



**MENTORIO**  
**EST. 2022**

DECEMBER 2022

# FINAL REPORT

This report examines the Mentorio project executed by RESOLVEX. It includes the project's details, a business analysis, the developed solution and final thoughts.

Presented by  
**RESOLVEX**

Presented to  
**MENTORIO**

**NOVA**  
**IMS**  
Information  
Management  
School

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## 1. THE PROJECT

In this Chapter we analyze the project proposed by **Mentorio** to **RESOLVEX**.

**It is divided into two important parts:**

- I. Detailing the project's core concepts such as the purpose, stakeholders, success criteria and factors and requirements is essential to structure a solid foundation for the development of the solution.
- II. Planning the project's management and control is necessary to ensure that the team is able to meet the requirements in stipulated schedule during the realization and implementation phases.

## 1.1. PROJECT INTRODUCTION

This section serves as an **executive summary** to give an understanding of the overall project scope.

### 1.1.1. Overview

Every year Portugal reports a substantial increase of students that access higher education. However, few degrees include practical courses regarding personal development and the current job market.

To overcome this situation, **Mentorio**, a Portuguese company that provides mentorship and career management services, decided to create a platform specifically designed to support students.

For the development and implementation of this project, **Mentorio** reached out to **RESOLVEX**.

### 1.1.2. Our Team - RESOLVEX

**RESOLVEX** is a Portuguese based company specialized in the implementation of IS projects.

For this project, **RESOLVEX** appointed a project manager that will act as a team leader.

The project leader prepared an adequate team for the project development.

The structure obeys to the following hierarchical model, with two distinct organizational levels:

- A **project manager and team leader**, Marisa Nunes that elected:
  - A **project developer**, Eduardo Costa;
  - A **project consultant**, Carlota Franco;
  - A **business analyst**, Matilde Simões;
  - A **senior consultant**, Gonçalo Rijo.

### 1.1.3. Project Purpose

**RESOLVEX's team** aims to develop and implement a new information system that provides career mentorship to college students.

#### BUSINESS OBJECTIVES - EXPECTED BENEFITS

- A platform that implements a centralized and effective contact between students and professionals and serves as an introduction to the job market and to work cultures of various enterprises.
- Mentors being able to share knowledge, advice, support, skills and experience with mentees.

#### 1.1.4. Stakeholders

- The following table specifies who are the interested parties of this project and why.

Stakeholder	Expectations
<b>Contractors (Mentorio)</b>	To launch a product that succeeds in the market.
<b>RESOLVEX project team</b>	To implement a solution that meets the client's requirements on budget and on time.
<b>Partners (Universities, Companies)</b>	A successful product that can promote them.
<b>Evaluators</b>	A simple interface that promotes a positive user experience.
<b>Key users</b>	A system that effectively responds to each user's unique needs in an intuitive and pleasant way.

#### 1.1.5. Success criteria

- How to measure the project's success:

Criteria	Metrics
<b>System's effectiveness and efficiency</b>	To develop a solution that meets all the previously agreed requirements with a good time performance.
<b>Schedule</b>	To respect the project's deadline, meaning it must be completed by the end of 2022 and presented in January of 2023.
<b>Cost</b>	To keep the project's implementation on the estimated budget.

#### 1.1.6. Success factors

- How to meet the success criteria:

Factor	Responsible
<b>Consent on the project's definition</b>	<b>Mentorio</b> and <b>RESOLVEX</b> must agree on the project's scope.
<b>Clear business and system requirements</b>	<b>RESOLVEX's team</b> has to prepare a Requirements Specification contract that <b>Mentorio</b> agrees and signs. Once signed, it must be respected by both parties.
<b>Appropriate methodology</b>	<b>RESOLVEX's project team</b> must choose the most appropriate software development methodology that is for the project.
<b>Effective communication in project management</b>	<b>RESOLVEX's project team</b> must develop a communication plan with weekly intercalary meetings with the project consultant and the client where each meeting as an assigned objective.

## 1.2. PROJECT REQUIREMENTS

This section was taken from the Requirements Specification document, that was put together and revised in the earliest stage of the project - the project definition.

Both **RESOLVEX's team** and **Mentorio** are bounded to respect the stipulated agreement.

### 1.2.1. General Requirements

- These describe the broader concepts of the scope.

#### RESPONSIVE APPLICATION

To achieve responsiveness, it is necessary to develop a web application, rather than a natively developed one.

#### SIMPLE WEB APPLICATION

User manual free enabling intuitive behavior and a positive user experience.

Currently aligned with the best practices of web development.

#### PROJECT COMPLETED BY THE END OF 2022

The entire planning, implementation, troubleshooting, testing and system configuration must be done within the foreseen schedule. The project must be presented in January of 2023.

### 1.2.2. Specific Requirements

- These result from a deeper analysis into the project's objectives.

#### NEW INFORMATION SYSTEM

The implementation of a new Information System that provides multiple communication/interaction channels:

Channel	Activity
<b>Forums</b>	For students to make questions or start a topic. Everyone can see them and the mentors can answer them.
<b>Private messages</b>	A direct channel between students and mentors.
<b>Mentorship sessions</b>	Remote online sessions that mentors organize for students.
<b>Media content (videos, lectures, tutorials, visual presentations)</b>	Can be created by mentors and enterprises and accessed by the students.

### THREE TYPES OF PROFILES

Profile	Authentication	Profile recommendation	System tasks
<b>Student</b>	Executed by the system, through verification of university emails.	Answers a quiz with user's characteristics to be matched to mentor's profiles.	<ul style="list-style-type: none"> <li>• Use forums;</li> <li>• Attend mentorship sessions;</li> <li>• Use private chat;</li> <li>• Access media content.</li> </ul>
<b>Mentor</b>	Executed by the students' individual criteria and not by the system.	Answers a quiz with user's characteristics to be matched to student's profiles.	<ul style="list-style-type: none"> <li>• Participate in forums;</li> <li>• Use private chat;</li> <li>• Create sessions and courses;</li> <li>• Create media content.</li> </ul>
<b>Enterprise</b>	Executed by a platform management team.	Selects the area of expertise to be recommended to students.	<ul style="list-style-type: none"> <li>• Create media content.</li> </ul>

### RANKING SYSTEM

The Ranking System will display the list of Mentors from the highest ranked to the lowest ranked profiles.

The rank defined by the **feedback** provided by students after each interaction.



The evaluation is based on three **criteria**: Clarity; Availability and Communication skills.

### PREMIUM ACCOUNT

It is essential to have a monetization system, this will be accomplished via the creation of a premium account meant for Students.

Features included:

- Private messaging;
- All mentorship sessions, except the first one.

Partnerships with universities can allow their students access to premium accounts.

## 1.4. PROJECT METHODOLOGY

Considering the project's characteristics, **RESOLVEX**'s project manager opted for an agile software development methodology.

### 1.4.1. Software Development Process

The chosen framework is the **SCRUM** methodology, known to be effective and appropriate for the project's short development period and **RESOLVEX**'s small team with different expertises.

During this period, there will be constant communication, biweekly, between the product owner, **Mentorio**'s Project Manager, and the SCRUM Master, **RESOLVEX**'s team leader and team.

In each of this iterations the team presents an updated version of the final product the product owner defines the expectations and priorities for the next meeting, known as product backlog.

Considering the project's high complexity, it was important to choose a methodology that provides flexibility to adjust to eventual minor changes.

### 1.4.2. Tools

**RESOLVEX**'s team assembled the set of tools required for the development process, divided into three main categories:

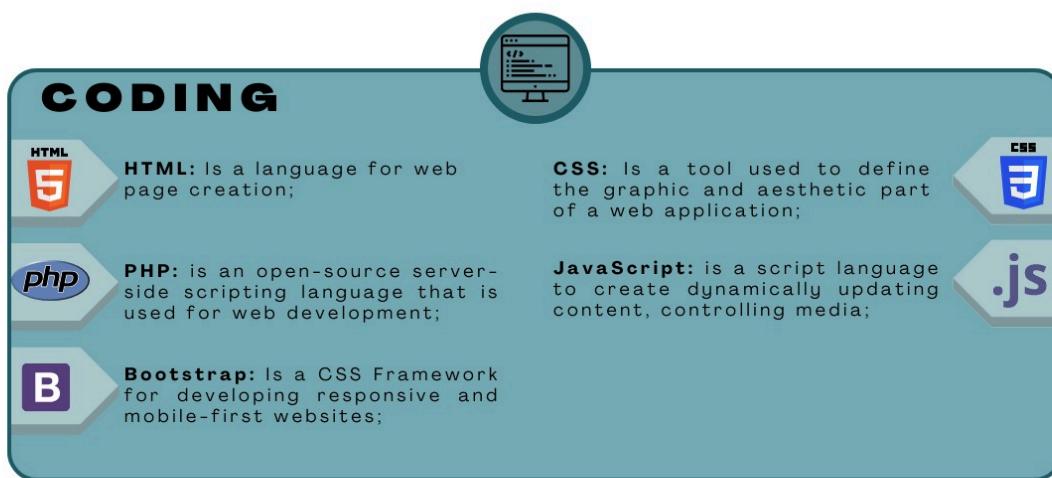


Figure 1 - Coding Tools

## SOFTWARE



**Figma:** web-based graphics editing and user interface design app, helps in getting designing prototypes;



**PowerDesigner:** collaborative enterprise modeling tool detailing the project's features through diagrams;



**Visual Studio Code:** Is a code editor that allows the gathering of multiple coding languages into a project;



**Canva:** Is an online graphic designing tool that works to simplify the process of digital design;



**Microsoft Project:** Project Management software used to create schedules, project plans, manage resources, and keep track of time;



