prompt to the staff with these suggestions.
- The coaching staff are required to either accept or decline these suggestions.
- The system sends an alert to the athletes notifying them on what the outcome was.
- System will send out an automated email to the physiotherapist.
- The physiotherapist is requested to provide additional information that they have about the athlete.
- The physiotherapist will evaluate and update the athlete's information.
    - This includes information regarding the athlete's medical history, their injuries, how long recovery will take as well as the athletes fitness levels. However, if all details are correct, no changes will be made.
- The system notifies both the athletes and coaching staff that their information is available to review.
- Any additional information and updates that have been added are brought to the athletes and coaching staff's attention.
- If the stakeholders have any suggestions, the system will notify the physiotherapist.
    - The physiotherapist is allowed to accept or decline these suggestions. If suggestions are rejected, no further action is required.
- The physiotherapist accepts these suggestions.
- The physiotherapist is required to add this new information onto the athlete's profile.

3.2. Non-Functional Requirements

Non-functional requirements can be defined as the elements of a system that do not refer to the activities that it needs to execute or perform. For example, ease of use, the response time, user interface etc. It is often challenging to distinguish between functional and non-functional requirements. A framework has been developed in order to easily identify which requirements are functional and which requirements are non-functional. This framework is known as FURPS. This acronym stands for functional, usability, reliability, performance, and security requirements.

1. Usability requirements:

Usability requirements refers to the way in which the system operates in relation to its users. In the case study, it is evident that the system is very efficient as it is constantly updating all the stakeholders involved. For example, when the athlete updates their profiles, the system immediately notifies the coaching staff and the athlete. The physiotherapist is also sent an automated email when specific steps have been completed. This makes the system user friendly as it requires minimal effort and time from the user due to the fact that the system automatically sends out notifications.

2. Reliability requirements:

Reliability requirements can be defined as the trustworthiness of a system. A reliable system should not be experiencing any outages and if they do, it is important to take note of how the system identifies and recovers from these problems. In this case study, the system can be descried as reliable due to the fact that users are constantly inputting and updating their information without any problems occurring. It can also be deemed as reliable because the system never fails to automatically send out emails and prompts to specific individuals when it is required to. Automated emails also help to reduce the number of errors made.

3. Performance requirements:

Performance requirements describe the way in which the system operates in relation to measures of workload, such as throughput and response time. In the case study, it is evident that this system has high performance. For example, if the user authentication process fails, instead of the system displaying an error message or completely stop working, the system redirects them back to the sign in screen. The system is able to process the data as well as identify that the user input is incorrect. Thus, allowing the system to respond and perform in an efficient manner.

4. Security requirements:

Security requirements describe the ways in which data will be protected during storage and how systems will ensure safety and security. In the case study, it is evident that the system meets the security requirements as it requires users to login with their credentials. The system also requires the user to complete an authentication process as well as upload a headshot image of themselves.

3.3. Additional Requirements (FURPS+)

FURPS+ is an extension of FURPS which includes additional categories. This includes design constraints, implementation requirements, interface requirements, psychical requirements, and supportability requirements.

- Design constraints

  Design constraints are specific limitations that the systems hardware and software are required to stick to. In this case study, there are minimal design constraints due to the fact that the system can be accessed through any browser on multiple electronic devices as long as they are connected to the internet.

- Implementation requirements

  Implementation requirements describe the restrictions of a system that may occur such as a certain programming languages and tools, documentation techniques, detail, and the elements. In the case study, the system could have been made with any programming language such as Python, Java Script, HTML, CSS etc. In addition to this, the system would have been designed with lots of detail to ensure that users find the system easy to navigate.

- Interface requirements

  Interface requirements can be defined as the way in which systems interact with other systems. This is evident in the case study because in order for the system to send out emails and prompts to the athletes, coaching staff and physiotherapist, the system is required to interact with an email system in order to send out automated emails.

- Psychical requirements

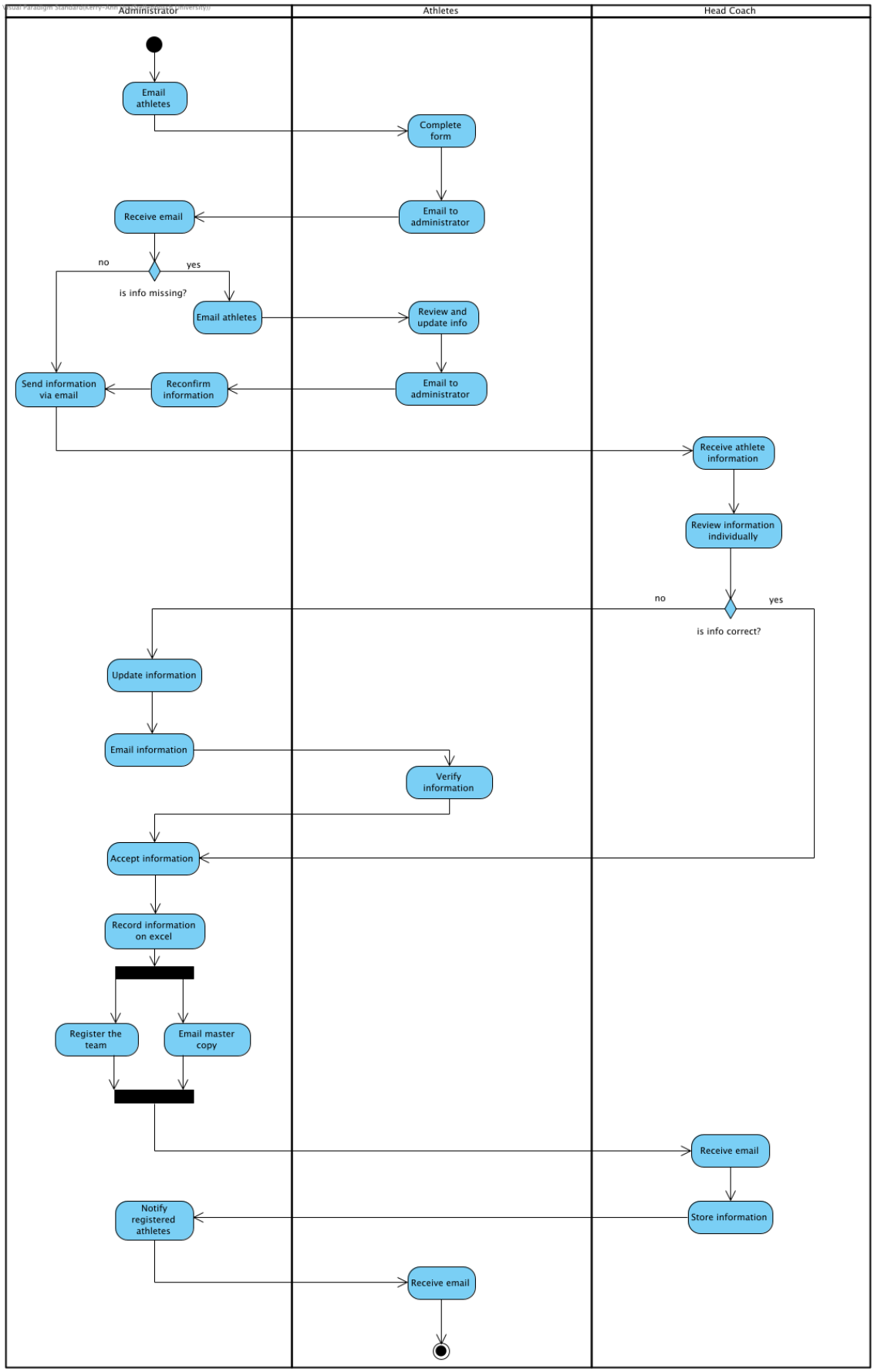
  Psychical requirements refer to the specific characteristics of the system. For example, the size of the hardware, the weight, the amount of power it uses etc. In the case study it is evident that the system would need to be connected to the internet in order to automatically send out emails to the stakeholders. Additionally, the system would need to be a certain size to ensure that all electronic devices have access to the system.

- Supportability requirements

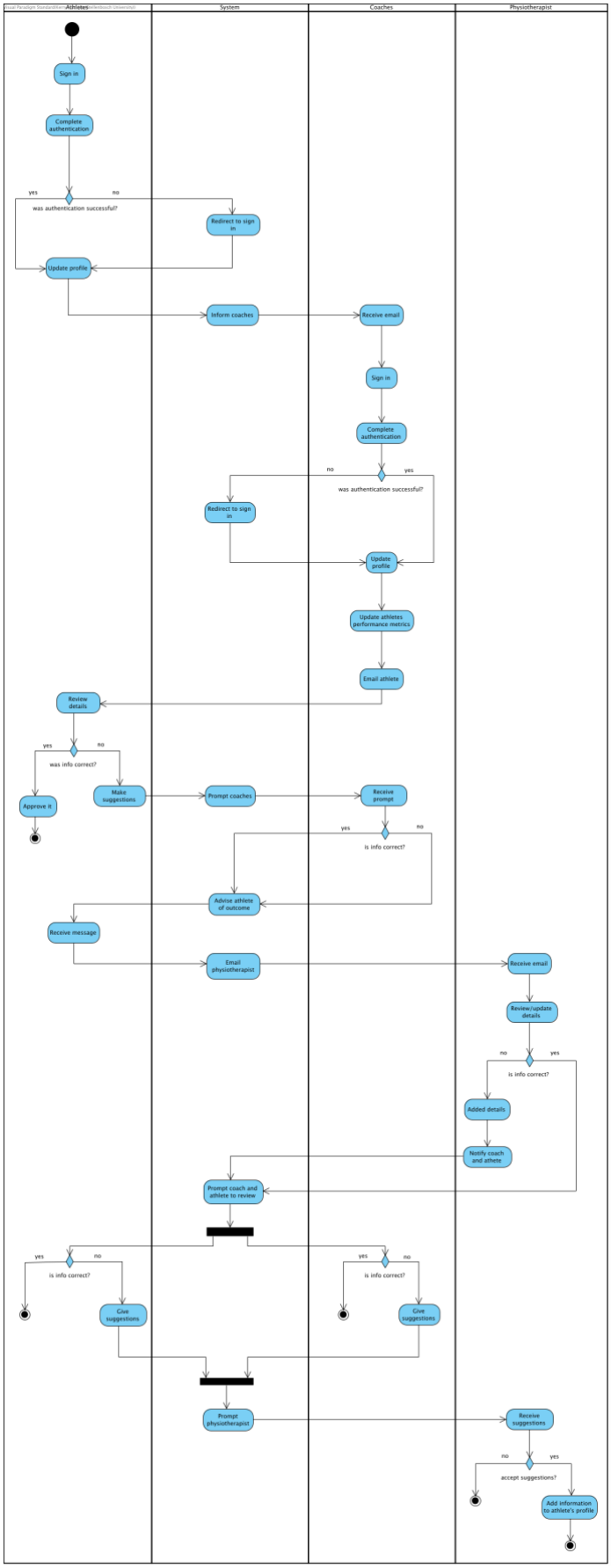
Supportability requirements describes the way in which a system is installed, monitored, and updated on a device. In some cases, many devices need specific supportability to run the system. In the case study it is clear that the athletes are constantly updating their personal information as well as the physiotherapist is providing additional information on the athletes. This helps to ensure that all data is updated. Additionally, users need to ensure that their devices are connected to an internet connection in order to gain access to the website and their emails.

