deti universidade de aveiro departamento de eletrónica, telecomunicações e informática

TQS: Product specification report

Afonso Ribeiro Campos [100055], Diana Elisabete Siso Oliveira [98607], Isabel Alexandra Jordão Rosário [93343], Miguel Rocha Ferreira [98599]
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1 Introduction

1.1 Overview of the project

Our project, named *Chatêau du Vin*, consists of a Drink Delivery platform where users can request drinks from a set of stores, order them and have them delivered to their place. The products will be delivered by riders that will be responsible to accept the order and get the product. The riders will have access to a list of orders from clients, provided by the API, and will choose the one they want to complete.
In this way, the project has 3 platforms: the web application designed for the customer, *Chateau du Vin*, the web application designed for the management, *Track It*, and the mobile application designed for the riders, *QuickDrink.* The first two, being the most important for the development of the project, had integrated tests to guarantee their good functionality.

1.2 Limitations

The development of the mobile application was conditioned by problems with dockers, and it was stopped until it was possible to access the API information without having to resort to the use of dockers. This pause conditioned some of its features, such as verifying in more detail the information of an order, as well as allowing the rider himself to change his personal information. In addition to the mobile application, on the management platform, the dismissal of an employee was not implemented, as well as the real-time verification of the location of the courier, the acceptance/rejection of new job applications and the filtering of the list of tasks by different filters. Finally, in the application aimed at the customer, the option for a user to filter the products of the stores according to the different filters was lacking.

2 Product concept

2.1 Vision statement

Our system aims to provide a simple and practical interface where the user, who wants to buy wine, can choose from a set of different stores and order the product they want. Using our app, Chateau du Vin, instead of going to the supermarket is more practical because the user will have direct access to the store's inventory so they don't end up making unnecessary trips in case the product is out of stock. One of our goals is to get as many partners as we can get so the user can have as many options as they want, having the possibility to find a rare piece of wine that wouldn't be available to buy in regular supermarkets, for example.
As for the riders, after applying for the job, they would have access to a mobile app, QuickDrink, with a set of orders from users in the zone, having the possibility to choose which one is better for them.
Even though there are already some delivery systems that also deliver drinks, we believe that having only wine for the users to buy can get the attention of real wine lovers, providing them a more specialized service.
Also, by specializing only on wine delivery, we can assure a more strict delivery quality. Because wine bottles are made of glass and are more fragile, it's easier to make a protocol to keep the bottles safe, whilst with mixed product deliveries assuring this quality would be harder.
In addition, there is also an application for managing both riders and stores that partner with us, Track It. This platform allows you to check information associated with staff, stores, job applications and tasks.

2.2 Personas

Jessica is a twenty-eight year old student at the University of Minho, where she has been studying Biomedical Engineering for 3 years. In addition to her studies, she is also enrolled in a volleyball club where she trained twice a week until she injured her ankle. After the injury, the doctor told her that she would have to walk for at least six months with crutches for her ankle to heal.

As an athlete, Jessica is not in the habit of drinking alcoholic beverages very often, doing so only in very specific situations, such as her birthday. However, unlike in previous years, she cannot organize her birthday party alone because of her ankle injury, having to resort to home delivery apps.

So this year, Jessica decides that she will use the *Chatêau du Vin* app to order [insert fancy drink name here], from the store(?) [insert place name here], a tradition that cannot fail.

Motivation: Jessica would like an easier way to organize her birthday party, since she can't get around easily.

Guilherme is a thirty-two-year-old adult from the city of Aveiro, being the eldest brother of a family with four children. When he was just 15 years old, his father passed away, leaving his mother with debts to pay. Since that age, Guilherme has worked in his spare time in a restaurant to help his mother provide better conditions for his brothers. The death of his father and the end of his adolescence shaped Guilherme's personality, making him a determined and fearless adult, who prioritizes his family above all else.

This year, Guilherme's mother was diagnosed with kidney cancer and started treatment. However, the treatment is becoming expensive and, therefore, Guilherme has had to find another job in order to pay his debts to the hospital.

He currently works as a home delivery courier at QuickDrink, being one of the company's best employees, having a score greater than 4.8 stars and a total of 138 orders placed in a space of three months. Therefore, every weekend, Guilherme opens the mobile application and tries to accept as many requests as he can.