**GitHub:** Is a cloud-based Git repository, that allows storing, tracking and collaboration on software projects;

Figure 2- Software Tools

## DATABASE



**XAMPP:** Is an open-source cross-platform web server solution stack package developed by Apache;



**MySQL:** Is a relational database management system developed by Oracle and based on the structured query language SQL;



**HeidiSQL:** Is an open-source administration tool for working with SQL server database, and that allows you to see and edit data and structure;



**phpMyAdmin:** Is a software tool written in PHP, intended to handle the administration of MySQL over the Web;

Figure 3- Database Tools

## 1.5. PROJECT PLANNING AND MANAGEMENT

Using the Microsoft Project, **RESOLVEX** was able to prepare the project's plan, after detain the Work Breakdown Structure.

### 1.5.1. Work Breakdown Structure (WBS)

The WBS graphically represents each phase of the project, and detail each important milestone to achieve.

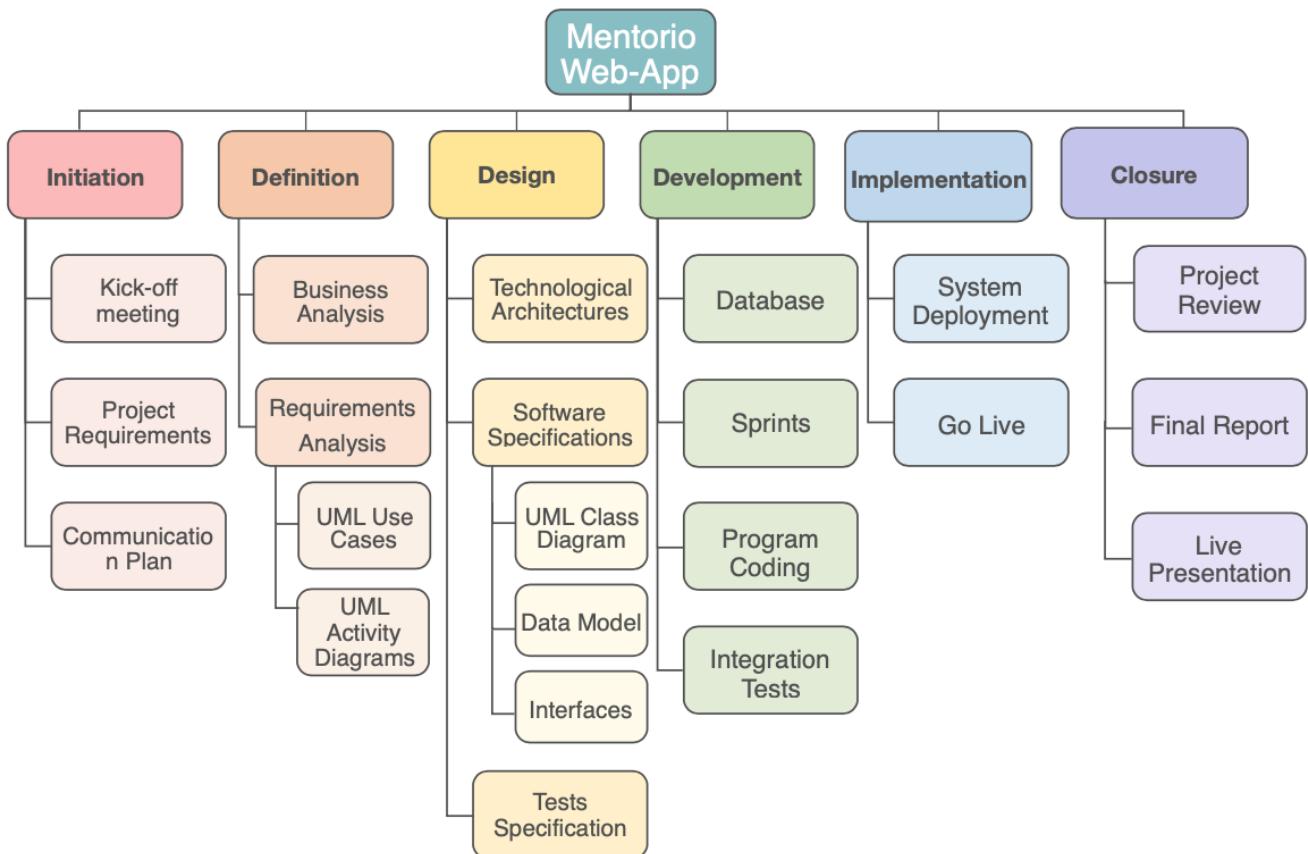
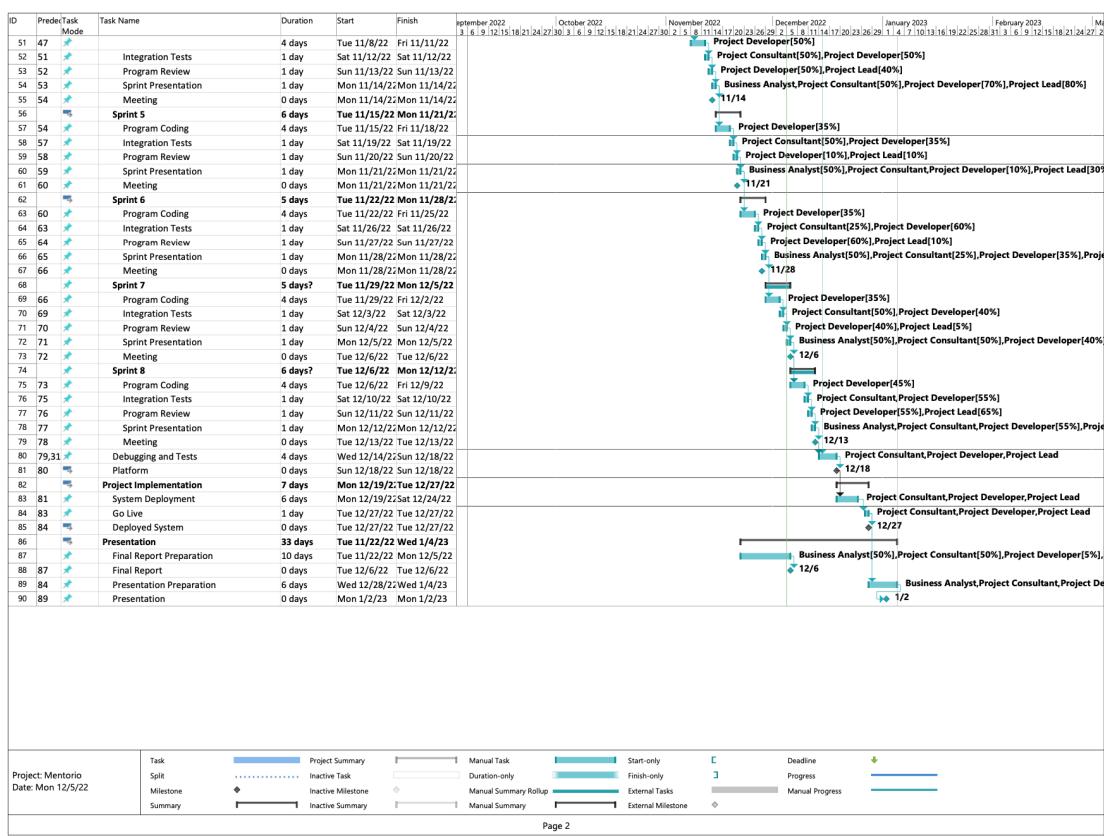
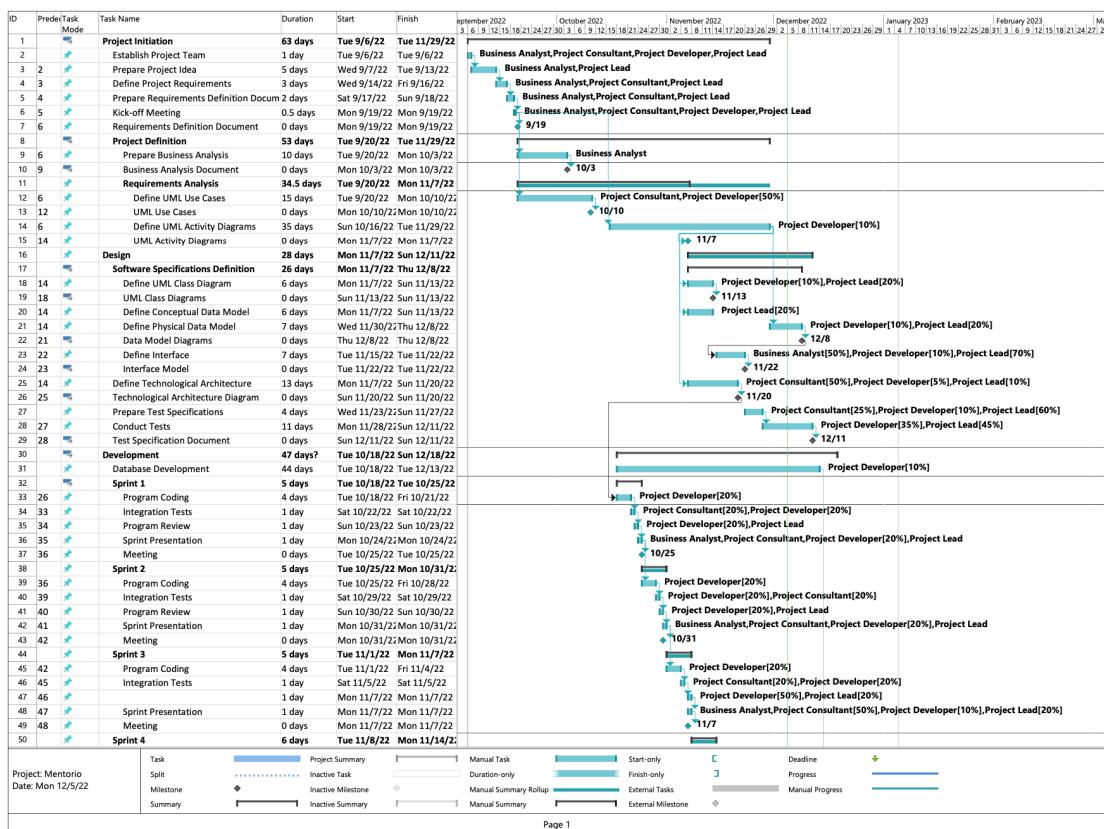