4. Activity Diagrams

4.1. As Is



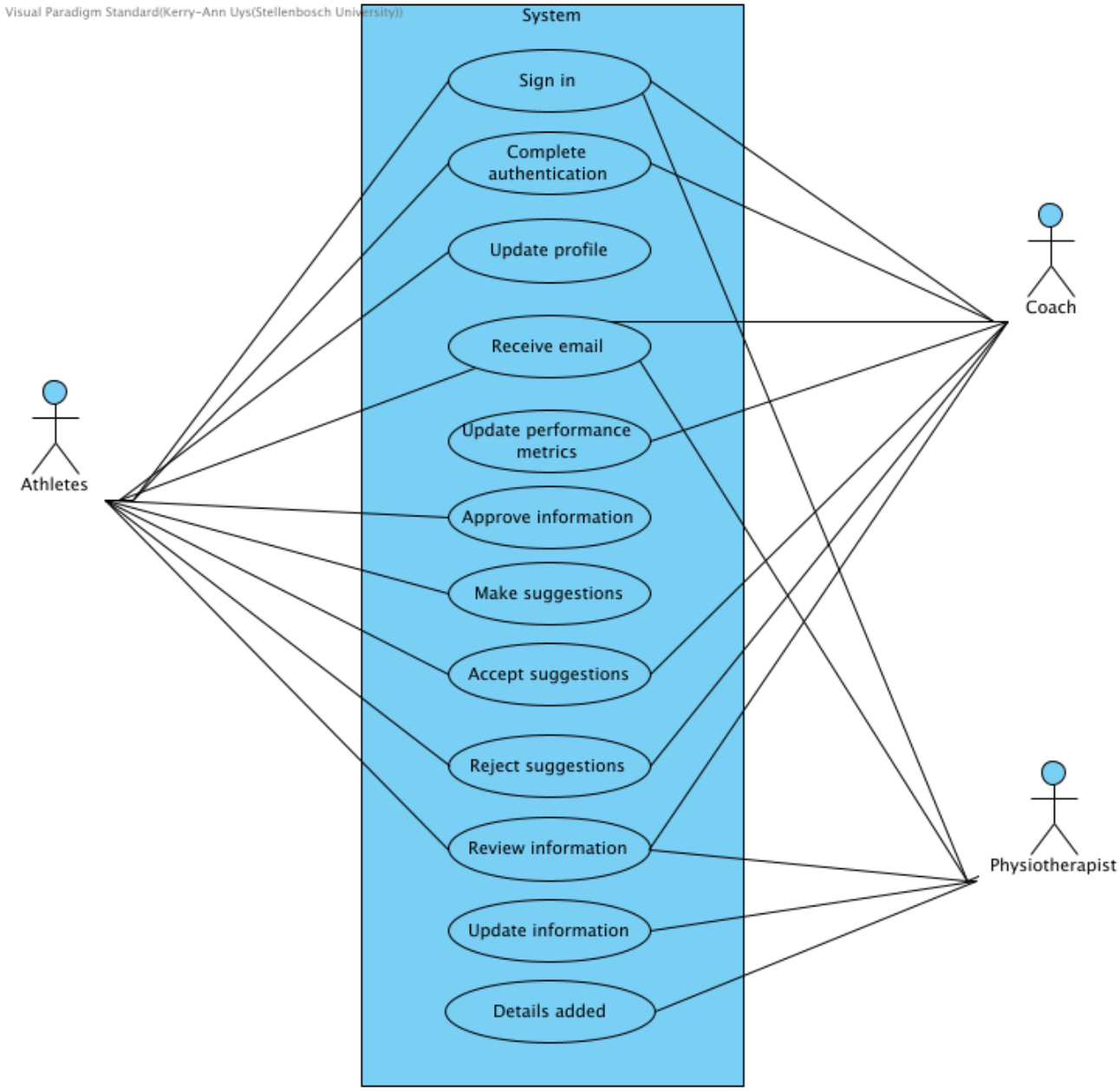
4.2. To-be


Athletes
System
Coaches
Physiotherapist
Sign in
Complete authentication
yes
no
was authentication successful?
Redirect to sign in
Update profile
Inform coaches
Receive email
Sign in
Complete authentication
no
yes
was authentication successful?
Redirect to sign in
Update profile
Update athletes performance metrics
Email athlete
Review details
yes
no
was info correct?
Approve it
Make suggestions
Prompt coaches
Receive prompt
yes
no
is info correct?
Advise athlete of outcome
Receive message
Email physiotherapist
Receive email
Review/update details
no
yes
is info correct?
Added details
Notify coach and athete
Prompt coach and athlete to review
yes
no
is info correct?
Give suggestions
yes
no
is info correct?
Give suggestions
Prompt physiotherapist
Receive suggestions
no
yes
accept suggestions?
Add information to athlete's profile

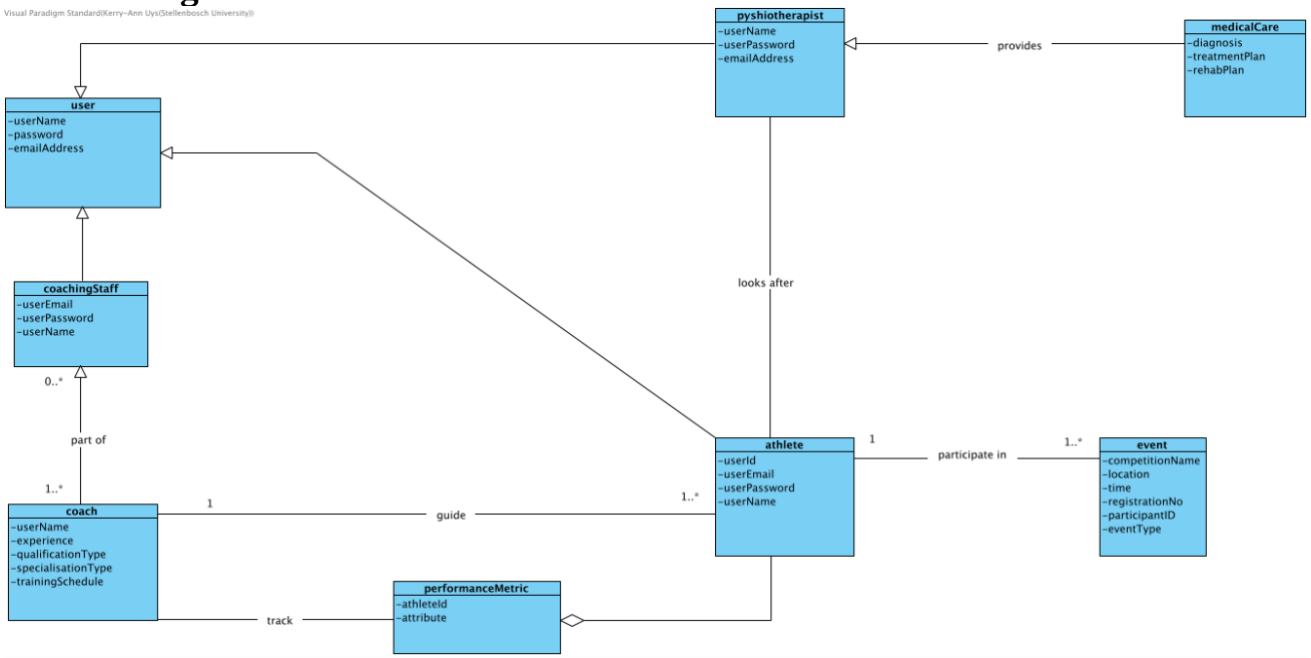
5. Use Case Diagrams

5.1. As-is

5.2. To-be

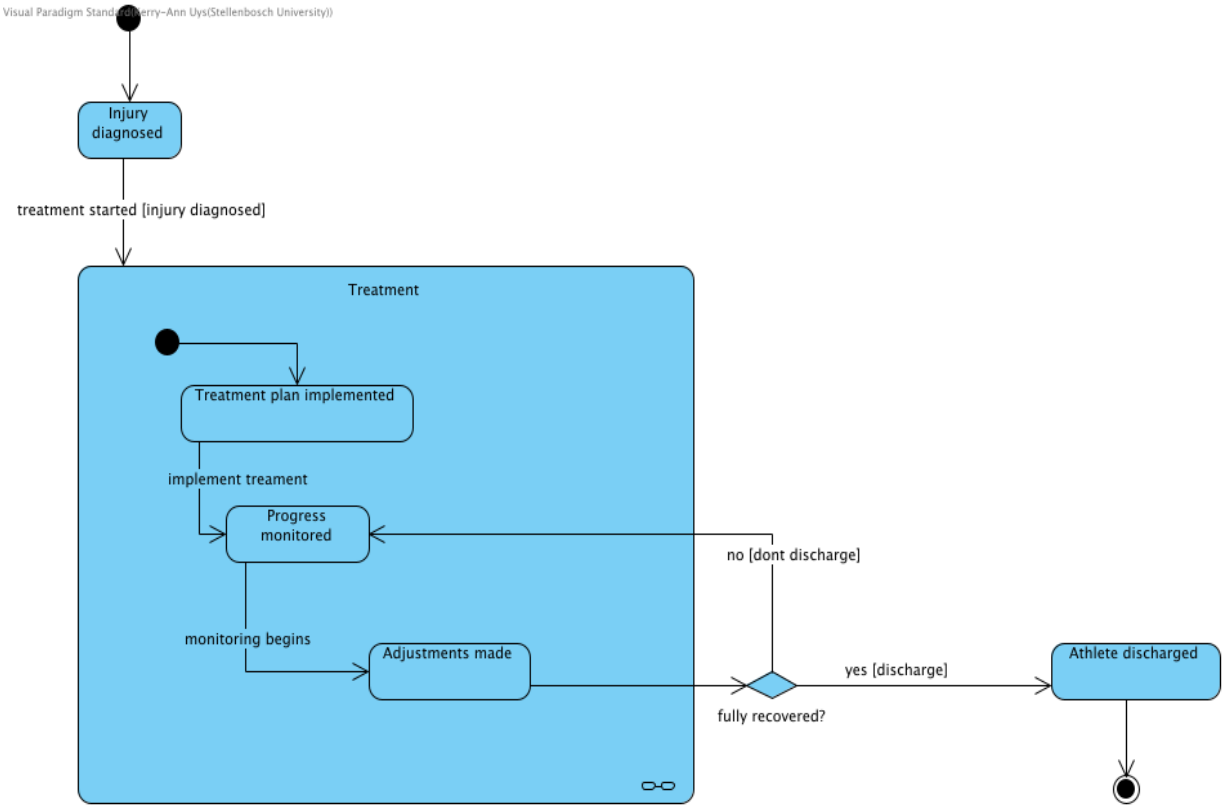

Visual Paradigm Standard(Kerry-Ann Uys(Stellenbosch University))
System
Sign in
Complete authentication
Update profile
Receive email
Update performance metrics
Approve information
Make suggestions
Accept suggestions
Reject suggestions
Review information
Update information
Details added
Athletes
Coach
Physiotherapist

