

Technical Report - **Product specification**

Agenda, Saramago!

Course: IES - Introdução à Engenharia de Software

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Project abstract: Application for sharing and searching events related to art, culture, education, etc.

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1 Introduction

The “Agenda, Saramago!” project aims to facilitate the spread of information about all kinds of events from local companies and groups in all cities of Portugal with the intention of helping local artists publicize their work as well as aid users in finding events to attend and keep them informed. This project will be made in the context of the Curricular Unit Introduction to Software Engineering.

The following report is describing the concept and architecture of this project.

The roles assigned for the completion of this application are as follows:

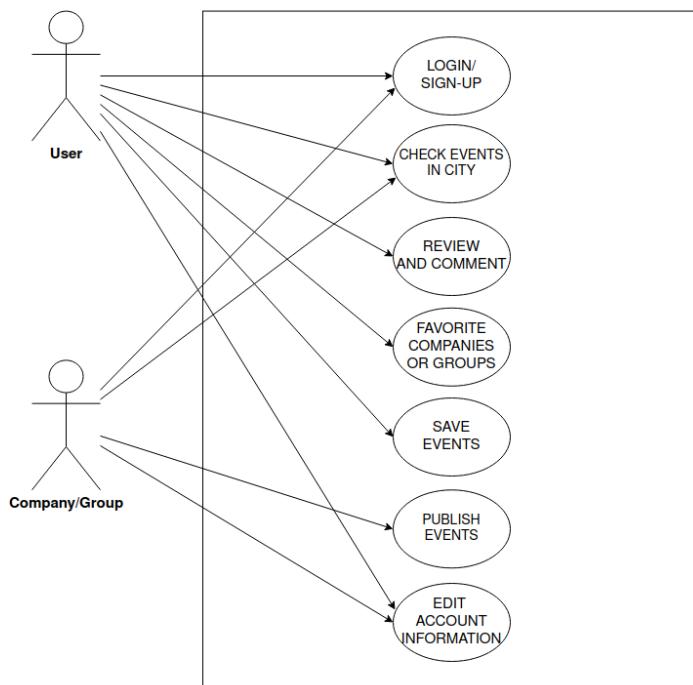
- Team Manager: Liliana Ribeiro
- Product Owner: Lia Cardoso
- Architect: Joana Gomes
- DevOps: Matilde Teixeira

2 Product concept

Vision statement

The system will be utilized by companies/groups and users alike to, on one hand, let the companies share the events they are organizing and, on the other, give the users knowledge of all events happening in their city and allow them to obtain information and/or tickets to attend.

This way, both sides can greatly benefit from this system. Companies can reach a wider audience by publishing all their events on the app and, thus, have more chances of their work being appreciated and supported. Users who oftentimes don't have information about events going on can simply check them all out in one place, simplifying the process.



Personas and Scenarios

Personas and motivations

Bruno Gomes is a 60-year-old male divorceé who owns a theater company, living alone in Braga. He is a very introverted man, who enjoys spending most of his time alone. Since it is a small company, he's responsible for running the place and doing the marketing campaigns for the productions that are going on stage. Lately, he has been noticing that revenue generated by these shows has been very low when compared to when he founded the company, 15 years ago, and that the adherence to them has decreased specially by younger people. When he asks his teammates and some friends about what might be going wrong, the way the marketing is being done almost always comes up.



Nicole Silva is a 26-year-old dancer living with her boyfriend in Lisbon. She likes to go for walks in the city with her friends and is, usually, very outgoing. Nicole tries her best to learn new things about her speciality and get better every day. On a Saturday, in one of her walks, she sees a poster about a contemporary dance show and is immediately excited about it. But, she takes a closer look and notices the date has already passed. It is not the first time something like that has happened to Nicole and so she becomes determined to find a way of keeping up with the events that are happening near her.