Motivation: Guilherme would like to make as many deliveries as possible to earn more money from sales commissions and be able to pay hospital debts and provide comfort to his family.

Clara is a thirty-eight-year-old lady, born in Lisbon, single mother of two four-year-old twin girls. She has been with the company for over ten years, having secured a position in the application management department associated with the company thanks to her hardworking, independent, committed and determined personality.
Recently, the web application related to riders management was reformulated and Clara was temporarily transferred to the riders management department in order to test the application and improve some aspects of it.
Clara always liked to lead, being most of the time the team leader in the group work she did at school and even at university, so it wasn't difficult to adapt to her new position. Currently, her responsibility in the company is related to the management of orders in progress in the Cascais area from 8 am to 4 pm.
Therefore, Clara logs into the management application every day to check if all orders have an associated rider and, if they don't, she will associate one.

Motivation: Clara would like to further improve the management application through its continuous use during her temporary stay in the team.

2.3 Main scenarios

Jessica orders her favorite wine – It's Jessica's birthday and she wants to order her favorite wine. She opens the ChatêauDuVin web app, logs in and opts to start ordering. She is presented with a store list from which she selects her preferred store. She then has access to the full list of products from her preferred store and spots the wine of her choice which she then "adds to cart". At checkout, Jessica selects her preferred payment method as well as the delivery destination. After a small wait, the order is registered giving Jessica an estimated time of delivery, as well as driver details, including their current location.

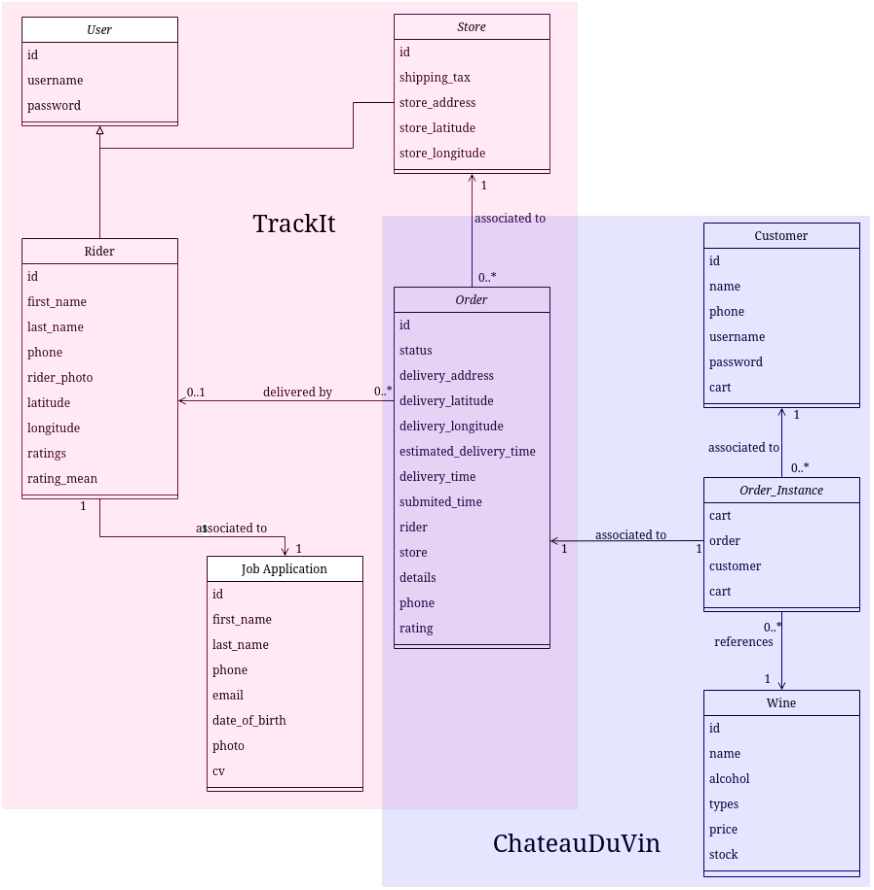
Guilherme takes in an order – At night, Guilherme is looking for delivery work, so he opens the QuickDrink mobile app, logs in and opens the new orders section. On the list he spots a requested delivery nearby from a wine store to a girl named Jessica. He accepts the order after checking the details and shortly receives confirmation that it was accepted.