6. Class Diagram

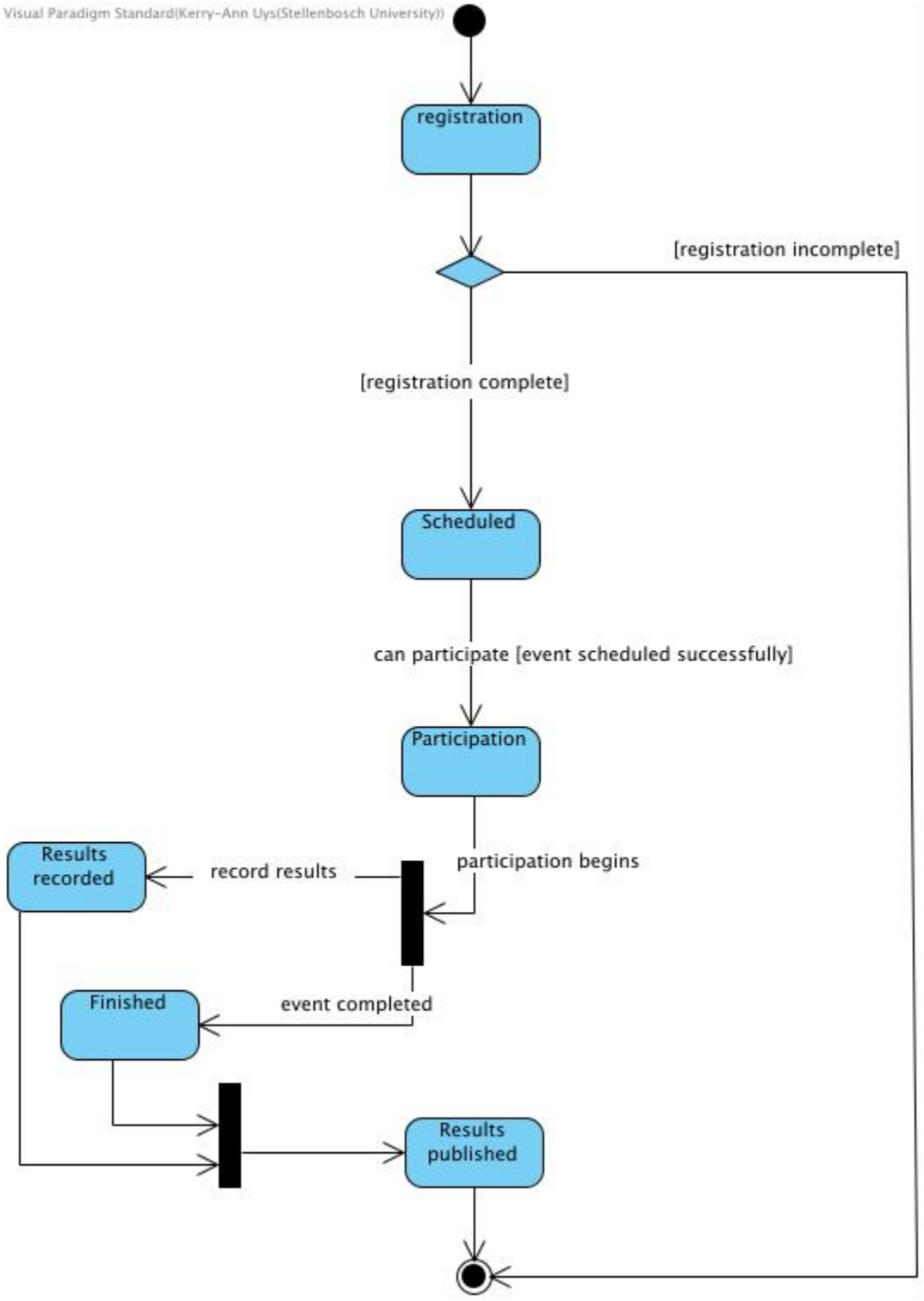


7. State Machine Diagrams

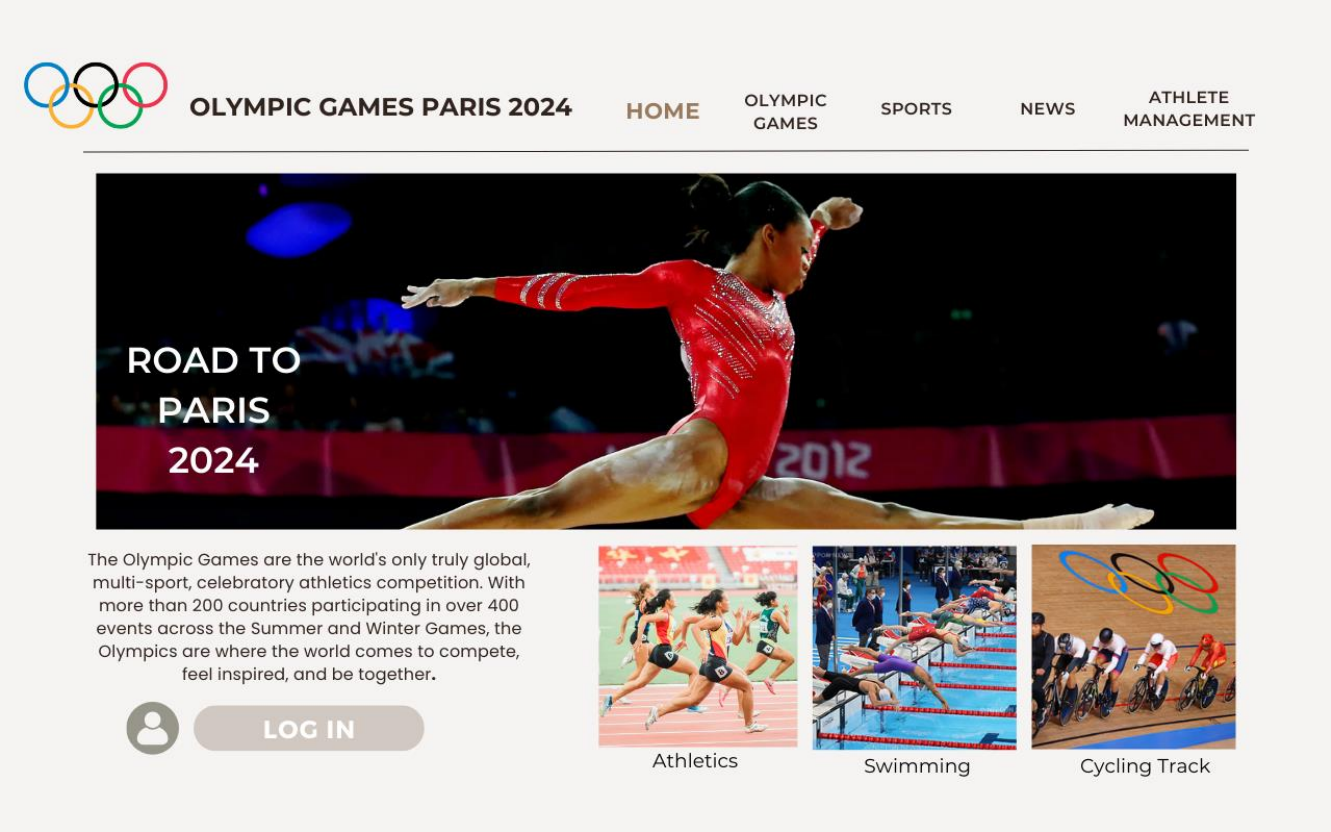
7.1. Physiotherapist



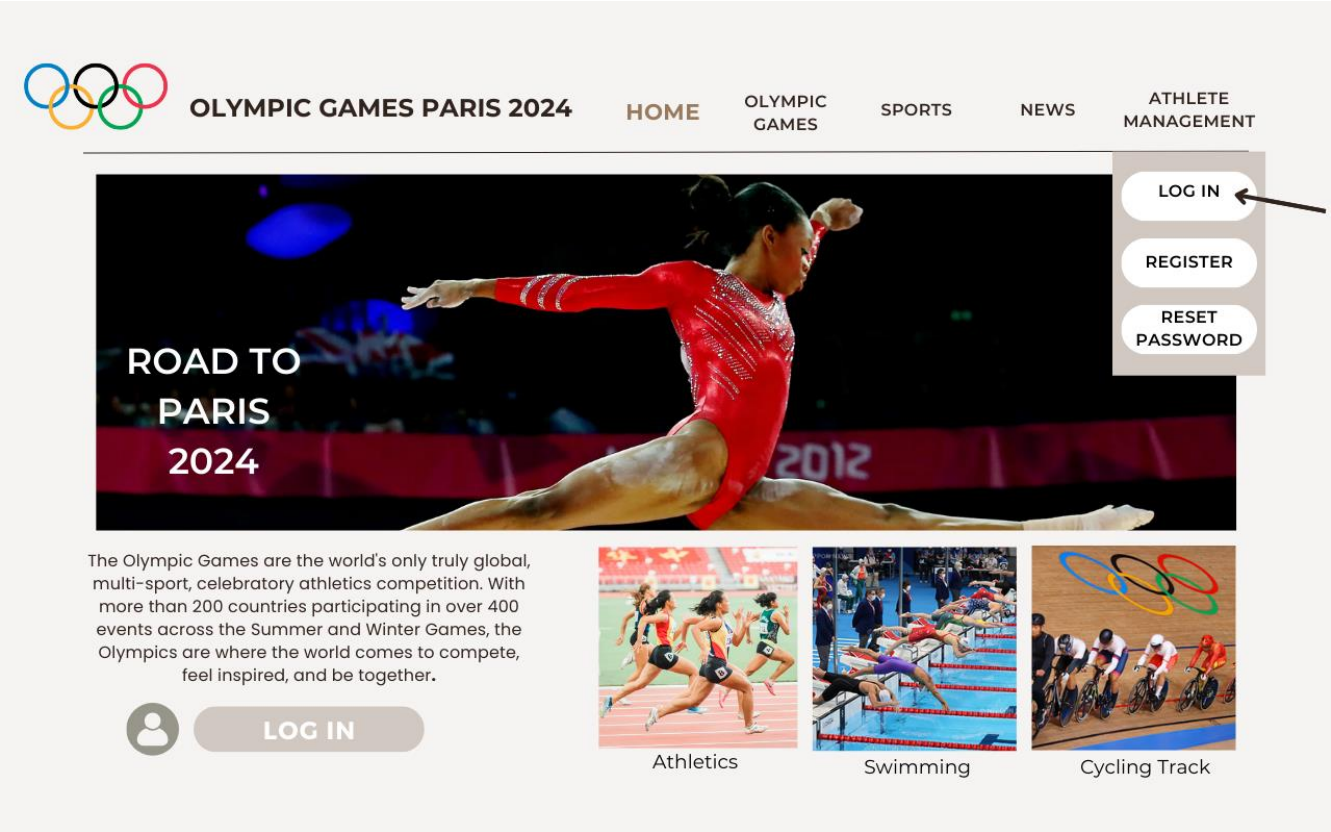
7.2. Event


Visual Paradigm Standard(Kerry-Ann Uys(Stellenbosch University))
registration
[registration incomplete]
[registration complete]
Scheduled
can participate [event scheduled successfully]
Participation
participation begins
Results recorded
record results
Finished
event completed
Results published