Mariana Pires is a 20-year-old university student from Viseu. She has been studying Mechanical Engineering for 2 years in Faculdade de Engenharia do Porto, but she has always been keen on art. She likes to go for walks in the city with her friends and is, usually, very outgoing. On a Saturday, she found herself bored in her bedroom and tried to search for events happening in her area, but didn't find much online and, since every event she found was on a different web page, it was really hard to keep track of everything.



Product requirements (User stories)

Main Scenarios

- Bruno decided to share his company's new production of "Hamlet" by William Shakespeare on "Agenda, Saramago!" He creates a company page and creates a new event adding all the information about it: name, type, venue and prices.
- Nicole creates an account on "Agenda, Saramago!" website and activates the notifications for events in her area. She checks what's happening in her area almost everyday.
- Mariana opens the search map on "Agenda, Saramago!" to find visual art events in Porto this weekend.

User Stories

- As a User, I want to create an account and personalize my profile so that I can receive customized suggestions about events.
- As a Company, I want to create an account so that I can easily market my events to possible viewers.
- As a User, I want to check specific information about an event that caught my attention so that I know about its history and background.
- As a User, I want to immediately find events that are happening in my area without having to navigate through a lot of tabs.
- As a User, I want to buy a ticket to a show online so that I can save a seat without having to go to a physical box office.
- As a User, I want to search for a specific type of event that aligns with my interests so that I find the most adequate event for me.

