

Technical Report - Project specifications

beStrong

Course: IES - Introdução à Engenharia de Software

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Project abstract: The application concept for this project is a managing application for a gym. The main goals are an application capable of managing entries, listing available classes, chatting with PT's and also, for example, making payments.

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1 Introduction

With this project, we want to build a webapp from scratch, setting roles, using project management tools and planning all the app development. The roles assigned to each element of the group were:

- Team manager - Eduardo Fernandes
- Product owner - Vítor Dias
- Architect - Tiago Matos
- DevOps master - Pedro Monteiro

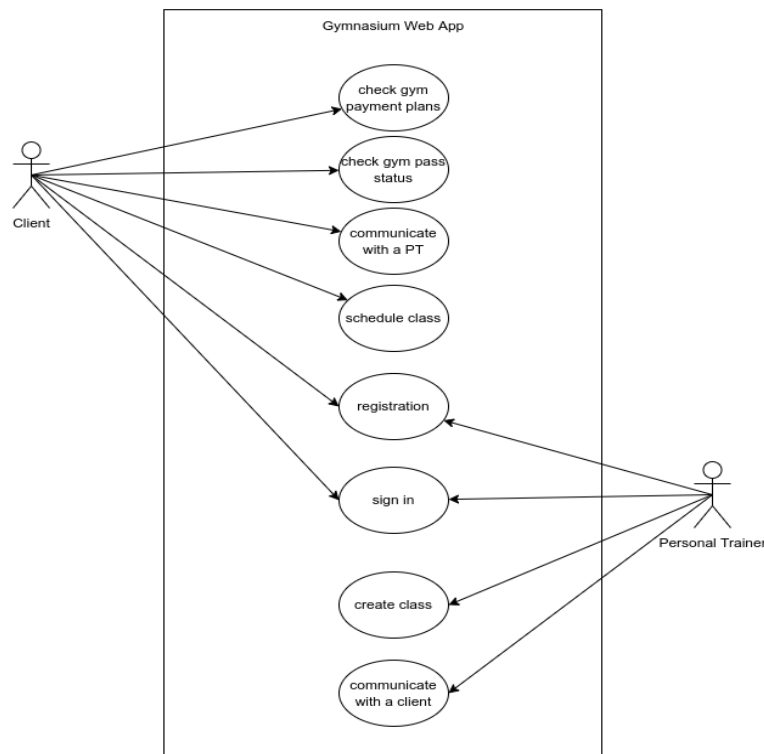
The project concepts and ideas will be studied in the following chapters.

2 Product concept

Vision statement

This app will be focused on giving a better experience for gym users. This will be mainly client sided, with the client being able to register, manage their account, book classes and sessions alone or with their friends, define objectives, get in contact with PTs and manage payment plans. However there will be an interface for the personal trainers where they would be able to, for example, create classes.

There are some websites and applications regarding some of these tasks and functionalities. Our product, besides helping manage a gym, will also provide some social features for the user, including chatting with PTs and booking fitness classes with friends. These features not only bring a new look at fitness but also help users stay motivated and engaged.



Personas

PERSONA beStrong Client

FICTIONAL NAME Manuel António

JOB TITLE Lawyer



GOALS AND TASKS

- Check if his pass is still valid
- Get in contact with a PT
- Schedule a class

DEMOGRAPHICS

- 37 years old
- Married
- Father
- Sporty

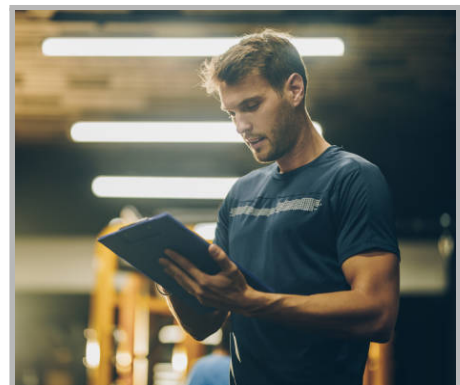
ENVIRONMENT

- Manuel has a job that sometimes can be sedentary and very time consuming. Sometimes he just goes from home to work and work to home. During the lunch break of his stressful day at work he wants to relieve some stress. It has been a while since he's gone to the gym, so he decides he should go back to working out.

PERSONA beStrong Personal Trainer

FICTIONAL NAME João Ferreira

JOB TITLE Personal Trainer



GOALS AND TASKS

- Check his classes
- Get in contact with his clients
- Schedule new classes

DEMOGRAPHICS

- 27 years old
- Married
- Sports addicted

ENVIRONMENT

- João is a personal trainer that has been working in this area for about 8 years. He is passionate about sports. Also he has a wife and she is passionate about sports as much as he is. He has been working on beStrong for about 6 months now and, as usual, he needs to check the clients that workout at this gym. Maybe he will need to answer some questions that some clients asked and he will need to schedule a new class for the new coming week.