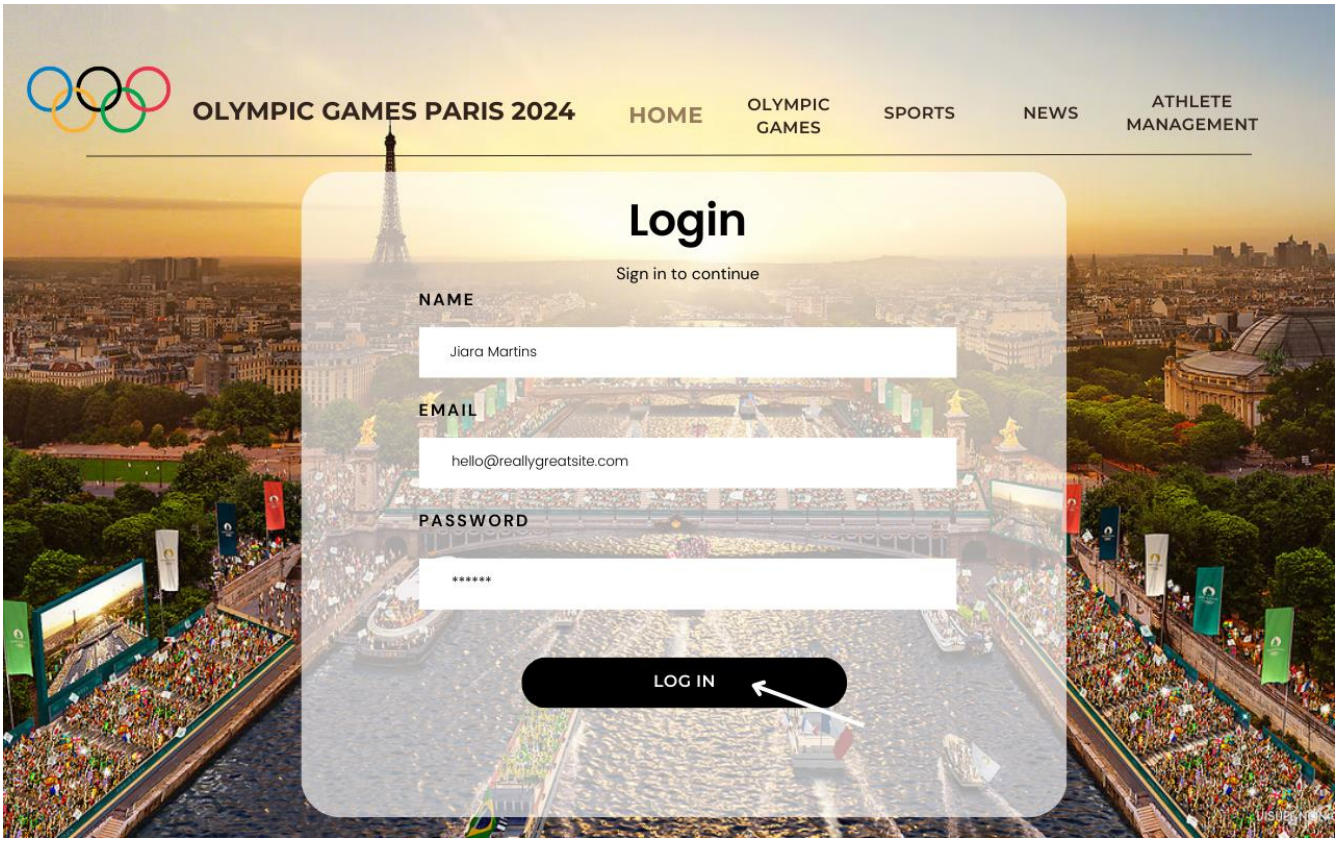
8. UX Designs



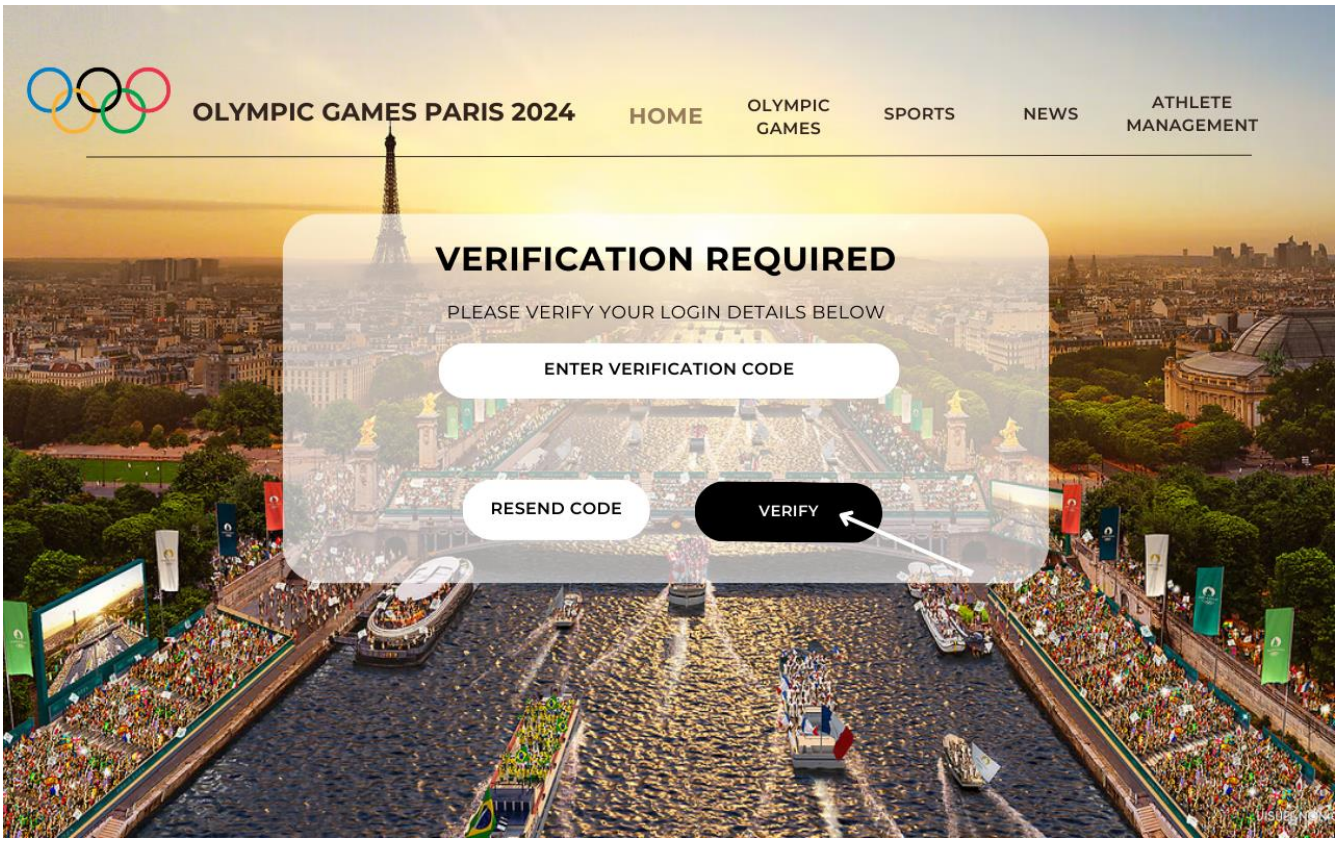
The following screen displays exactly what the user will be looking at when browsing on the Olympic website.



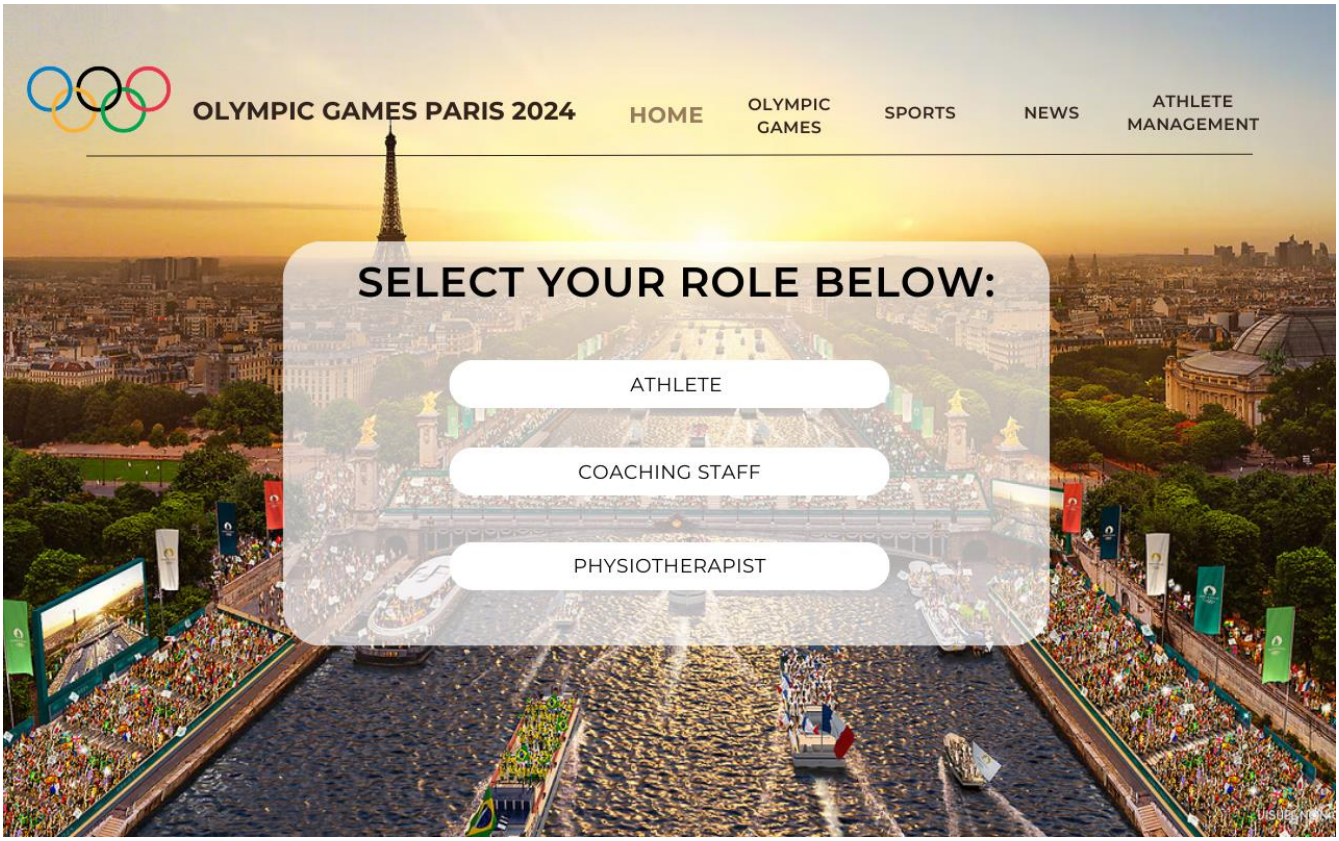
The following screen displays what will happen when the user clicks on the 'athlete management' button. When selecting this option, a drop-down menu appears with 3 different options to choose from. The user may either select to 'log in', 'register' or 'reset password' on the system. I have placed an arrow indicating which option the user has chosen. The process has officially begun as the user has chosen to log into their account using their unique log in details.