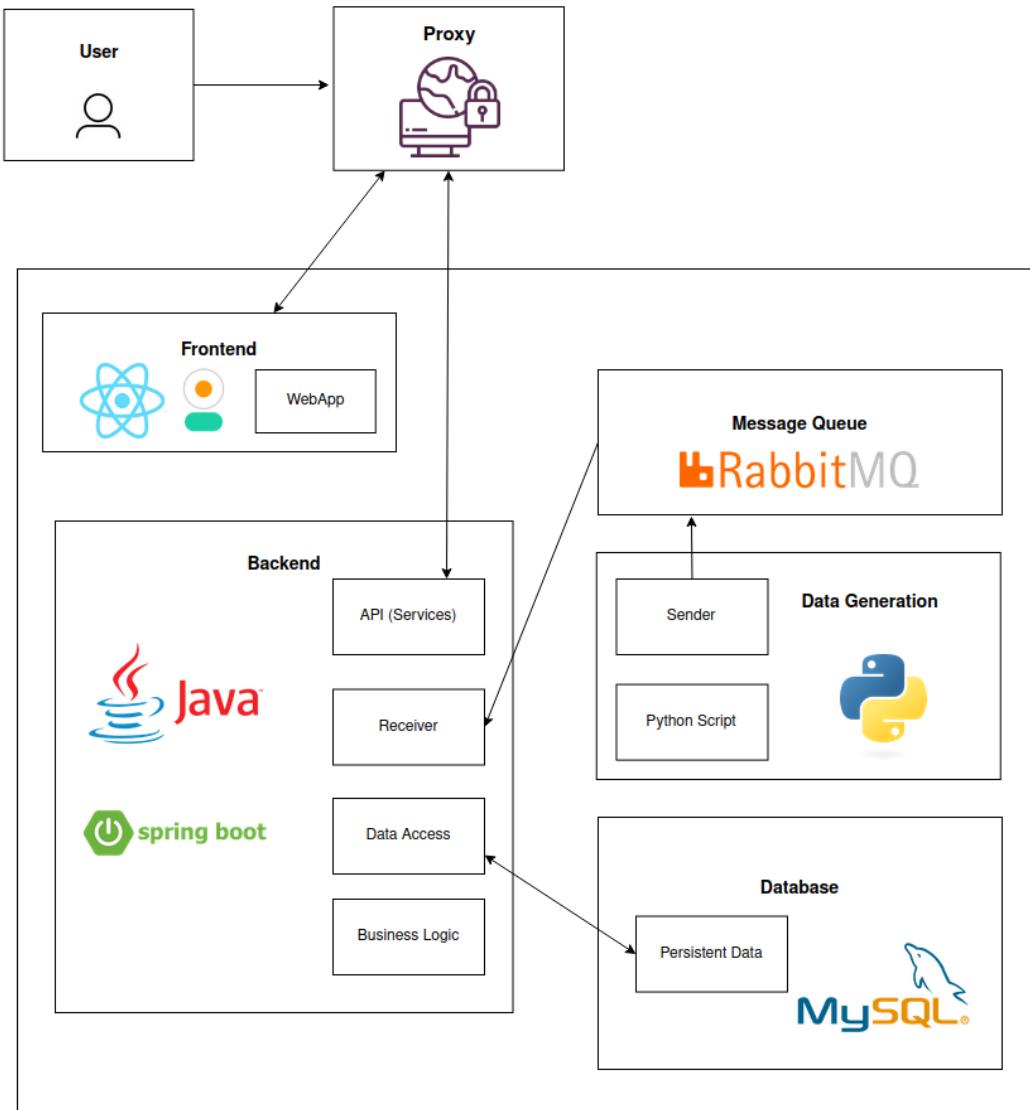
3 Architecture notebook

Key requirements and constraints

- All accounts should be able to be authenticated.
- All users and companies should be able to change their information.
- The admin is the only one able to manage all accounts, and must have information on all.
- The company/group accounts should have company name, address, email and phone number.
- Company's should display the venue's address and phone number.
- The user accounts should have name and email, optionally they can have age, gender, phone number and photo.
- Companies should be able to publish events and edit them.
- Users must be able to save their favorite companies /groups.
- Users must be able to save events they'd like to attend.
- Users must be able to see what they have saved.
- Users must be able to see the occupancy of the events.
- Company accounts have read and write uses for the users, users should be able to access the events created by the companies and comment/review them.
- User accounts have a read only use for the other accounts.

Architectural view

1. The data generation layer is responsible for generating data and sending it through message queues to the backend layer for processing. This data generation will be simulated utilizing python scripts and the message queues will be implemented with RabbitMQ.
2. The database stores all the persistent data and will be implemented using mySQL, because a relational database is useful since the schema doesn't change, all entities are strongly connected and depend on each other.
3. The backend layer is responsible for data access, processing, and the logic that drives the application's core functionality. It manages the server-side operations, interacts with databases, and handles business logic, ensuring that data is processed, retrieved, and delivered to the frontend as needed, through Web Sockets. It will be implemented using Spring Boot.
4. The data presentation layer will communicate through the API to fetch the data it should present and it will be implemented using React.
5. The user communicates through a proxy which was implemented in order to assure greater security and to abstract the user from the inner workings of the app.