PERSONA beStrong Client

FICTIONAL NAME Filipa Reis

JOB TITLE Unemployed

GOALS AND TASKS

- Change lifestyle and start training
- Sign up for the gym

DEMOGRAPHICS

- 32 years
- Single

ENVIRONMENT

- Filipa is a girl who does not practice any sports throughout the year, as a result she is a bit overweight for her height and age. She realizes that her relationship with sports is affecting her health, so she finally decides to change her way of life and joins beStrong.



Main scenarios

- Manuel António, as a lawyer, sometimes has too much work, other times is more relieved, but to spend time with his friends and family, sometimes he doesn't feel like working out or practicing any sport. However, as he knows that physical activity may improve his work and his mood, he decides to go to the gym. But first he wants to know if his pass is still valid and, if so, get in touch with his old PT to schedule a class for him.
- João Ferreira has a lot of classes and sometimes only 2 or 3 people show up. In order to make his time more profitable he will check classes with low registers and contact the people to see if they could attend one other hour instead of that one or choose another hour where the class will have more registers.
- Filipa Reis was not used to practicing any sport or physical activity and on a daily basis she does not need to move a lot. To make up, she will start going to the gym. She will have to register in the app, choose a plan that better fits and start with the activity.

3 Architecture notebook

Key requirements and constraints

There are some key requirements and system constraints that have a significant bearing on the architecture. They are:

- The web app should be available continuously.
- The user should be able to access the application on any phone or computer with an internet connection.
- All users (clients and trainers) should be registered to access the application. The registration should contain the user's full name, their email, their gender and optionally phone number.
- When a client enters the gym, the system should register that entry.
- A client should be able to book fitness classes if they are not full. The booking may optionally include other people. This reservation should be communicated to the server within 30 seconds.
- A personal trainer should be able to track a client's progress.
- A personal trainer should be able to schedule a fitness class. This class should be sent to the server and distributed to clients.

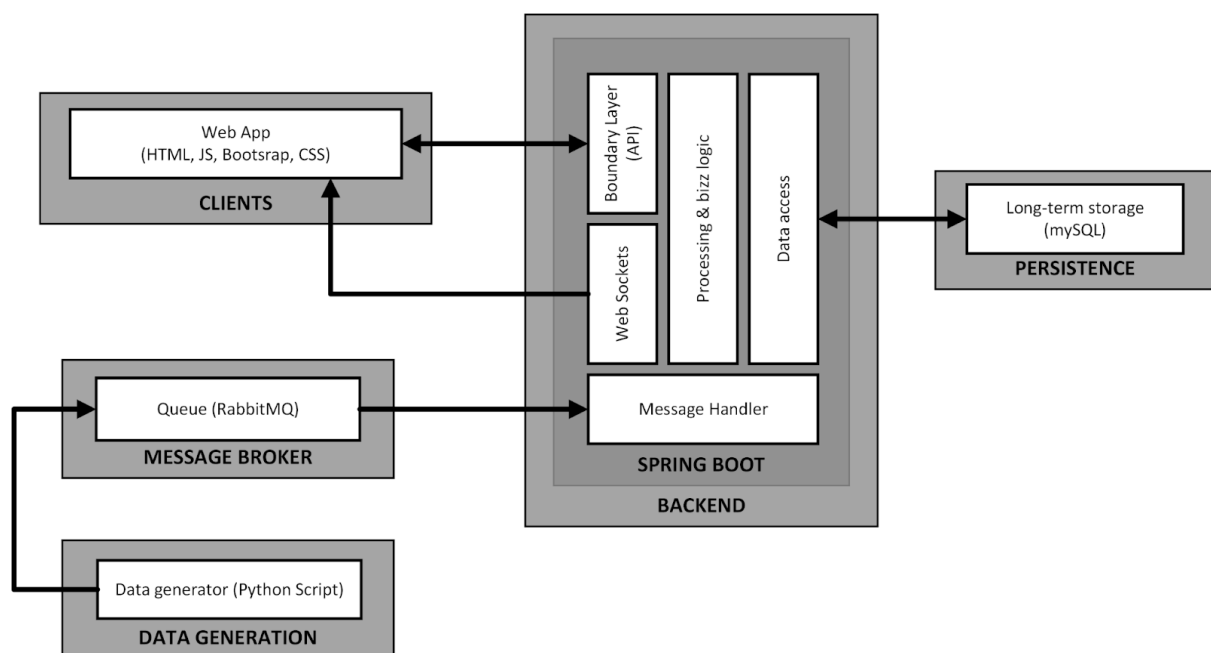
Architectural view

The architecture of our project is composed of mainly four components: the client-side layer, the backend layer, the persistence layer and the data generation layer.