Figure 4- Work Breakdown Structure

## 1.5.2. Project Plan with resource allocation

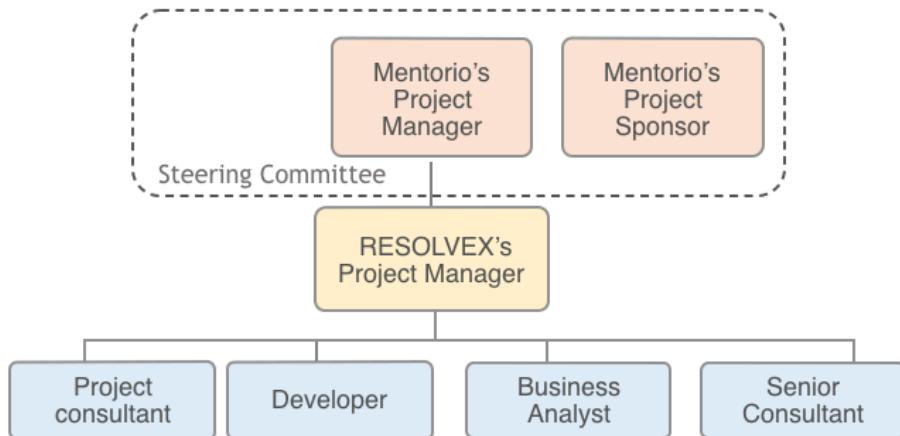


Figures 5, 6- Project Planning

## 1.6. PROJECT CONTROL

Previously, we stated that an effective **communication plan** during the project control phase would be an essential criteria to determine the project's success.

The following figure illustrates the **Organizational Breakdown Structure (OBS)** of this project:



**Figure 5- Organizational Breakdown Structure**

To achieve that, we must start with assigning **responsibilities** to each project member:

Responsibilities	Roles
<b>For the work</b> (execution of project)	<ul style="list-style-type: none"> <li>• Developer</li> <li>• Project Consultant</li> <li>• Business Analyst</li> </ul>
<b>For the management</b> (decision making, resource allocation, tasks assignment and organization)	<ul style="list-style-type: none"> <li>• <b>RESOLVEX's</b> project manager</li> </ul>
<b>For the control</b> (of progress, ensuring work is planned, organized and implemented)	<ul style="list-style-type: none"> <li>• <b>RESOLVEX's</b> project manager</li> <li>• <b>Mentorio's</b> project manager</li> </ul>

Then, we plan the **documentation flow** involving **RESOLVEX** and **Mentorio**:

Origin	Destination	What	When	How
<b>Mentorio's Project Manager</b>	<b>RESOLVEX's project manager</b>	Project Requirements	Start of project	Email
<b>RESOLVEX's project manager</b>	Team members	Task Assignment	Weekly	In-Person
<b>RESOLVEX's project manager</b>	Senior Consultant	Requirements Specification Document	2 <sup>nd</sup> meeting	In-Person
Team Members	<b>RESOLVEX's Project Manager</b>	Technical Documentation	Planning Phase	In-Person
<b>RESOLVEX's Project Manager</b>	<b>Mentorio's Project Manager</b>	Meeting's Minute	Fortnight	In-Person
<b>RESOLVEX's Project Manager</b>	Steering committee	Final Report	End of project	Email

Finally, the **meeting plan**:

Meeting Type	Attendees	When
Kick-Off	<b>Mentorio's Project Manager</b> <b>RESOLVEX's team</b>	At the start of the project
Team	Team Leader Team members	Weekly
Progress	<b>RESOLVEX's Project Manager</b> <b>RESOLVEX's team</b>	Fortnight (Monday 10:30h)
Status Review	<b>Mentorio's Project Manager</b> <b>RESOLVEX's team</b>	Fortnight (Monday 10:30h)
Project Review	<b>Mentorio's Project Manager</b> <b>RESOLVEX's team</b>	During closure phase
Closure	Steering Committee <b>RESOLVEX's team</b>	At the end of the project



## 2. ANALYSIS

In this Chapter we present a project analysis prepared by **RESOLVEX's team** during the planning phase. It is divided into two main categories:

- **Business analysis** - to provide insights on how Mentorio will stand out - **innovation**.
- **Requirements analysis** - to determine the desired system features and serve as a framework to the **development phase** of the project.

This detailed examination will be critical to ensure the successful development of the project as well as the success of the product in the market.

## 2.1. BUSINESS ANALYSIS

### 2.1.2. The market

**Mentorio** is going to be part of the online career mentorship platforms.

**RESOLVEX** believes that **Mentorio** has two key features that will ensure our success in the market:

#### 1. Enterprises:

- A rare type of profile in these kind of platforms.
- Their presence will help promote the concept and contribute to the credibility of the platform.

#### 2. Students:

- The platform is being designed exclusively for college students, which establishes a very specific target user.
- Creating such a personalized experience will help us setting apart from our competitors, because it will be more focused on understanding the students' needs, therefore having less gaps.
- This also presents as advantageous when establishing partnerships with universities and other higher educational establishments.

### 2.1.2. Competition analysis

**RESOLVEX** gathered the top three most recognized platforms within career mentorship:

	Pros	Cons
<b>MentorCruise</b>	<ul style="list-style-type: none"> <li>• Works with industry veterans - from very well recognized companies;</li> <li>• Well developed system interface;</li> <li>• Offers mentorship for businesses as well.</li> </ul>	<ul style="list-style-type: none"> <li>• Focuses mostly on tech mentorship;</li> <li>• Not affordable (\$100-200/month);</li> <li>• The quality of the mentors is not always assured.</li> </ul>
<b>The Muse</b>	<ul style="list-style-type: none"> <li>• Combines career coaching and job opportunities;</li> <li>• Has a strong presence in the market - has been highlighted in the press multiple times;</li> <li>• Includes the presence of companies with detailed profiles.</li> </ul>	<ul style="list-style-type: none"> <li>• The website is quite complex, complicating the user experience;</li> </ul>
<b>Career Karma</b>	<ul style="list-style-type: none"> <li>• Has live events that users can attend;</li> <li>• Is free;</li> <li>• Has a mobile app;</li> <li>• Displays a wide variety of available bootcamps.</li> </ul>	<ul style="list-style-type: none"> <li>• Focuses only on tech mentorship;</li> <li>• Complex website design;</li> <li>• Bootcamps are not regionally or nationally accredited.</li> </ul>

### 2.1.3. SWOT analysis

After carefully studying the market and the competitors, it is important to identify the project's strengths, weaknesses, opportunities and threats.