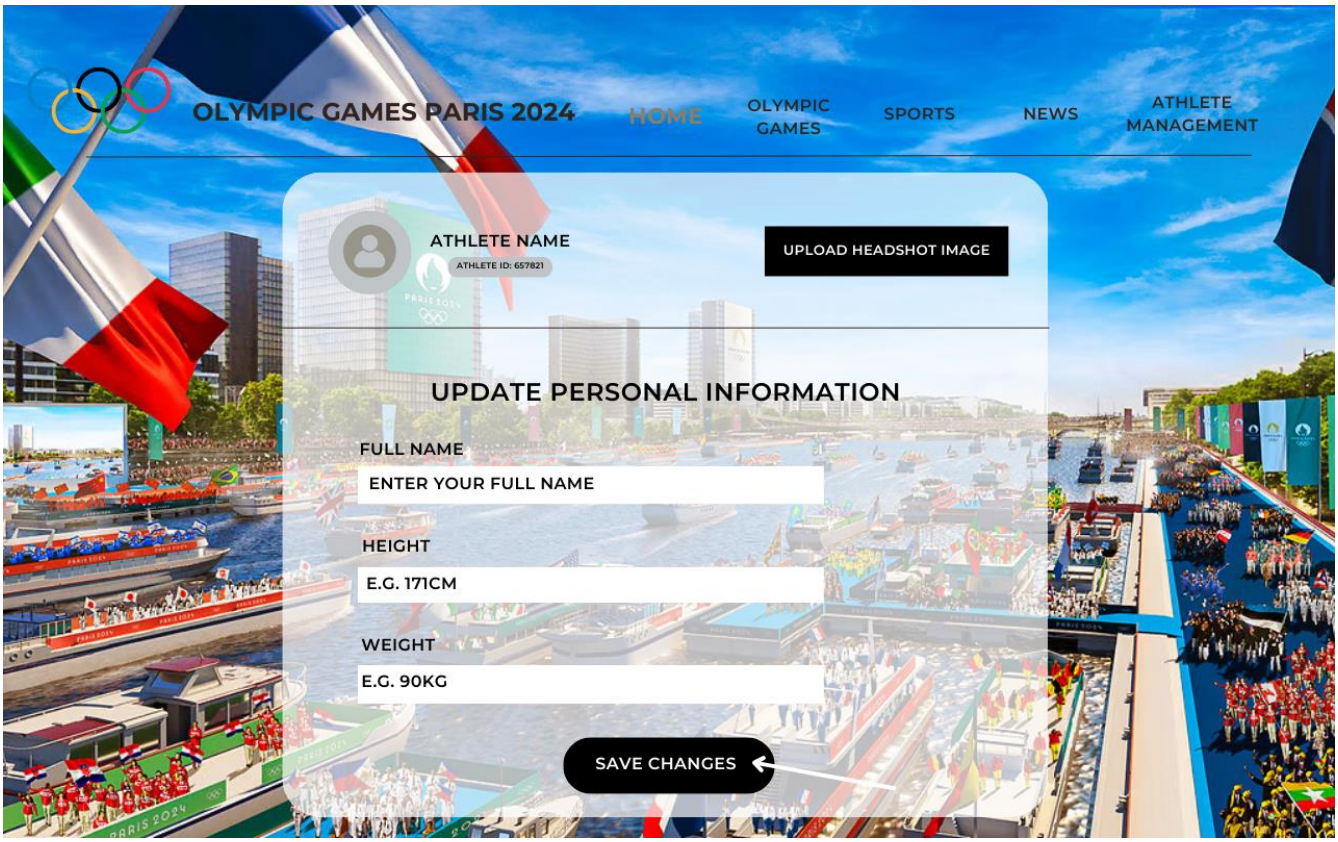
The following screen displays what will happen when the user clicks on the 'log in' button. The system redirects the user to the login page and requires them to enter in their specific details in order to proceed onto the athlete management system. Once their details have been entered, the user will click the 'log in' button to continue. If their details are incorrect the page will reload and request the user to re-enter their details.



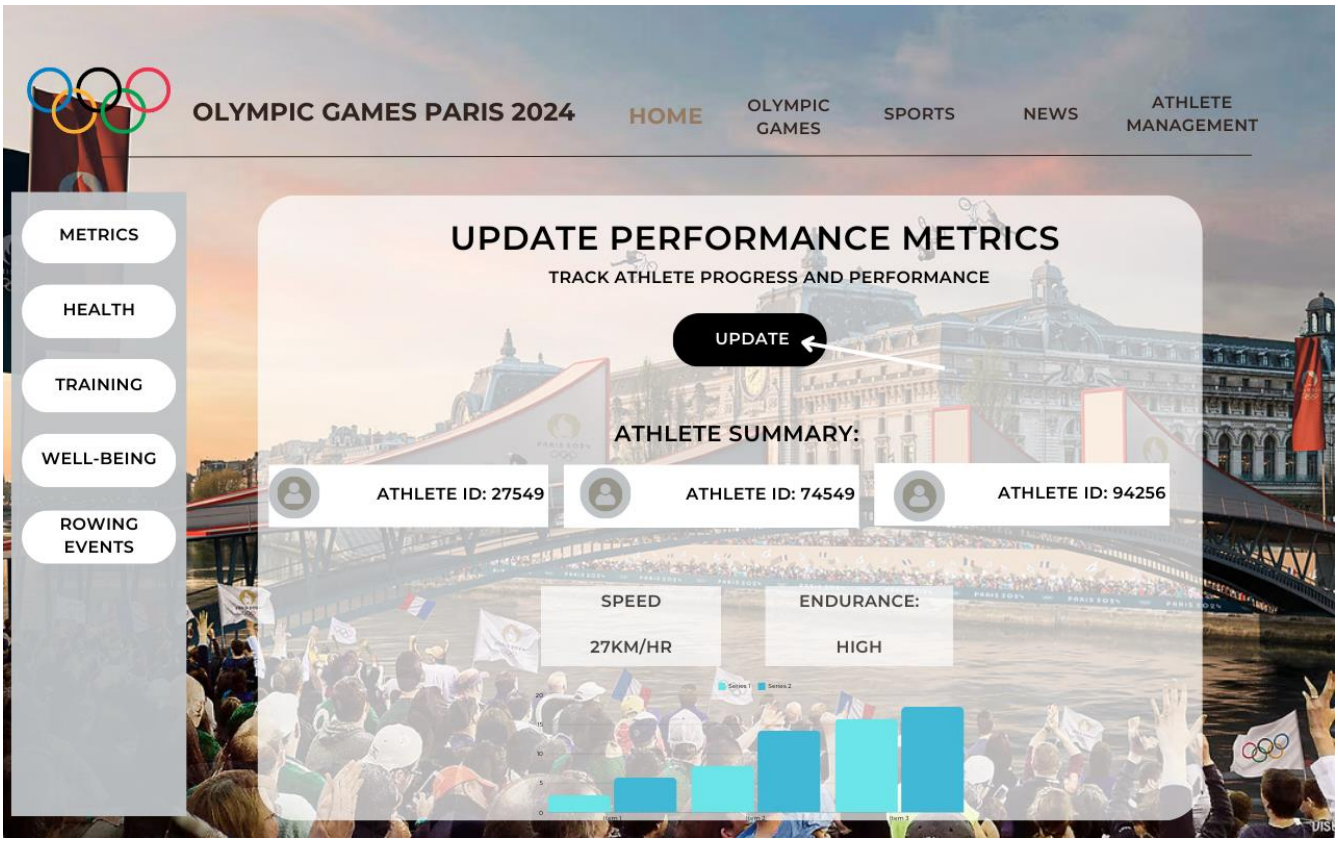
The following screen displays what will happen when the user enters in all of their login details and then clicks log in. The system redirects to the verification page which requires the users to verify themselves. A code is sent to their private emails. The user is required to enter the code below and click on 'verify'. However, if the user did not get a code the first time, they can click on the 'resend code' button to receive another code.



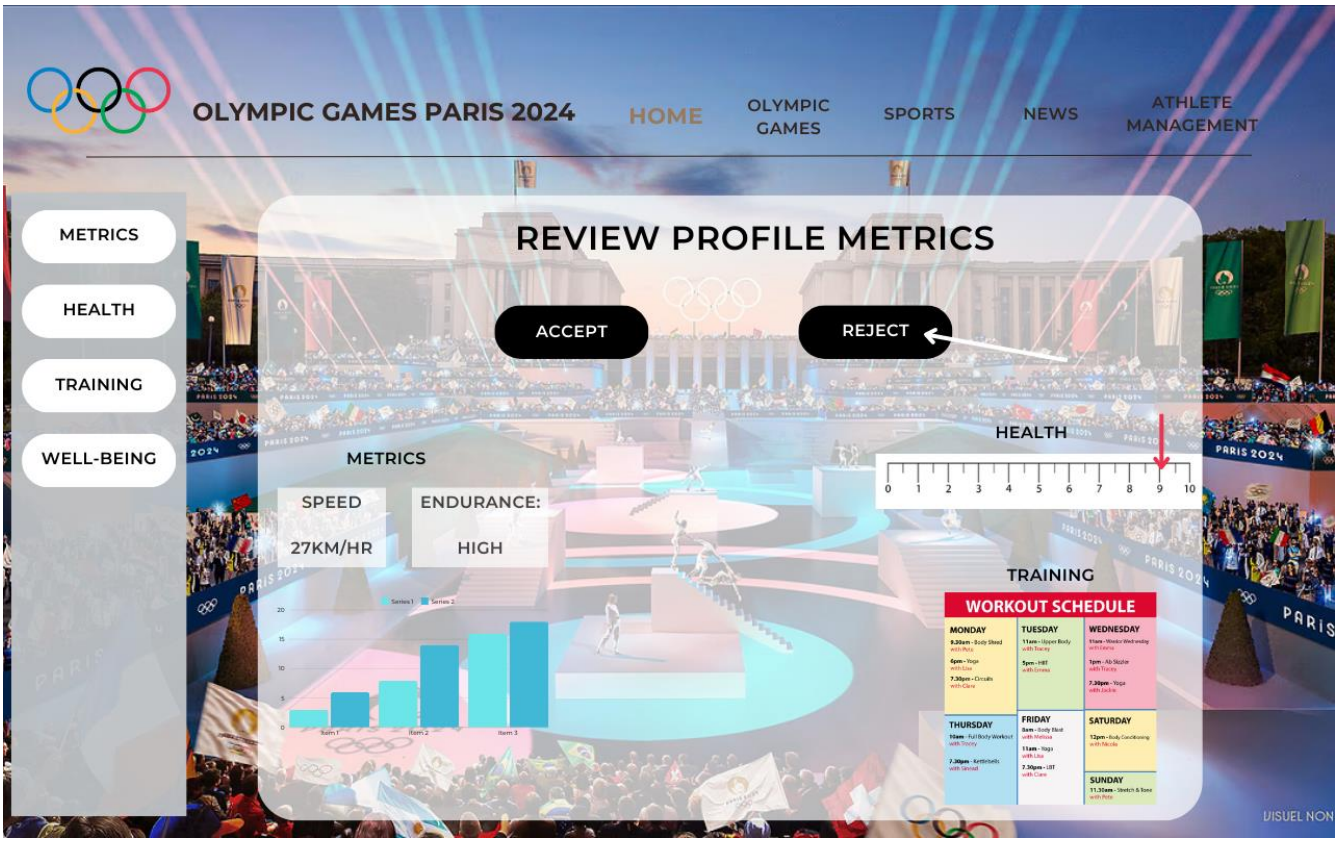
The following screen displays what will happen when the user clicks on 'verify'. The system then prompts the user to select their athlete management role. This includes athletes, coaching staff, and physiotherapist. Once the user selects their role, the system will redirect to the specific page based on their role.