For the client-side layer, we pretend to develop a web application (client) using HTML, Bootstrap, CSS and JS.

For the backend infrastructure, we will be using Spring Boot and Spring Data JPA to implement the API and respective controllers needed. Our project will also integrate a database based in mySQL with data access being handled by Spring Data JPA.

As for data generation, we pretend to simulate real-life cases with a Python script which sends data into a message queue (RabbitMQ). The messages will then received by an handler in the backed that will be responsible for creating the necessary objects.



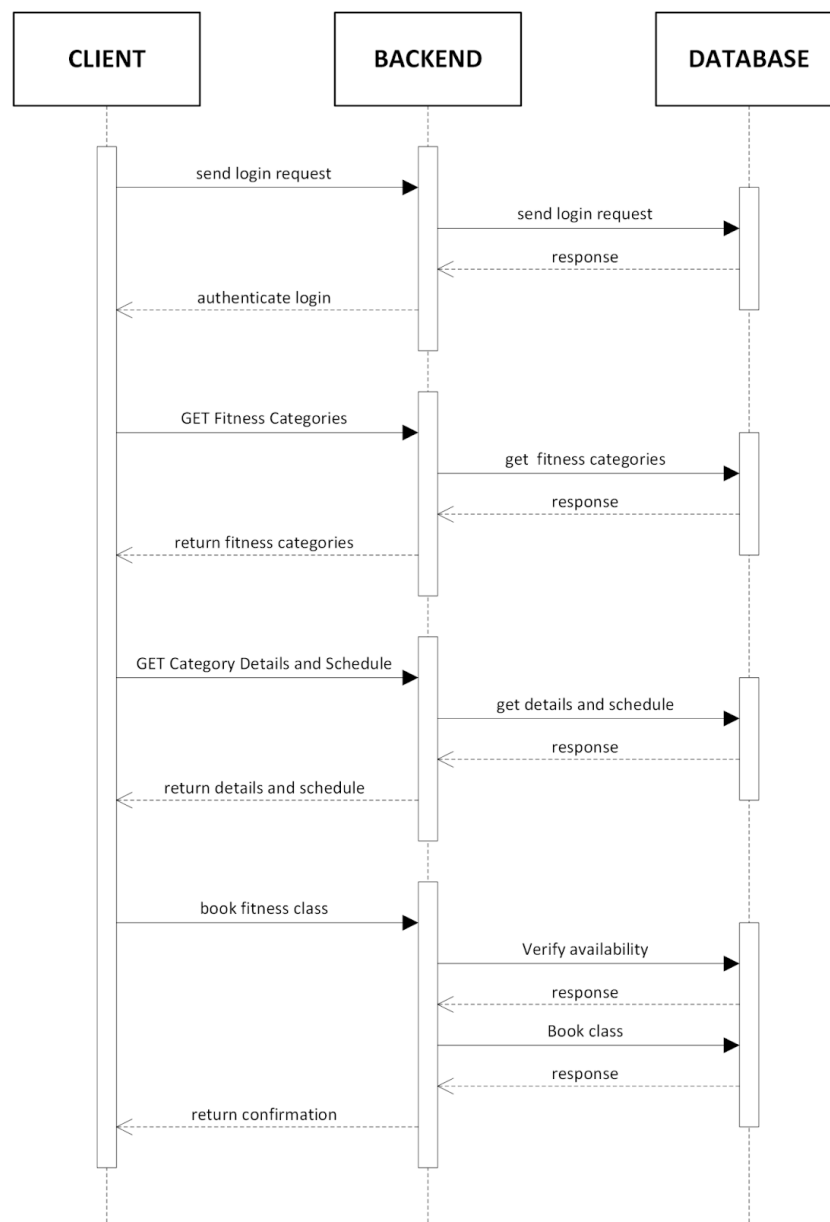
Module interactions

An interaction between modules will usually start with the user providing their login information through the web app. The client module will then communicate with the API and the backend layer will check if the given information is correct according to the data stored on the database, i.e., the persistence layer.

If the login is successful and the web app verifies that the user is a client, he will be presented with the client interface, where they are able to check their goals, search for fitness classes and chat with PTs. Otherwise, a similar interface - specific for personal trainers - is presented and a PT is able to respond to chats and schedule fitness classes.

The data generation layer creates data for each user and sends it to the message broker in the backend layer which will store the message in a queue to later be sent to the database.

Example of a client booking a fitness class:



4 Information perspective