Clara checks rider applications – Clara wants to hire more rider's seeing as the current available rider's are often overbooked. Clara opens the TrackIt web app, and on the "Staff" tab selects to check new job applications.

2.4 Project epics and priorities

Throughout the development of the project, we divided the three environments by the team, in order to simultaneously develop the three platforms and to have at least one new functionality developed in each interaction. The features that had the highest priority were those associated with the user stories mentioned in the previous topic.

3 Domain model



4 Architecture notebook

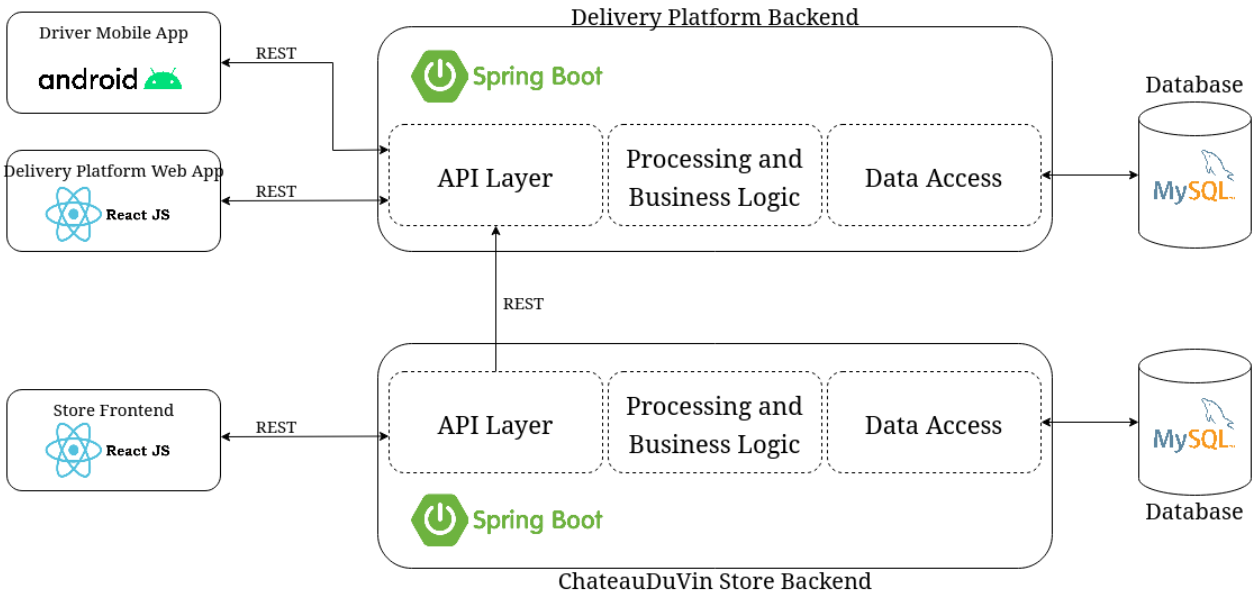
4.1 Key requirements and constrains

The Track It and Chateau du Vin applications do not need to adapt to different platforms, having been developed only for use on the web, as well as the rider application, QuickDrink, will only work on Android. The latter is integrated with Google Maps. All platforms work with internet access only and there are no hardware dependencies.

- All performance and loading requirements must be taken into consideration as the architecture is being developed.
- Access to information must be made only by authorized users, each one being able to only verify the information to which they have access, in this way we must guarantee the complete protection of the data.
- The information present in the management application will serve as a link between the riders' application and the customers' application.