This will increase awareness when going into decision making and establishing a business strategy.

	Helpful to achieve the project	Harmful to the project
INTERNAL	<b>STRENGTHS</b> <ul style="list-style-type: none"> <li>Receiving direct insights from potential key users - college students;</li> <li>Filling a relevant gap in education that interests to a large scale of recent graduates;</li> <li>Possibility of monetization - attractive to certain users;</li> <li>Idealized by group of people who understands and believes in the idea.</li> </ul>	<b>WEAKNESSES</b> <ul style="list-style-type: none"> <li>A new company - does not have an established reputation in the market;</li> <li>Lack of financial resources to promote the platform;</li> <li>Only supports one out of multiple types of mentoring.</li> </ul>
EXTERNAL	<b>OPPORTUNITIES</b> <ul style="list-style-type: none"> <li>There are qualified people who are willing to share knowledge, when faced with the possibility of being compensated for doing so;</li> <li>Captivating product to higher educational establishments - potential partnerships with Portuguese universities and with companies;</li> <li>Once established and working in Portugal, expand internationally - agreements with multiple universities.</li> </ul>	<b>THREATS</b> <ul style="list-style-type: none"> <li>Universities and companies organizing events and having their own career mentorship sessions. Partially eliminating the need to use the platform;</li> <li>Mentors doing sessions outside of the platform - keeping us from receiving part of the payment;</li> <li>Competitors with similar concept already established in the market;</li> <li>Shortage of time for the implementation of the platform.</li> </ul>

Figure 6- SWOT Matrix

### 2.1.4. Technical Risks

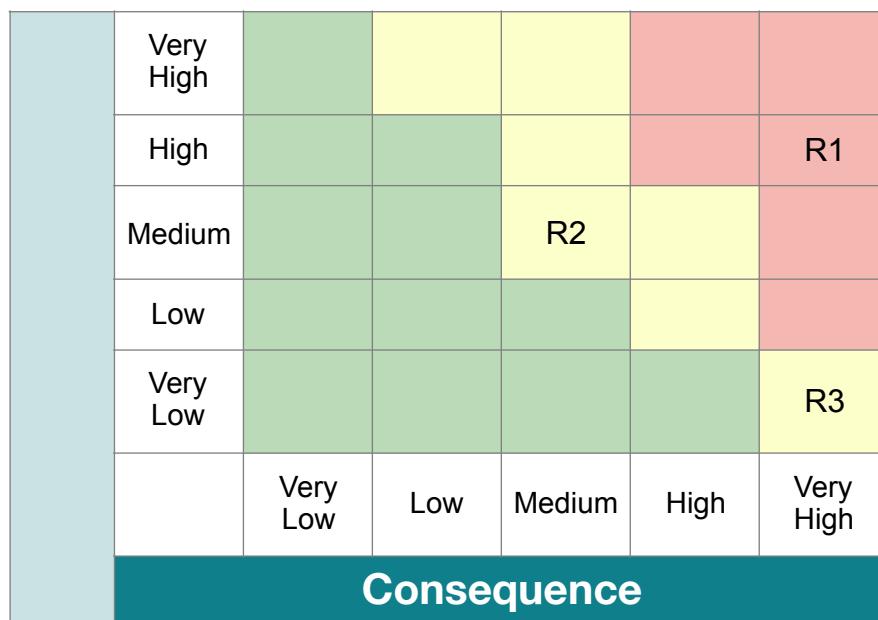
Risks are a part of any project, as they cannot be totally eliminated. However, once analyzed, we become prepared to take actions, such as, prevent them or mitigate their consequences.

#### RISK IDENTIFICATION

Risk id	Risk identification	Risk assumption(s)
R1	Poor/Incomplete Business Case/ Project Requirements Specification	At the beginning of the project, a poor understanding of business needs, and later, a poor requirements specification plan for the platform may happen - This can imply a dysfunctional project and so a non-meeting of the Company's wishes.
R2	Lack of functionalities	With the development of the project and of the platform, we can have a different perspective of it, and conclude that it does not have enough or interesting functionalities for the user to feel the need to use our website;
R3	Our hard-disk crashing	Technological devices can be susceptible to failures over their lifetime. This way, the team's devices that contain project can fail/crash and the project can be totally lost.

## RISK ASSESSMENT

Risk id	P(R)	Justification			C(R)	Justification
R1	H	Understanding the client is difficult sometimes and can lead to misunderstandings.			VH	A poor requirement specification or business analysis may delay the delivery of the project.
R2	M	Along the development of the project and specially between sprints, the client gets a different feeling about the platform.			M	Developers will also have to make changes to the project. This will imply that most tasks of the project will need to be reviewed and changed.
R3	VL	When Resolvex gathers the proper devices and that frequent maintenance tests performed to avoid malfunctions, it is possible to have a hard-disk crashing.			VH	If a hard-disk crashes, all the documentation and the project, can be totally lost, resulting in a delay as well as increasing the final costs for the project.



## RISK TREATMENT

Risk id	Type	Treatment description				Responsible
R1	M	The review of the final project requirements can be essential to decrease this risk.				Resolvex's PC and BA
R2	A	Doing the correct requirements specification and market analysis (benchmarking) of the project is crucial. Besides that, having frequent feedback from the client, which will allow us to be aware of any needed change in advance.				Resolvex's PC and BA
R3	M	We cannot avoid having a hard-disk crashing, however, we can predict it by having periodic maintenance tests performed in the used devices as well as guaranteeing up-to-date technology.				Resolvex's team

**A** – Avoidance; **M** – Mitigation; **D** – Deflection; **CP** – Contingency Plan

**PL** – Project Leader; **PC** – Project Consultant; **BA** – Business Analyst

## 2.1.4. Non-Technical Risks

### RISK IDENTIFICATION

Risk id	Risk identification	Risk assumption(s)
R1	<b>Unavailability of the client for meetings</b>	The client's behavior is unpredictable. If the client is constantly not unavailable for meeting, it can be difficult to define the right requirements for the project and receive feedback regarding it.
R2	<b>Deteriorating relationships with our client</b>	It is important to be careful when discussion and negotiating with the client, if this relationship deteriorates, it is possible to have miscommunications as well as difficulties in receiving feedback for the development of the project.
R3	<b>Poor communication between the involved parties</b>	Understanding the ideas of others can be hard and sometimes Resovex's members, may not fully detail the ideas for the project. As a result, we can be developing a project that does not go completely according to what was defined with the client.
R4	<b>Change of requirements during the project</b>	When developing a project, clients tend to want to change the requirements along it since they have a different perspective at that time. By changing too many requirements, the project may suffer a delay in its delivery.

### RISK ASSESSMENT

Risk id	P(R)	Justification	C(R)	Justification
R1	M	The client's behavior is unpredictable and out of our control. Besides that, he also has other responsibilities besides our project.	H	The constant unavailability of the client for meeting will delay the project development, since it is crucial to have the client's help for defining requirements, and to receive feedback to perform any needed changes along the project.
R2	L	Discussing and negotiating issues with the requirements, and what is possible or not to accomplish in the project is delicate. Possible contradictions will make him feel offended and, consequently, deteriorating the relationship between the two, which can lead to difficulties in communication.	H	Not being able to communicate with the client or having miscommunications, can have as a consequence, poor requirements definition and feedback for changes in the project.
R3	L	Understanding the ideas of others can be difficult, this way, it is possible that there may be misunderstanding when communicating any project's details.	H	If there are misunderstandings between the people leading the project or between people working in the different phases, the wrong information can be transmitted which will impact the overall project development and product.
R4	VH	Along the development of the project and especially between sprints, the client gets a different feeling about the platform. For that reason, he tends to want to change the requirements and add features to the platform.	VH	With the increment of the requirements or even changes to be performed in it, our team will have to focus and spend additional time on those changes, which will turn the development more difficult and with more problems, consequently delaying its delivery.