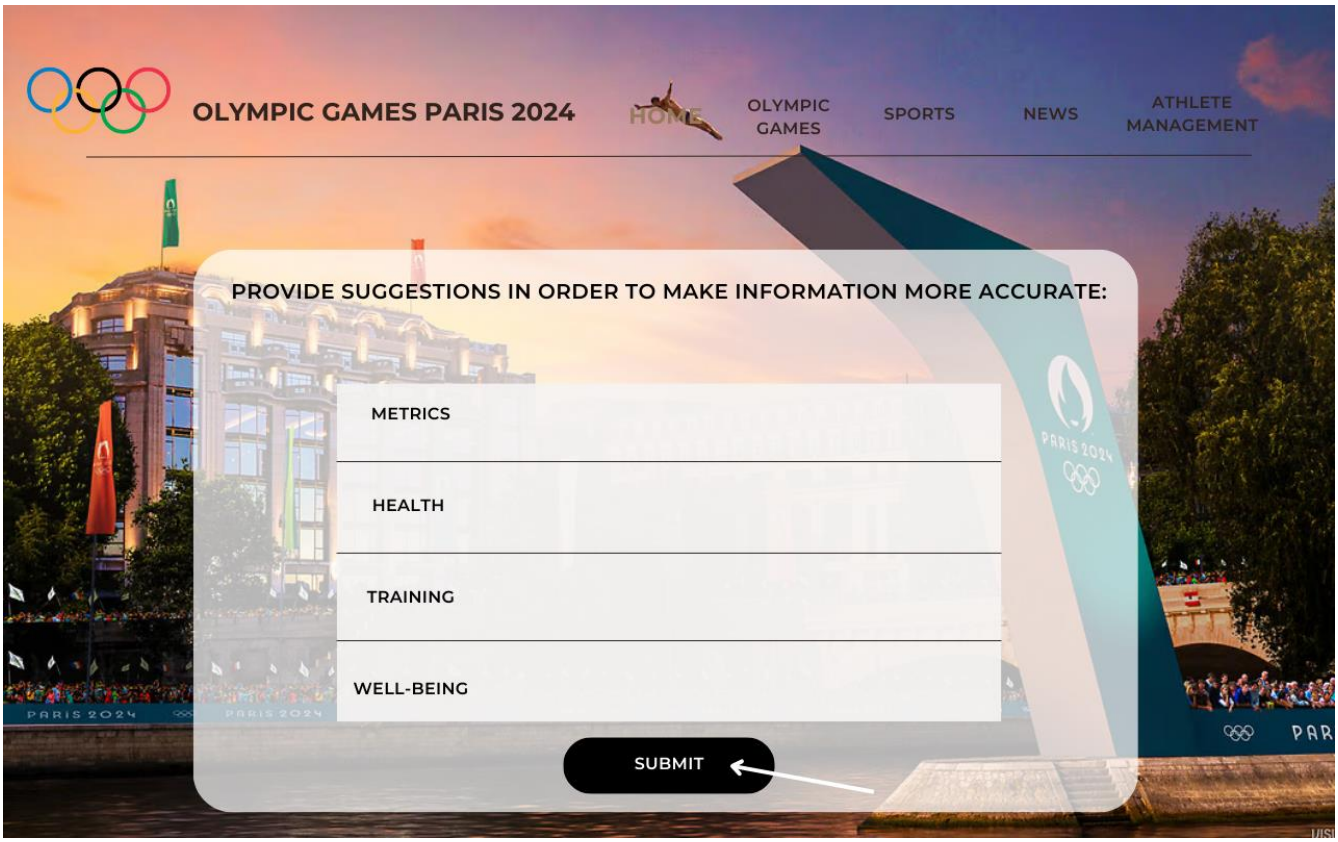
The following screen displays what will happen when athletes log into the system. They are redirected to their profile where they are required to update their personal information. Athletes are required to upload a headshot image of themselves and fill in their personal information. Once they have completed all the above steps, they need to save their changes by clicking on the ‘save changes’ button.



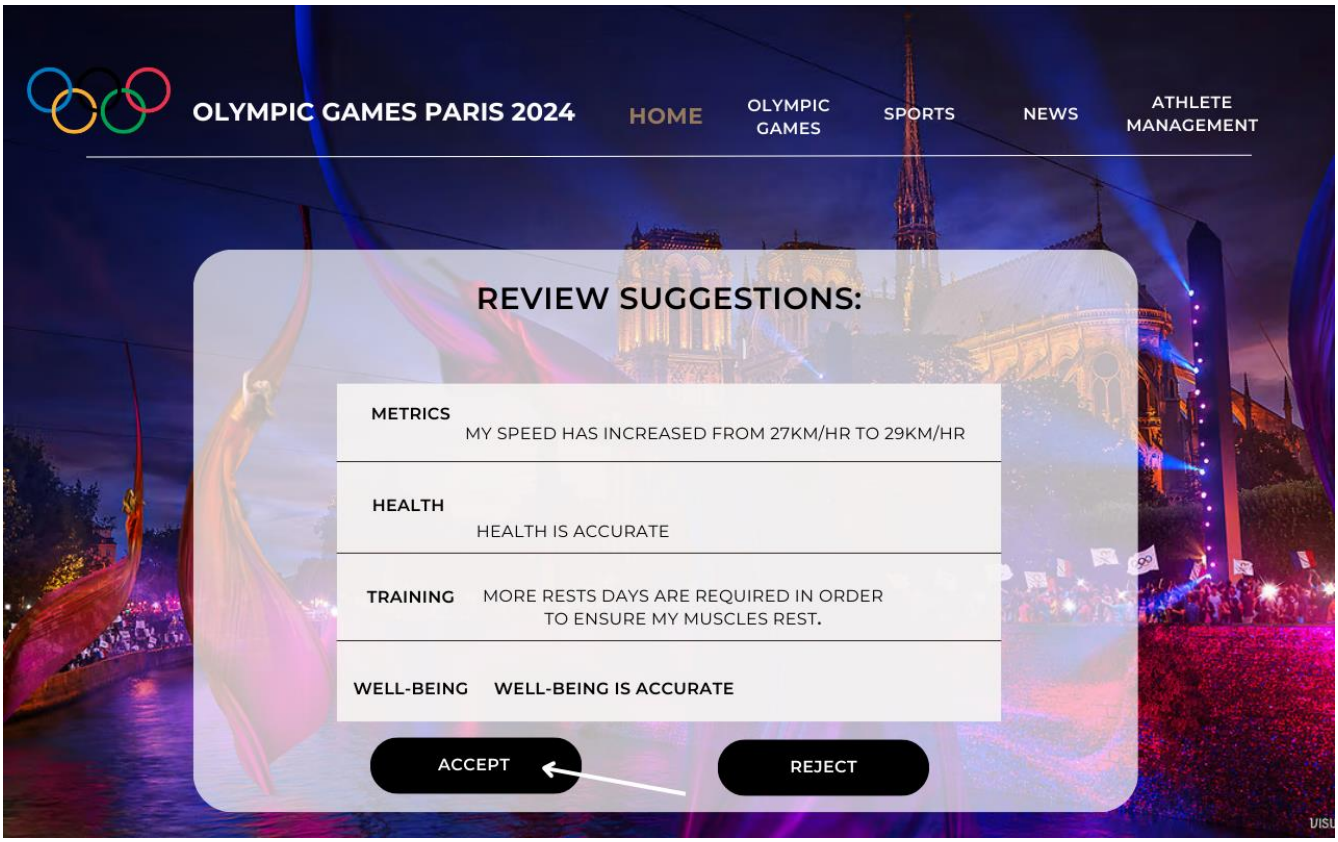
The above screen displays what happens when the coaching staff completes the log in process. The coaching staff will be tasked with updating the performance metrics of the various athletes. The side navigation bar on the right includes all the details that are in the performance metrics. Such as, training schedules, current performance, health, and well-being, as well as determining who will take part in the various rowing heats/events of the Olympics. The coaching staff is required to click on the 'update' button in order to proceed.