4.2 Architectural view

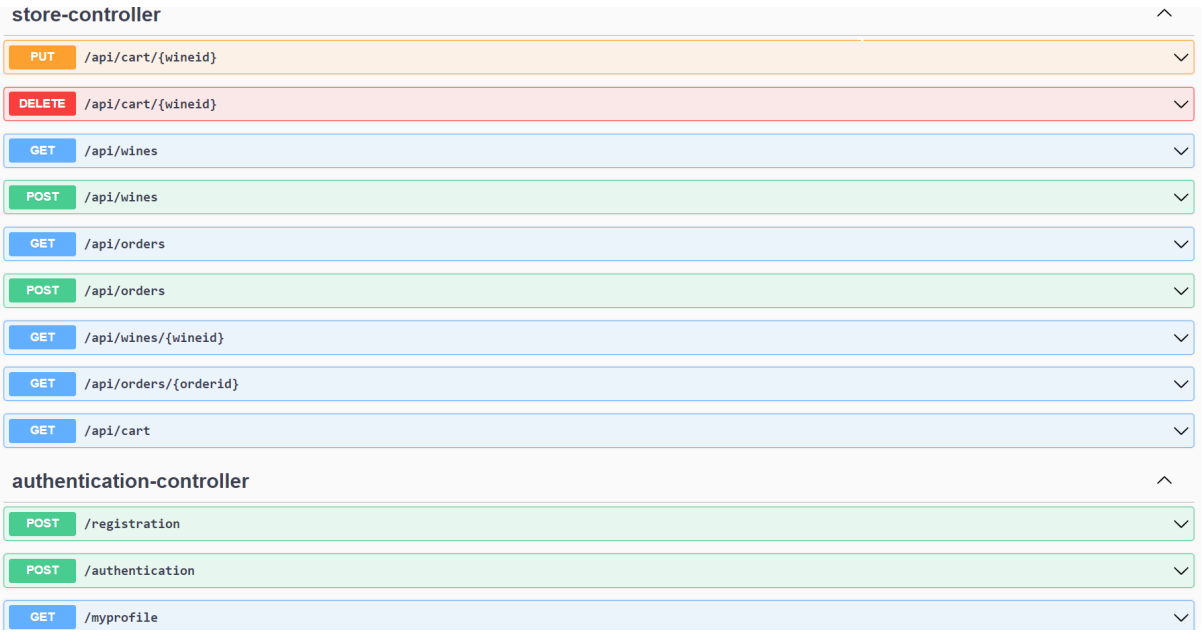
For the database we use MySQL because it is simple to work with and we don't need anything more complex. For the development of the backend, including the API, SpringBoot was used because there is already familiarity in the development of tests. For the development of the frontend, React JS was used in the web application and Android in the mobile application.
The system data is all synchronized through the use of GET, POST and PUT methods to the API whenever some information is changed, there is always communication between the two backends. Some http requests require authentication on the store's part, Chateau du Vin uses its own credentials to register (should it be not registered), authenticate (receiving a Bearer token back), and then using that token to successfully make the requests.



5 API for developers

Endpoints were created for the management-controller, for the authentication-controller and for the store-controller.
The store endpoints allow you to add and remove wines from the cart, as well as having access to more detailed information about wines, carts, stores and orders.
Authentication endpoints allow you to register stores and riders, log in and access rider personal information.
The management endpoints allow changing the status of an order, accessing job applications, stores, orders, etc...
http://deti-tqs-14.ua.pt:8081/swagger-ui/index.html
http://deti-tqs-14.ua.pt:8080/swagger-ui/index.html


management-controller
PUT /api/rider/order/delivering/{orderid}
PUT /api/rider/order/complete/{orderid}
PUT /api/rider/order/accept/{orderid}
POST /api/store/order
POST /api/rider/updateLocation
GET /api/jobApplications
POST /api/jobApplications
GET /api/stores
GET /api/stores/{storeId}
DELETE /api/stores/{storeId}
GET /api/stores/name/{storeName}
GET /api/stores/address/{storeAddress}
GET /api/store/order/{orderid}
GET /api/riders
GET /api/riders/{riderId}
DELETE /api/riders/{riderId}
GET /api/riders/{firstName}/{lastName}
GET /api/rider/orders
GET /api/orders
GET /api/orders/{orderId}
DELETE /api/orders/{orderId}
GET /api/orders/store/{storeId}
GET /api/orders/status/{status}
GET /api/orders/rider/{riderId}
GET /api/jobApplications/{jobApplicationId}
DELETE /api/jobApplications/{jobApplicationId}
authentication-controller
POST /registration/store
POST /registration/rider
POST /authentication
GET /myprofile


store-controller
PUT /api/cart/{wineid}
DELETE /api/cart/{wineid}
GET /api/wines
POST /api/wines
GET /api/orders
POST /api/orders
GET /api/wines/{wineid}
GET /api/orders/{orderid}
GET /api/cart
authentication-controller
POST /registration
POST /authentication
GET /myprofile