	Very High				R4
	High				
	Medium				R1
	Low			R2, R3	
	Very Low				
	Very Low	Low	Medium	High	Very High
<b>Consequence</b>					

#### RISK TREATMENT

Risk id	Type	Treatment description	Responsible
R1	M	Scheduling fortnightly meetings with the client that are planned since the beginning of the project, as well as sending reminders and confirmation emails for these appointments.	Resolvex's PL, PC and Client
R2	M	Training the PC with good communication and negotiation skills are ways to decrease this risk.	Resolvex's PC and PM
R3	M	Controlling the processes of communication between all involved parties with a communication plan. Another way of mitigating miscommunication between the PC and the developing team is through the delivery of proper documentation for defining the project in detail, through diverse diagrams.	Resolvex's PL
R4	A	This can be avoided through the delivery of minutes to the client, when necessary, in order to compromise both parties of the discussed and agreed requirements.	Resolvex's PC and Client

**A** – Avoidance; **M** – Mitigation; **D** – Deflection; **CP** – Contingency Plan.

**PL** – Project Leader; **PC** – Project Consultant; **BA** – Business Analyst; **PM** – Project Manager.

## 2.2. REQUIREMENTS ANALYSIS

### 2.2.1. Non-functional Requirements

- Web application that runs on browser;
- Simple, intuitive and responsive interface;

### 2.2.2. Functional Requirements

#### REQUIREMENTS LIST

- Registration as one of three types of profiles (Student, Mentor, Enterprise);
- Validation of Students and Enterprises;
- Login and update of account settings;
- Premium account for Students;
- Search, post and comment forums and media content;
- Scheduling of mentorship sessions.
- Private messages between students and mentors;
- Feedback from Students to Mentors;
- Display of Mentor's ranking.