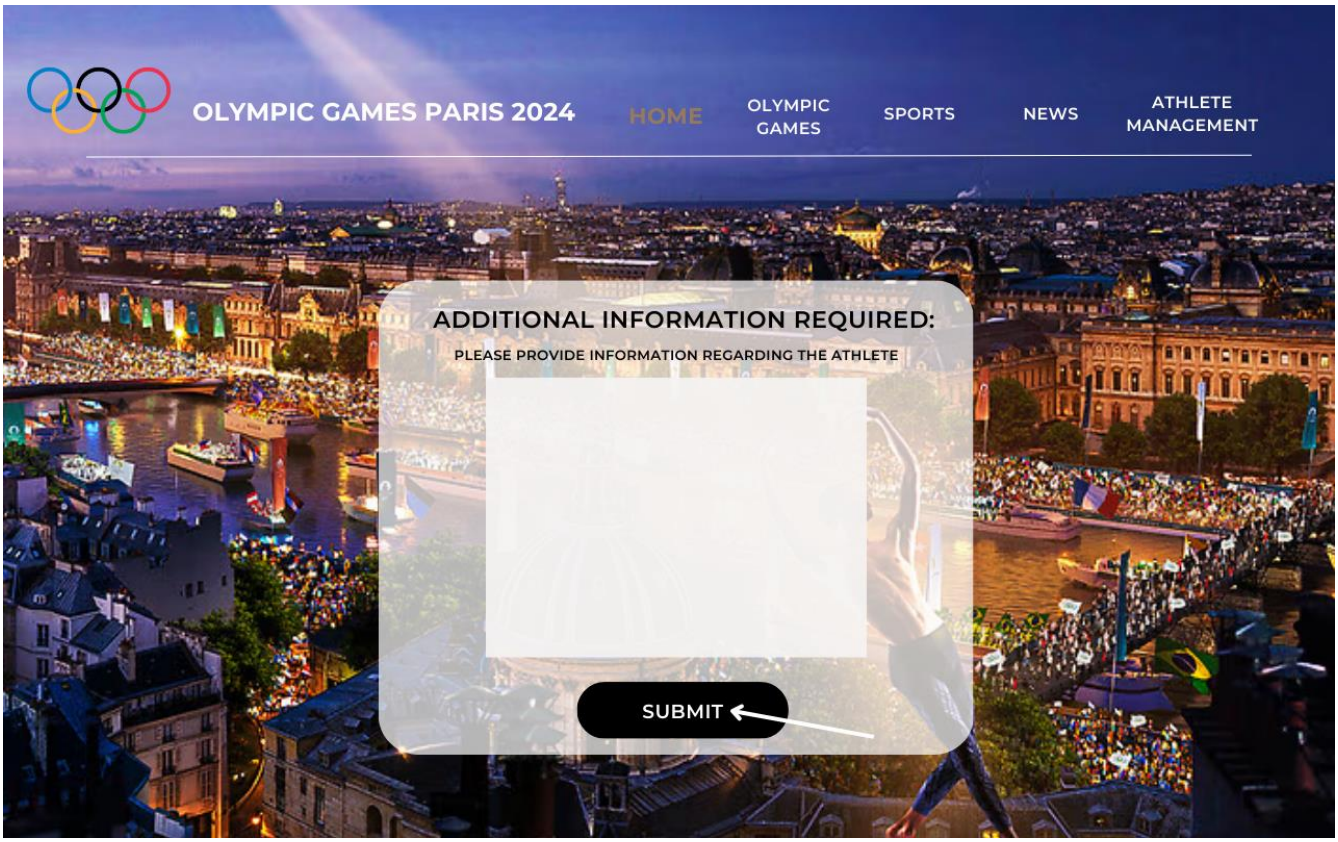
The following screen displays the task that requires athletes to review their profile metrics. Athletes will now review the details provided on their profile. If the athletes are satisfied with the details provided, they may approve it. If the information is inaccurate, they will reject it. In the above screen, I have shown the athlete rejecting their profile metrics.



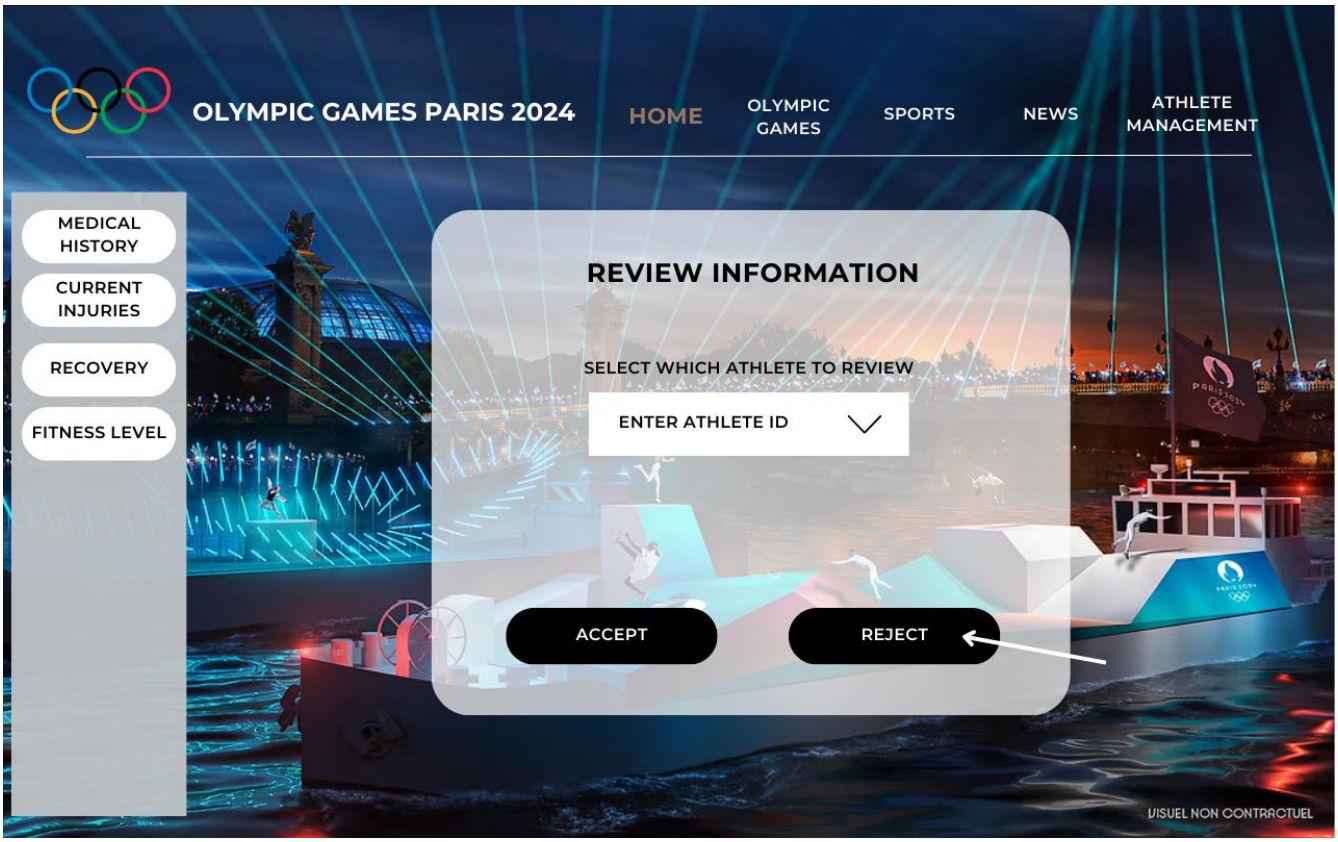
The above screen displays what will happen when the athlete rejects their profile metrics. The system then prompts them with a message that requires them to provide suggestions. Once suggestions have been made, the athlete may then continue to the next step by clicking on the 'submit' button.



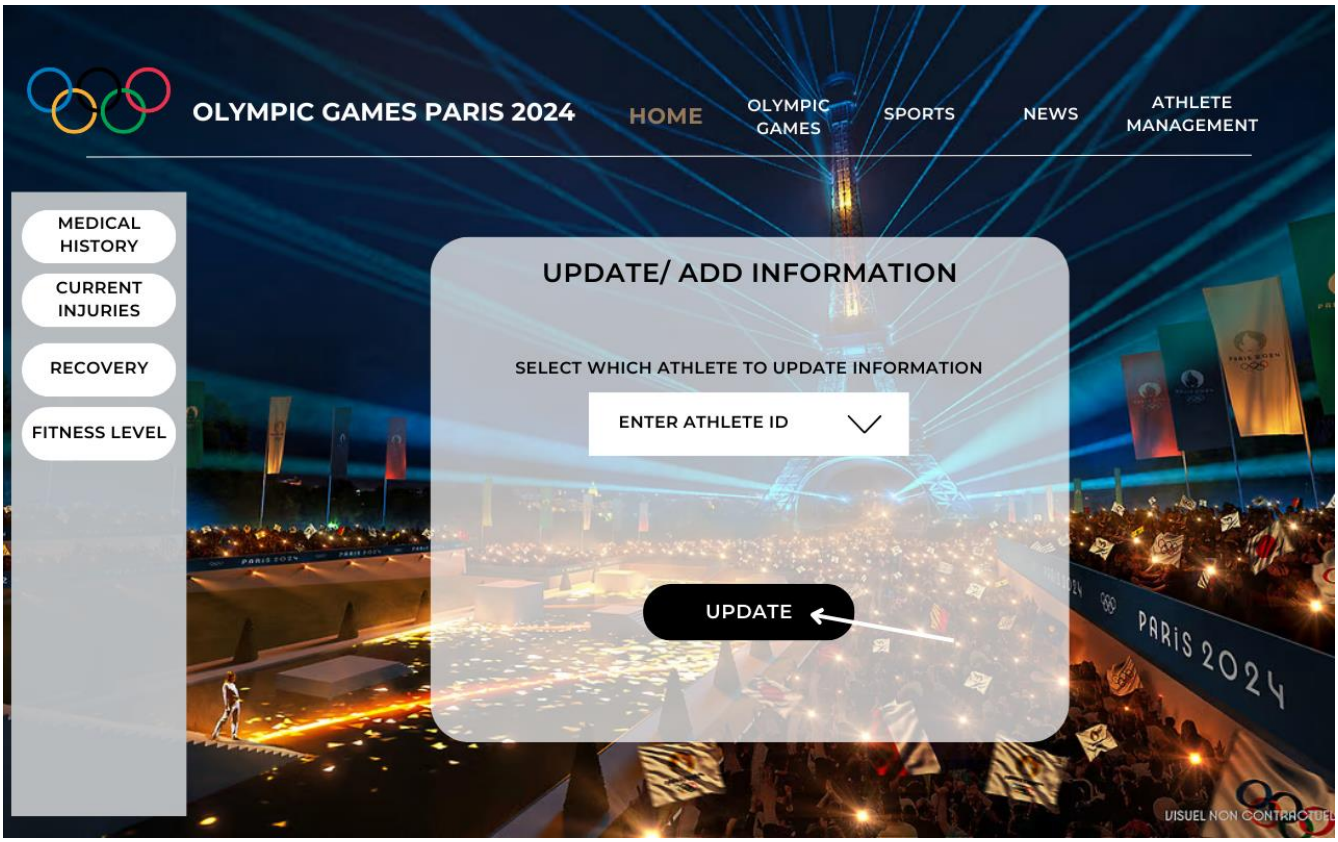
The following screen displays the system prompting the coaching staff with these suggestions from the athletes. The coaching staff can either accept or reject these suggestions by clicking on one of the black buttons at the bottom of the screen.