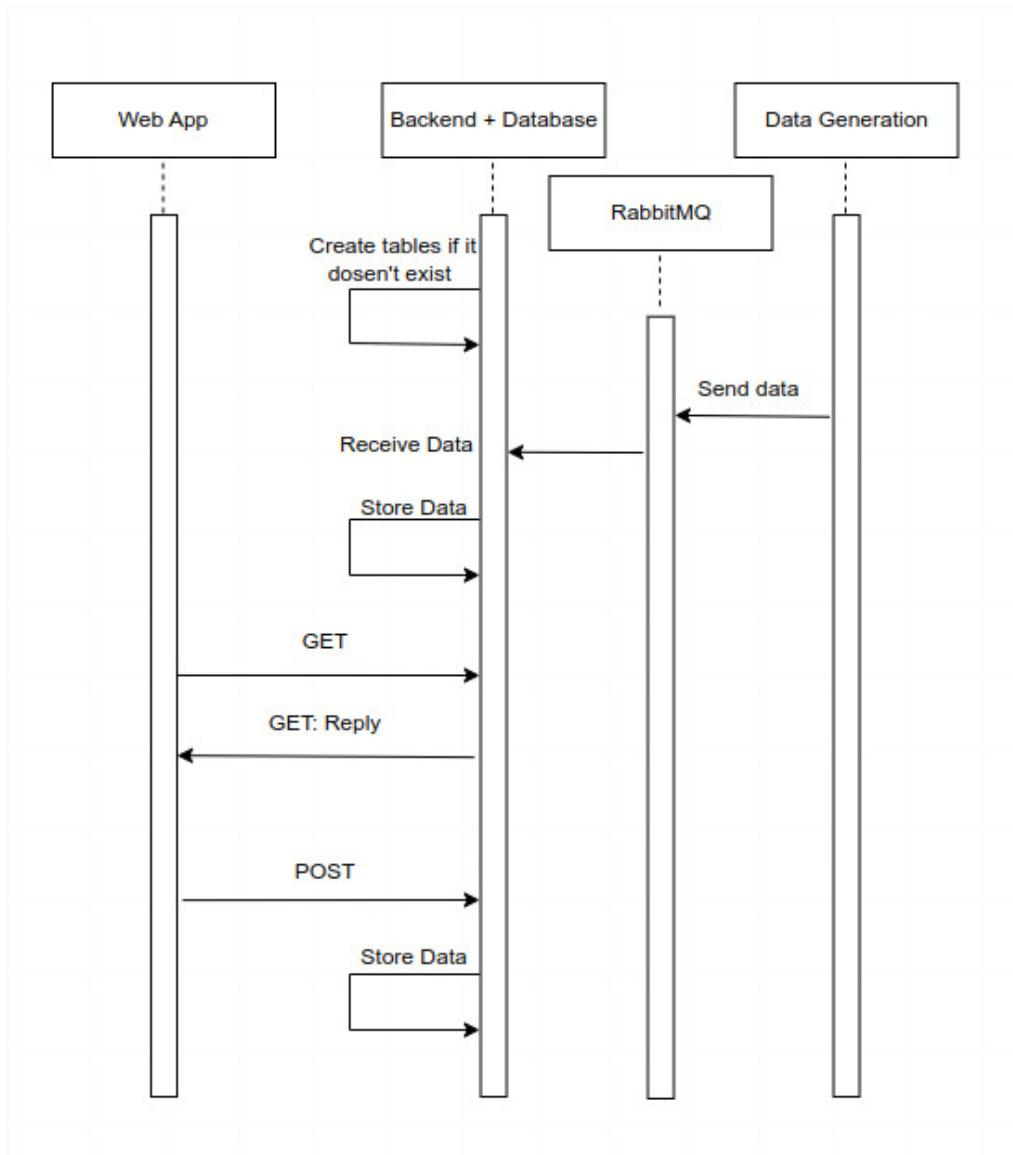
Module interactions

Each module has a certain responsibility and role in the application which the interactions between them must respect. In order to login, the frontend will post the login credentials to the API, then, the backend will check their authenticity using the information stored in the database.

If the credentials are valid the WebApp will display the dashboard according to the type of logged in user (Companies and Users have different dashboards due to their different uses of the app.)

The data generation layer will generate data which will be passed to the backend for processing and storage.

To clarify the interactions along time here is a sequence diagram:



4 Information perspective

This domain will include concepts related to the purchase and resale of tickets from companies or entities.

Therefore, it will have 5 entities, that are going to be described:

A Company entity that has for attributes a name, a phone number, an email address and has a function to retrieve last events, this entity is linked to the Entity Event, that has for attributes a name, a description of the event in place and the location.