#### UML USE CASE DIAGRAM

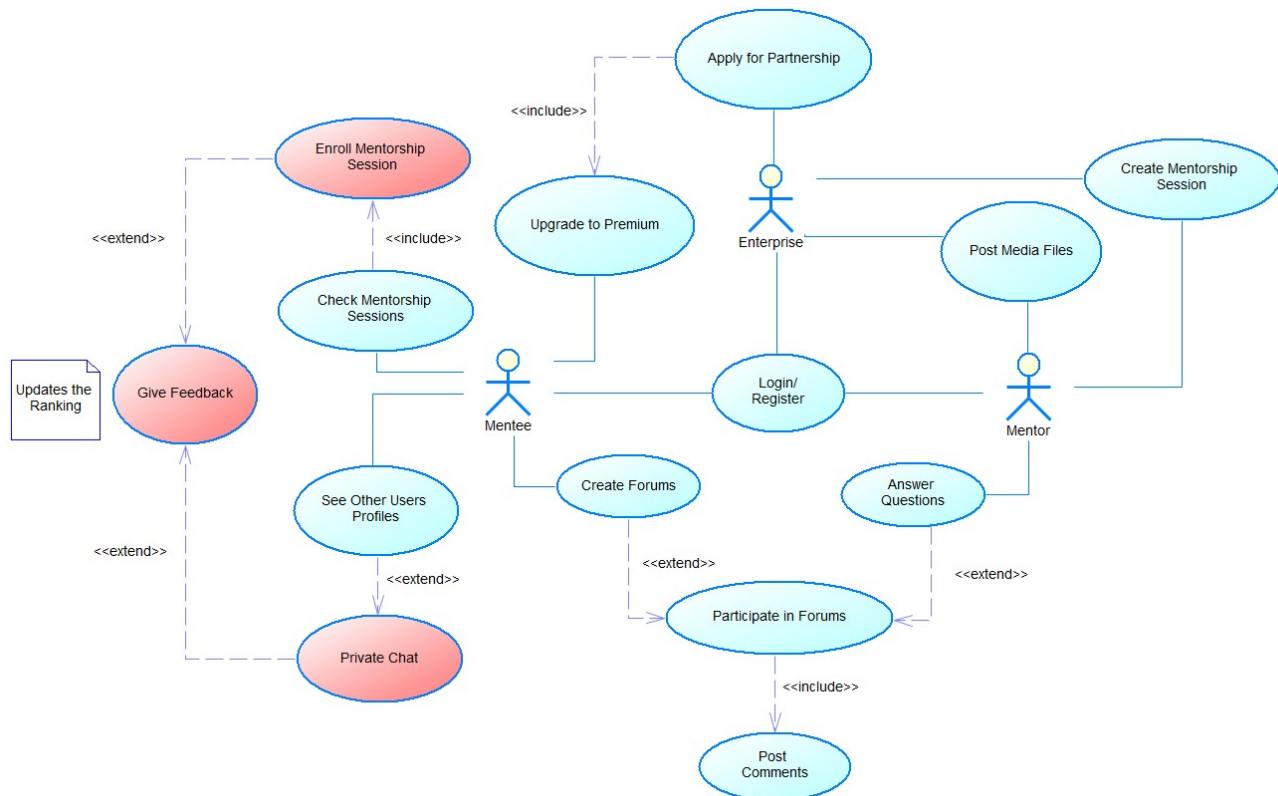


Figure 7- Class Diagram

## UML ACTIVITY DIAGRAMS

### Schedule Mentorship Sessions

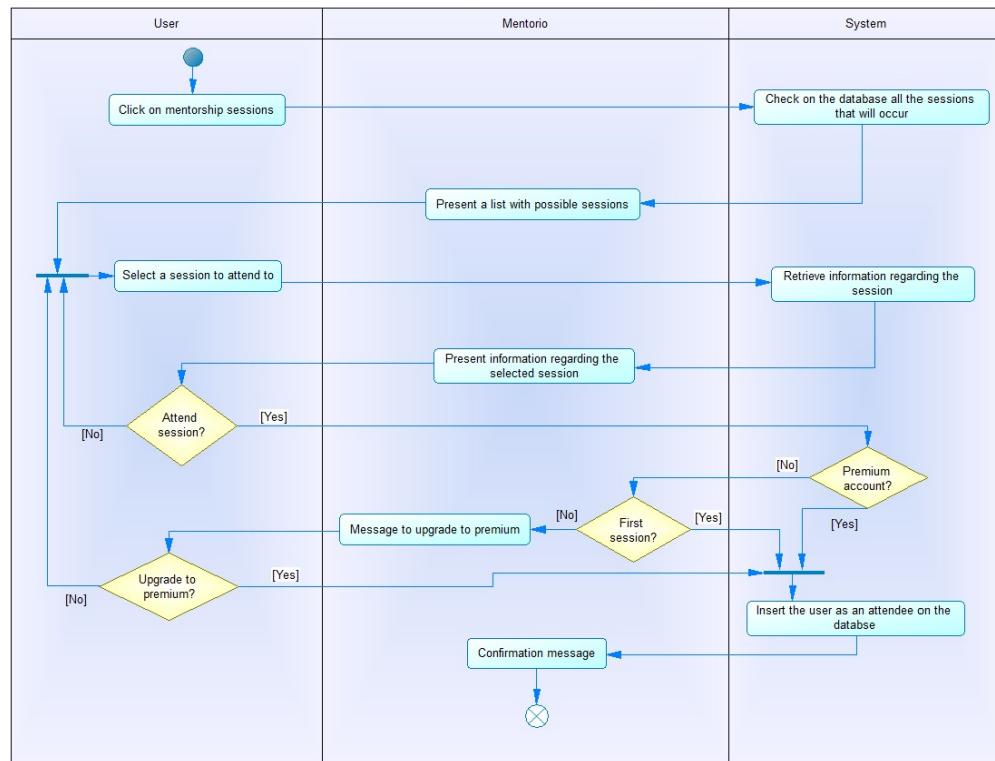


Figure 8- Mentorship Session Diagram

### Post media content

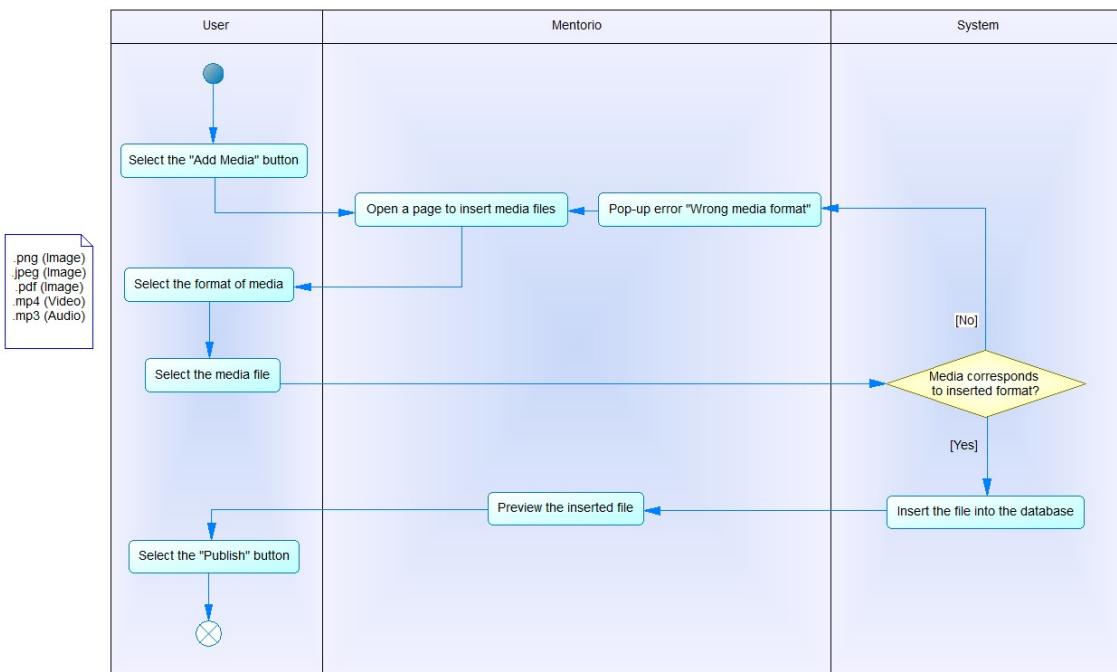


Figure 9- Media Content Diagram

## Feedback

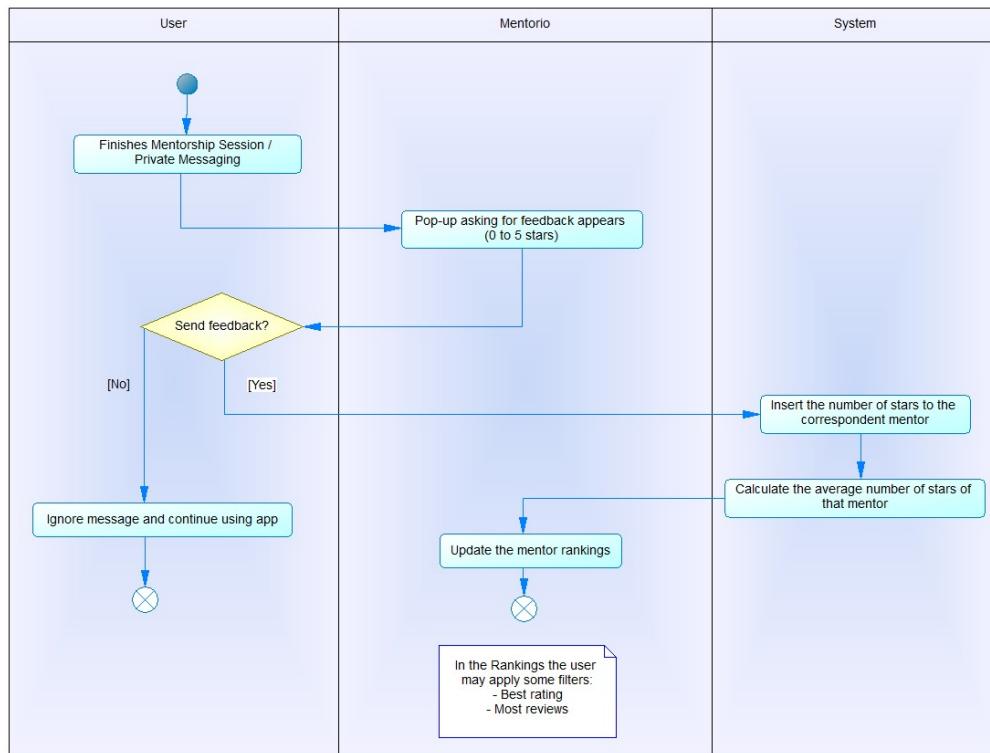


Figure 10- Feedback Diagram

## Forums And Comments

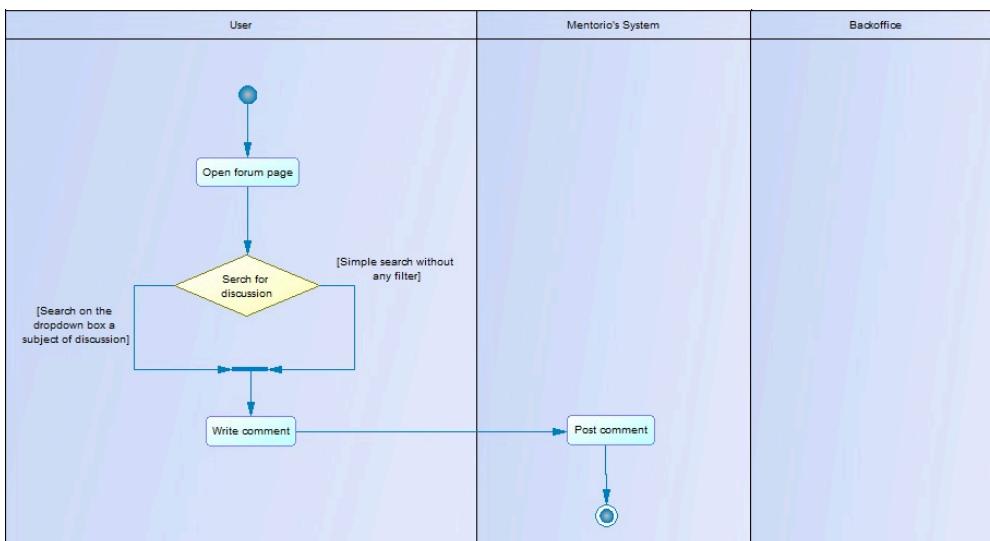


Figure 11- Forum Diagram



### 3. THE SOLUTION

In this Chapter, we finally analyze and characterize the final product developed by **RESOLVEX's team** during the project.

### 3.1. INTRODUCTION

The platform will be developed as an application software that runs in a web browser.

The center of the solution will be the Mentee, represented in the following figure:

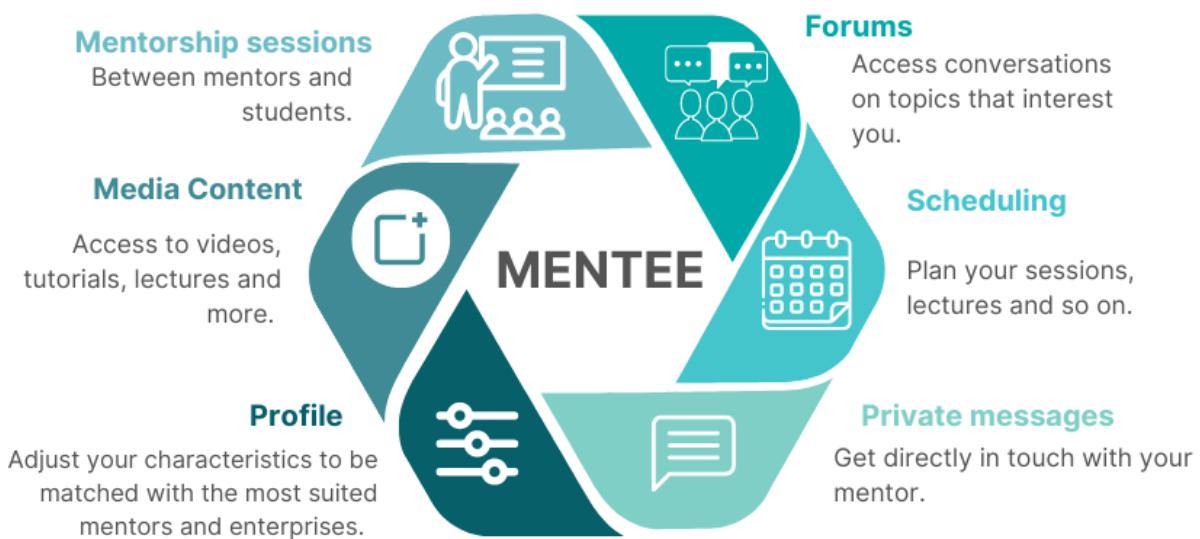


Figure 12- *Mentee Functionalities*

This solution has the main objective of creating an application to help students that have doubts and questions regarding the job market and the different enterprises that compose it.

This will be done by creating a community made of mentees, mentors and enterprises that will create forums with various questions that will be answered by the other users that have some kind of experience concerning that certain topic.

There will also exist mentorship sessions and a private messaging system to give the platform more ways to allow communication between the users. A feed with posts from the users advertising either mentorship sessions or work experiences from the enterprises.

This way, we will be able to create a system that relies on its users in order to create a community that helps each other.

## 3.2. SYSTEM DESIGN

After understanding what is required of the solution, it is required to draw the solution's main architectures, the logical data model and the main system's interfaces.

### 3.2.1. Architectures

In this section we will define the system's structure through a series of architectures.