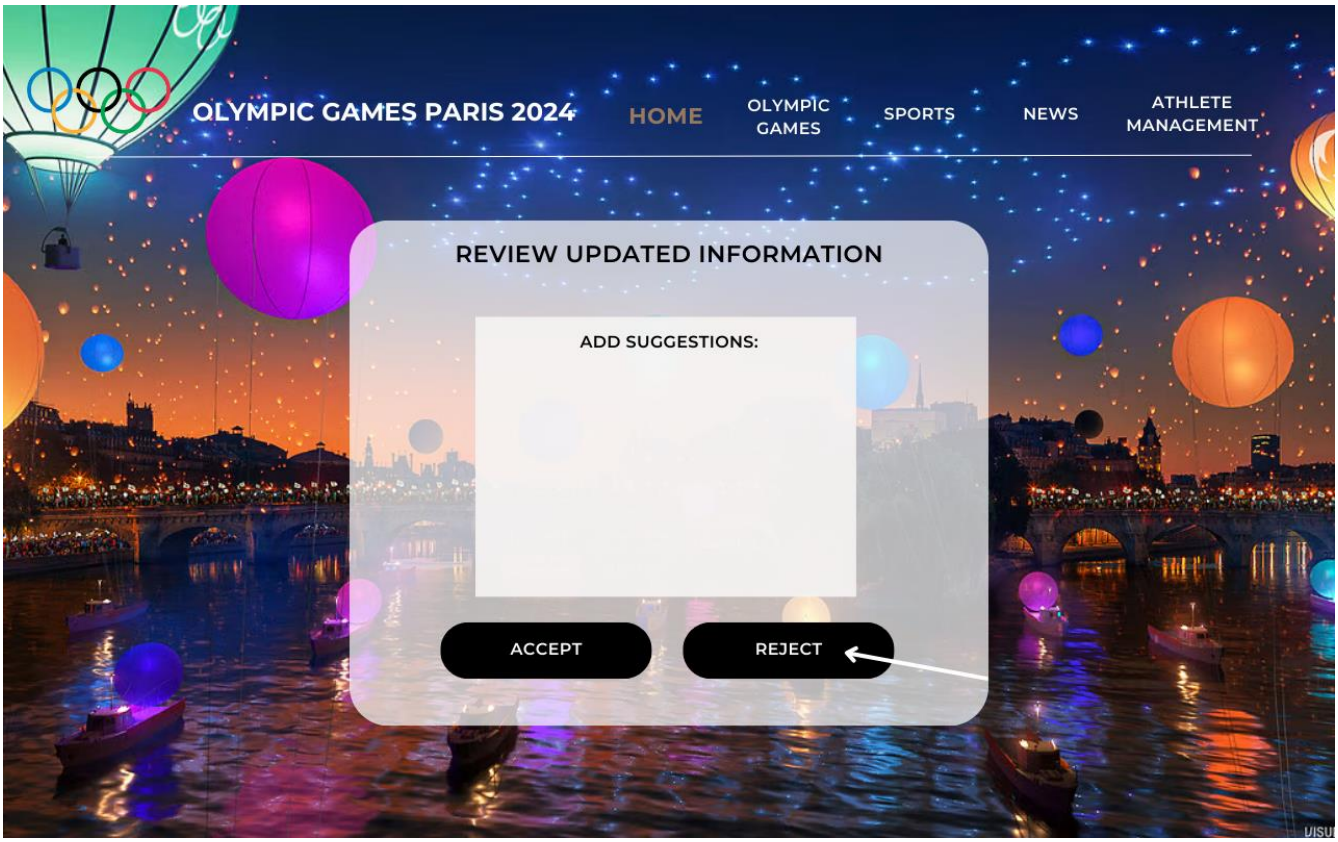
Once all the above steps have been completed, the system then prompts the physiotherapist with an automated email. The physiotherapist is required to provide additional information regarding the athlete. Once they have provided the necessary details, they may proceed by clicking on the 'submit' button at the bottom.



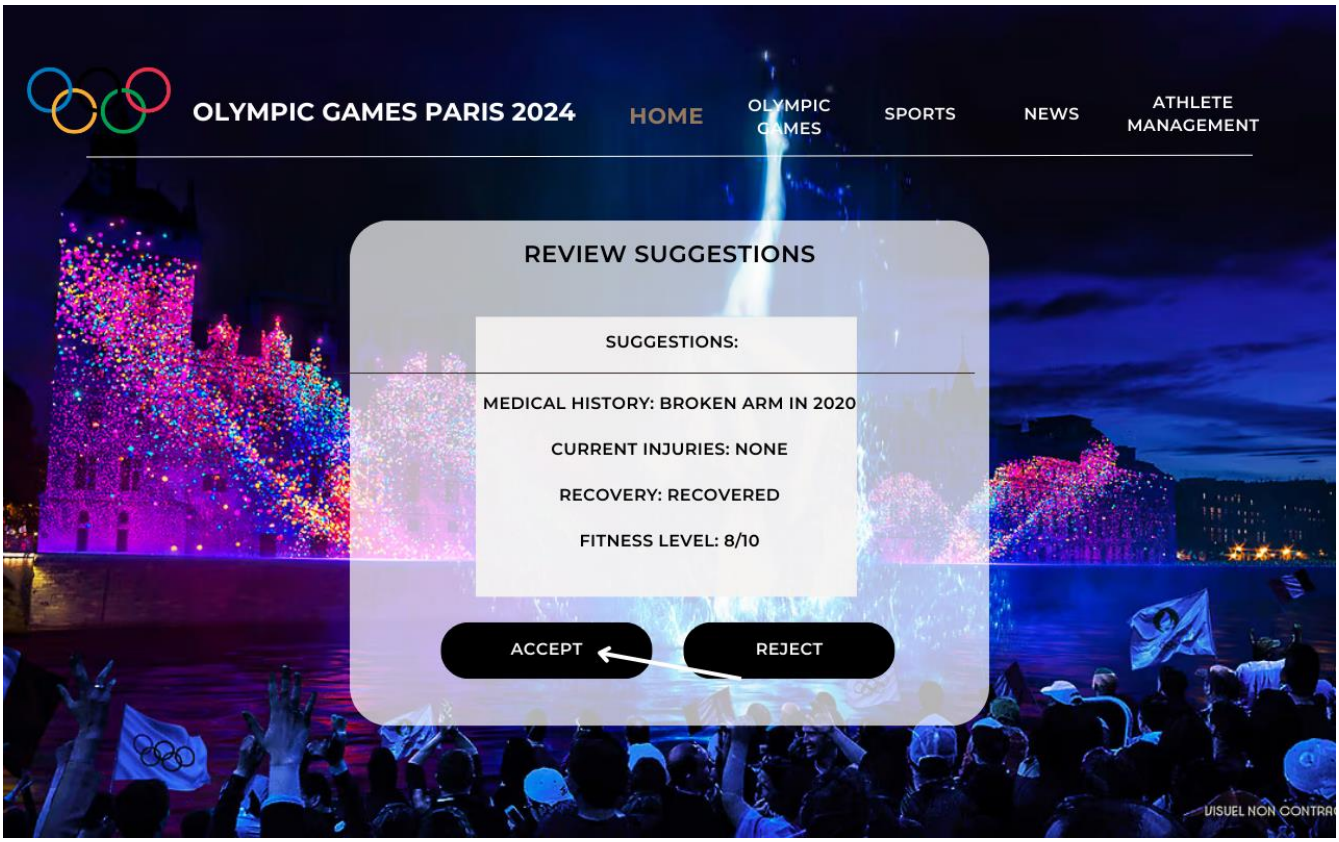
The following screen displays what the Physiotherapists sees on their side. They can now review all information relating to medical history, current injuries, expected time of recovery, fitness levels, etc. This can be done by entering the athletes unique ID number and viewing their individual profiles. Once they have reviewed the necessary athlete's profile, they need to make the decision to either accept or reject the information.



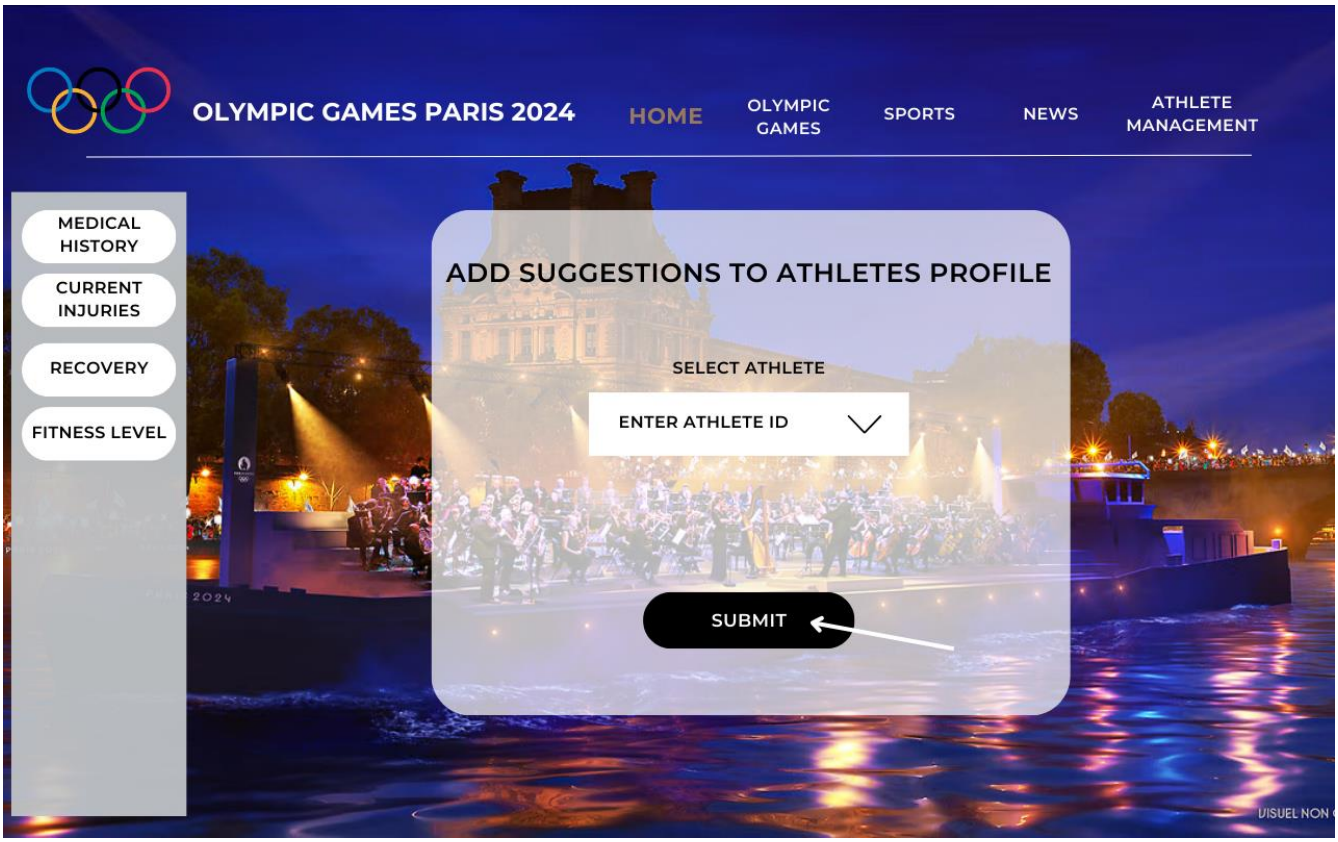
The following screen displays what happens when the physiotherapist rejects the information. The system redirects the physiotherapist to the page which requires them to either update or add new information. This process can be done by entering in the athletes unique ID number, clicking on their profiles and adding/ updating information where it is necessary. Once this has been completed, physiotherapist need to click on the update button to save all changes.



The following screen displays the review page. The system prompts all individuals that information is available for review. Should any of the stakeholders feel that the information is correct, they will select the accept button. Should they have any suggestions, they are required to press on the reject button and enter all suggestions onto the system.



The following screen displays the system prompting the physiotherapist with these suggestions. The physiotherapist is required to read through all suggestions and decide to either accept them or reject them.



The following screen displays what happens when the physiotherapist accepts the suggestions. The physiotherapist will be redirected to the next step where they are required to add this information to the relevant athlete's profile. This can be achieved by entering in the athletes ID number, selecting their profile, and adding the suggestions where applicable. Once this has been completed, the physiotherapist will click on the 'submit' button to save all changes.