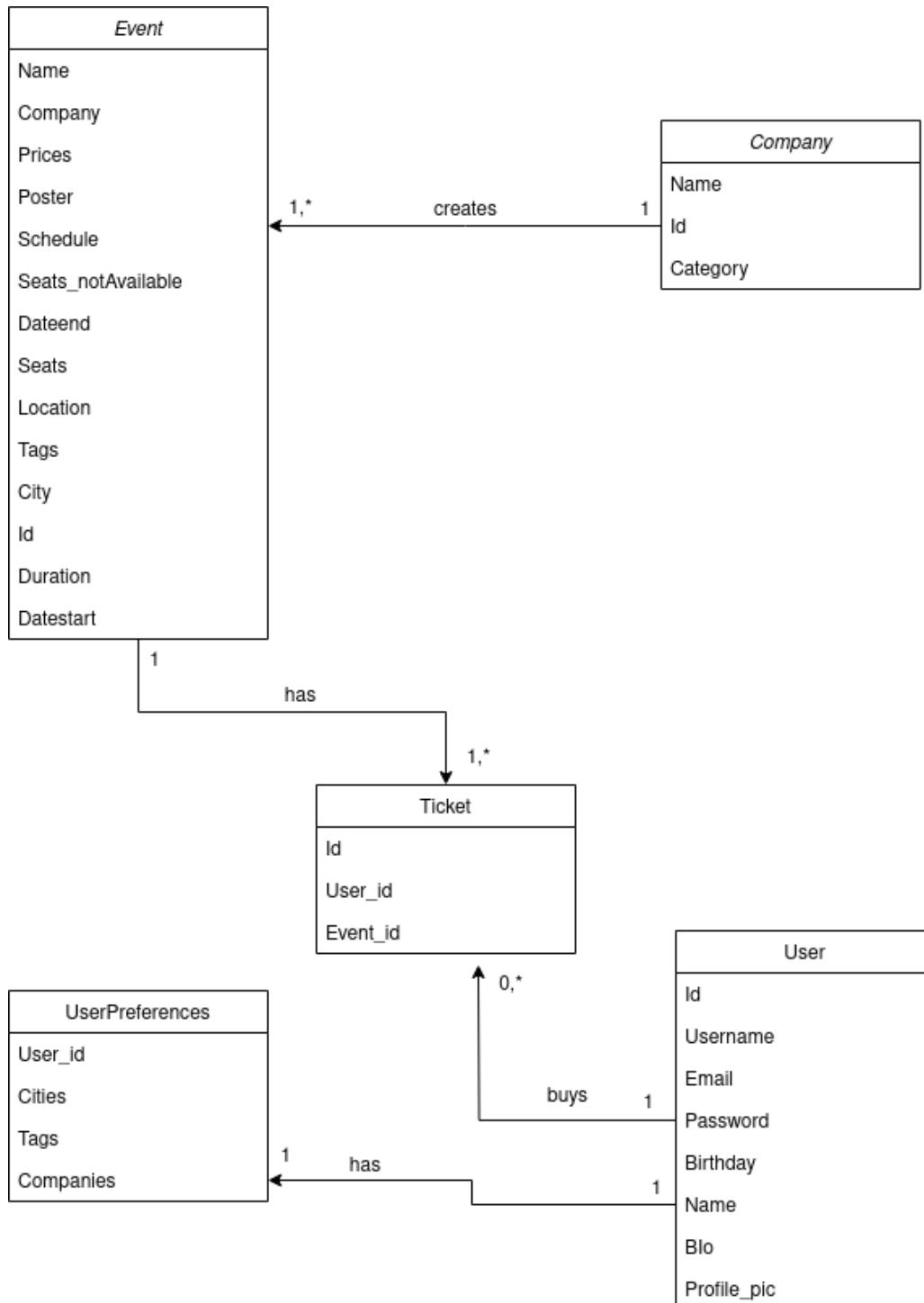
For a single Event, there are multiple Tickets, which is another entity, that has an id, and references to an User and to an Event.

The User can purchase more than one ticket, having as attributes a name, NIF, email address, referencing the entity Address, and has a function for Recommended (recommending activities).

The entity Address is linked to an Event, and has for attributes, the street, the city,

the state, the postal code and the country, having a function to validate the address and information associated with that.

To clarify the entities and its relations there is a diagram:



5 References and resources

- <https://www.cm-aveiro.pt/visitantes/agenda-aveiro>