#### TECHNOLOGICAL ARCHITECTURE / ARCHITECTURE SYSTEM

The following architecture defines the logical software and hardware components that are required to support the deployment of the solution:

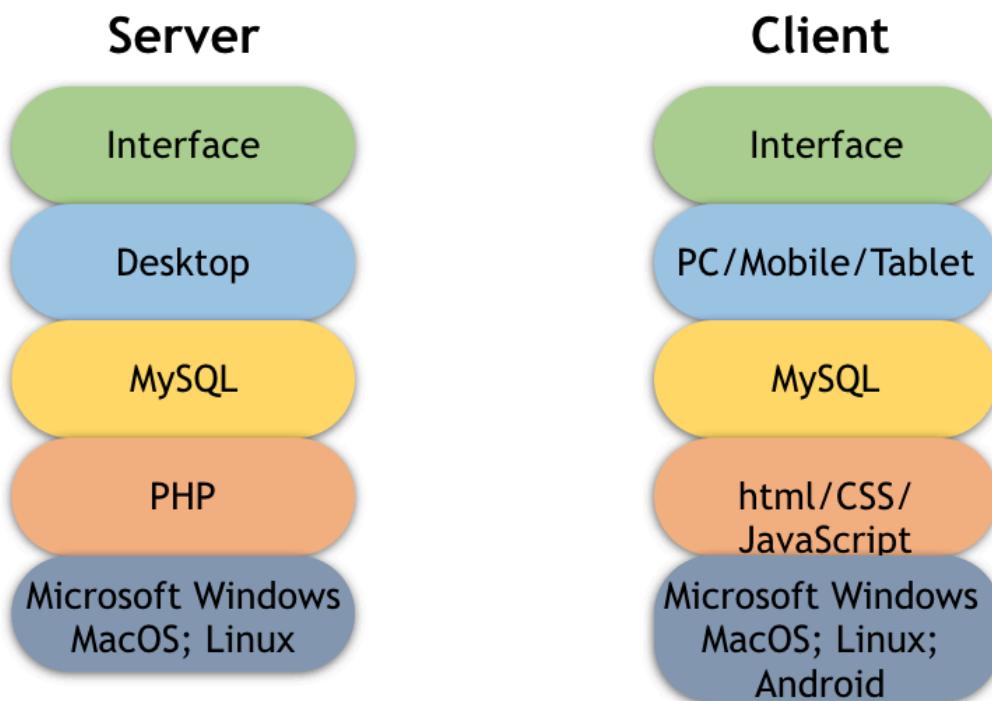


Figure 13- Architecture System

## TECHNOLOGICAL ARCHITECTURE / INFRASTRUCTURE

The following schema describes the structure of the system's infrastructure:

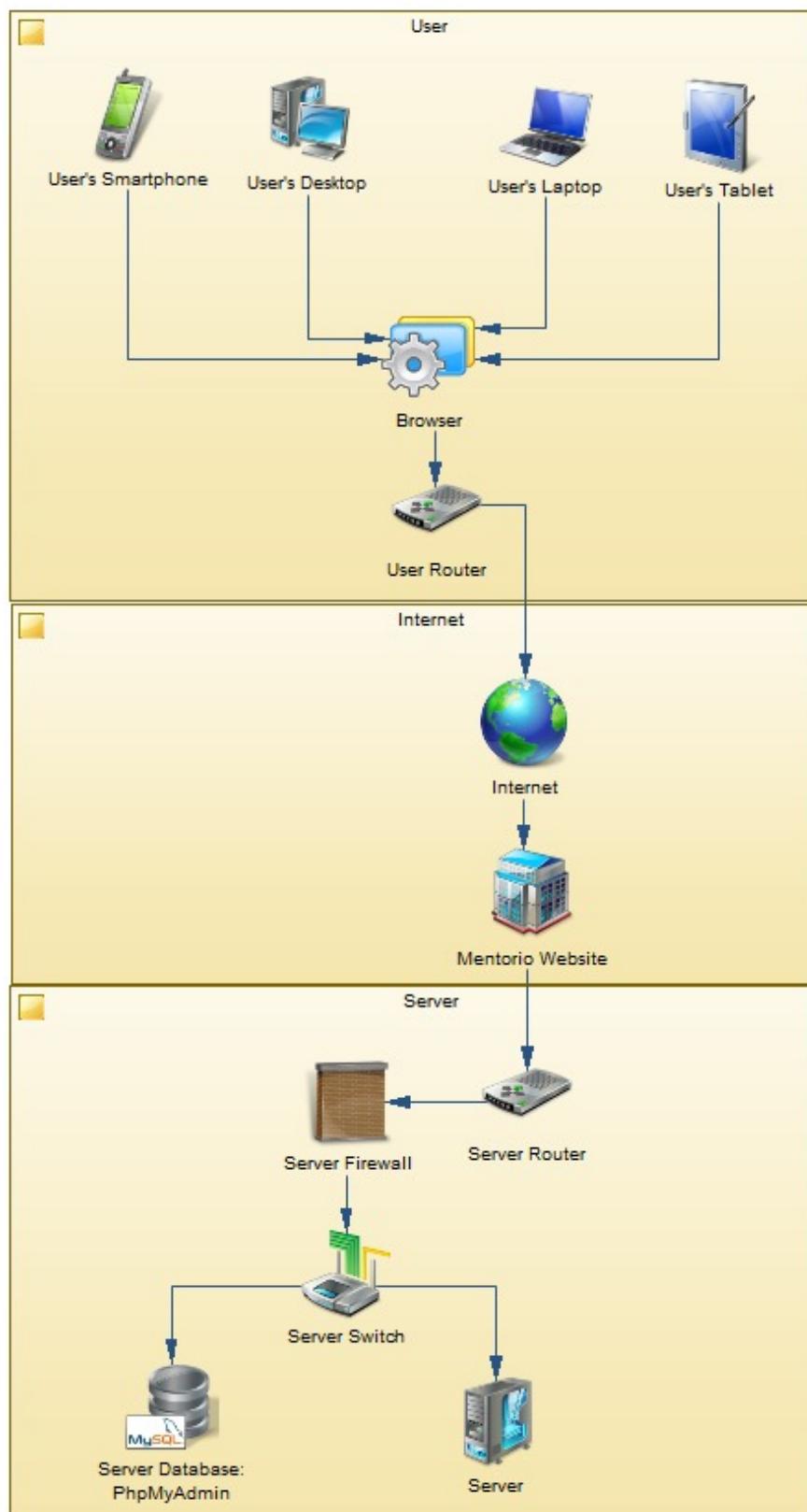


Figure 14- Infrastructure

## APPLICATION ARCHITECTURE

This architecture describes the software components and how they interact:

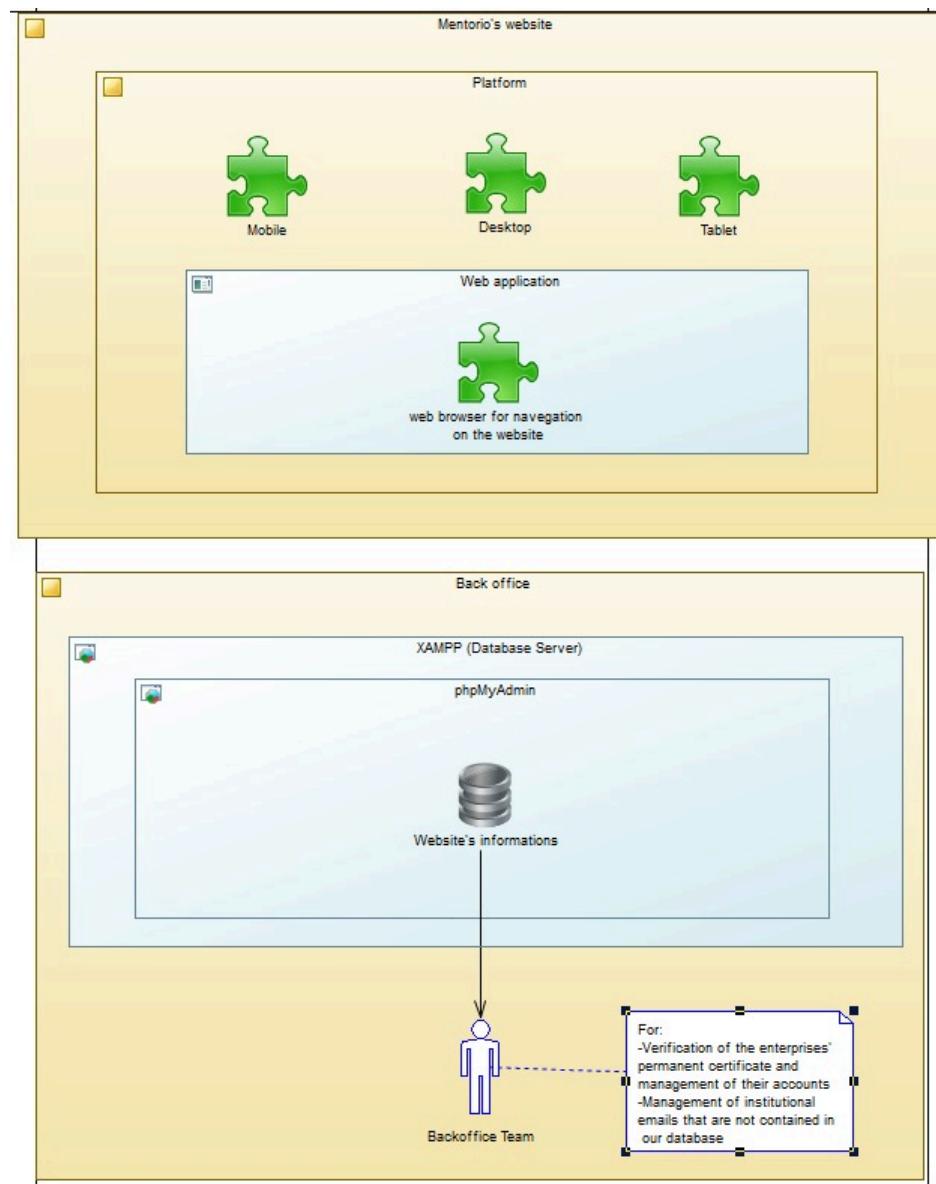


Figure 15- Application Architecture

### 3.2.2. Functional and technical assumptions

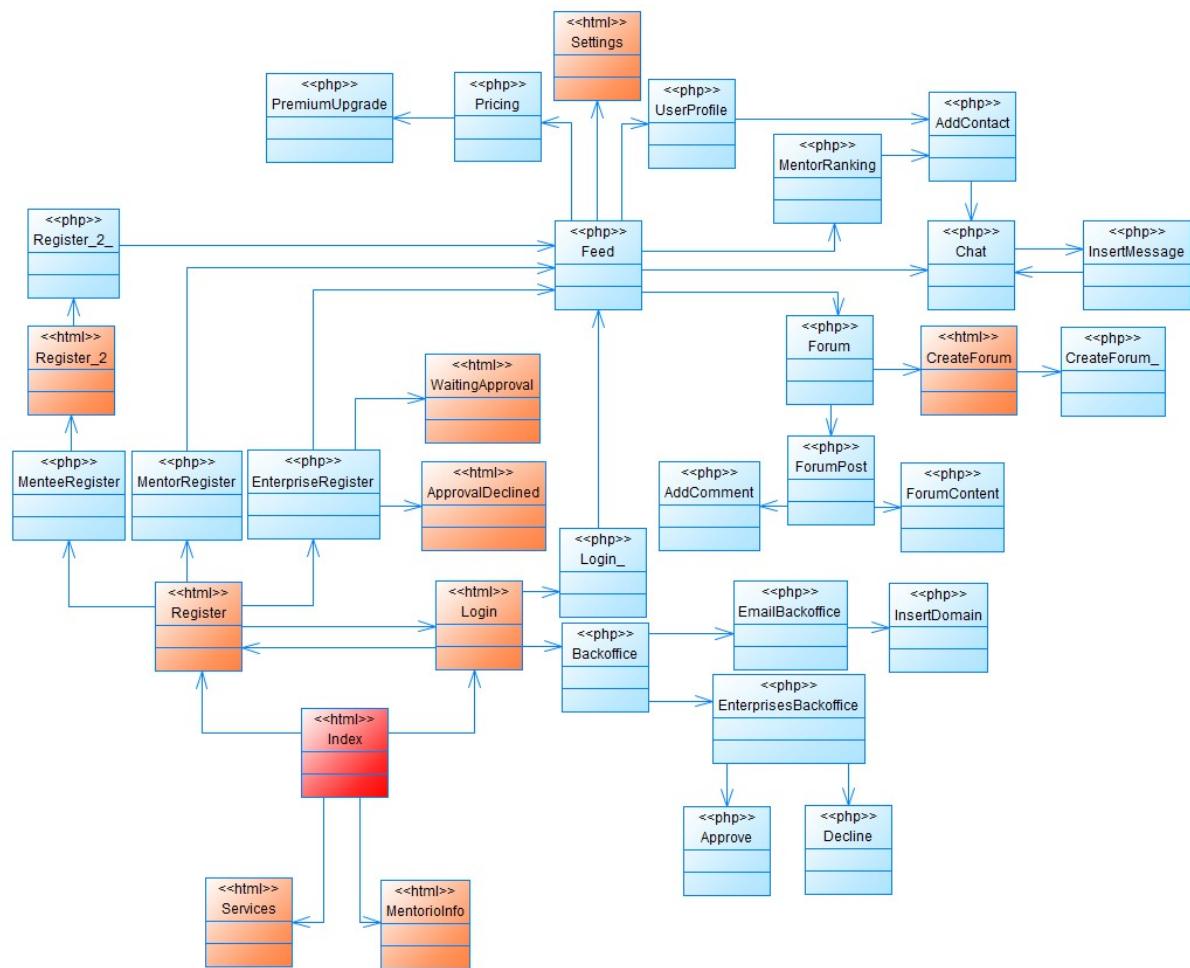
For the software to operate, it is assumed that:

- There is a connection to the internet, in both the client and the server side;
- There is a MySQL database and a web-server running;
- It runs only on the browser;
- No security issues were taken into account.

### 3.2.3. Software specification

## CLASS DIAGRAM

The following figure illustrates the documents that compose the website and how they interact.

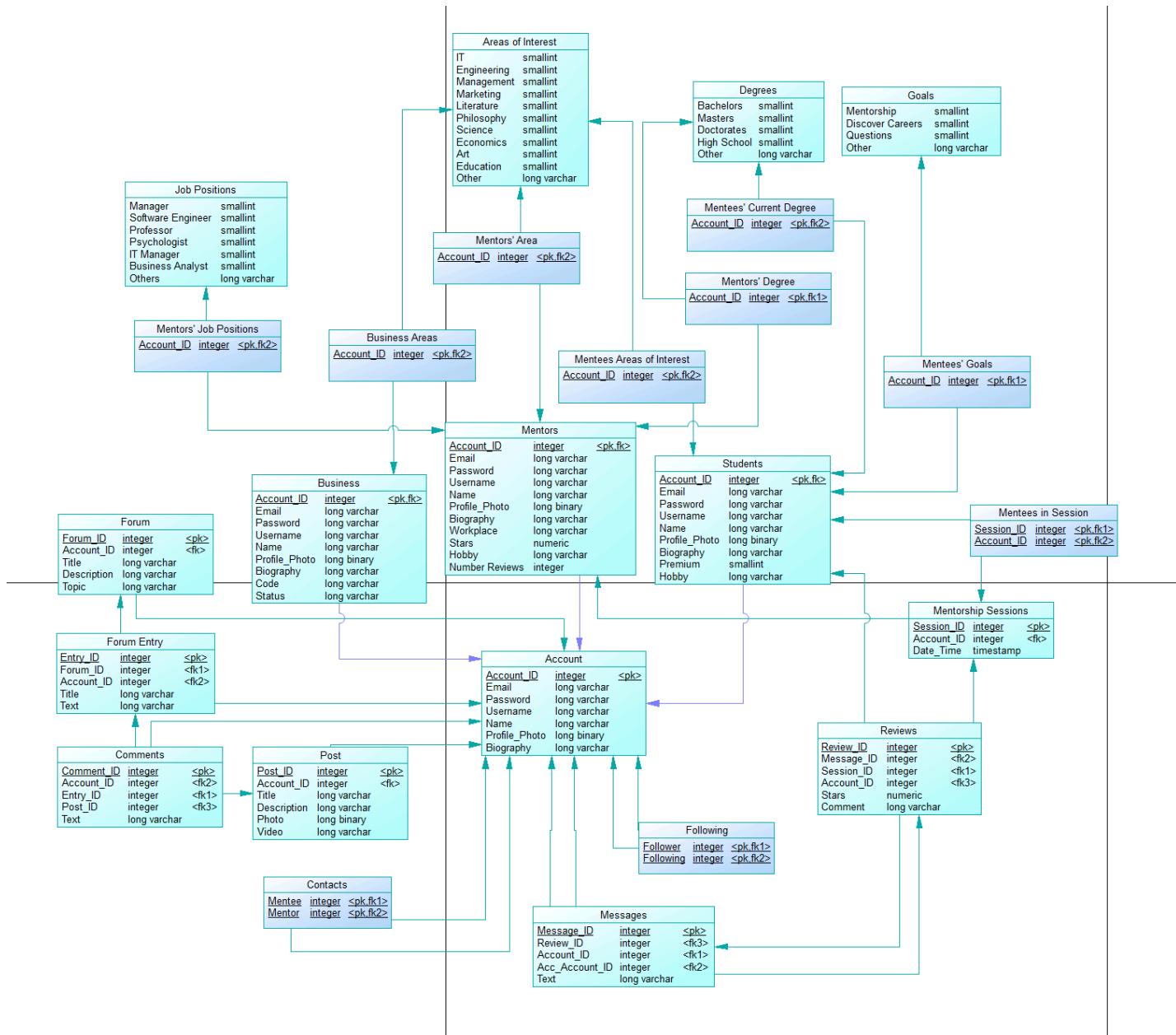


**Figure 16- Class Diagram**



## LOGICAL DATA MODEL

The following image represents the project's database's logical model:



**Figure 17- Logical Data Model**