

# TQS: Product specification report

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# 1 Introduction

## 1.1 Overview of the project

This project has the objective to implement a multi-layered, enterprise web application with a *Software Quality Assurance* (SQA) strategy, applied throughout the software engineering process.

The project incorporates a digital marketplace to offer on-demand household services (plumber, cleaner, furniture assembly, handyman, etc.), with the nearest independent service professionals.

The platform manages a dynamic workforce of service professionals; accepts orders; optimizes the assignment of jobs to the professionals; and allows scheduled visits. It will have separated areas for the professionals to input the services provided and times, and for the consumers to use the platform and order or schedule a service.

It will include two main “sub-projects”:

- a) The **deliveries platform** (“engine”), with use cases such as riders’ registration and reputation management, dynamic matchmaking of orders and riders, performance dashboard, etc.
- b) A **specific application** /market proposition that leverages on the deliveries platform, e.g., food ordering, drugs (medicines) delivery, “small” marketplace promoted by a municipality to stimulate local stores, etc.

## 1.2 Limitations

<explain the known limitations/unimplemented (but planned) features>

# 2 Product concept

## 2.1 Vision statement

Our system is meant to be used as an easy, readily available means of managing generic service providers, with the ability to be extended to any type of service - from household errands to financial planning guidance or even childcare providers.

In addition to getting a recognized professional service provider, the system includes a rating and evaluation mechanism that allows the user to analyze the various alternatives to its problem.

Aside from that, it enables secure communication between the customer and the expert, allowing them to discuss the details of the service or offer updates on its whereabouts.

## 2.2 Personas

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*Jordan is a 57-year-old entrepreneur, one of the founders and currently a CEO of 'Handyman Home Repair'. He is married with two children and enjoys spending his spare time with them.*

He finds himself frequently very busy, with little or no spare time, due to the rapid surge in demand for minor home repairs over the last few months.

In order to preserve HHR's positive business image and grant him more free time, Jordan sought out a software solution that would include the service delivered and the specialist hired, encouraging consumers to give brief feedback about the service rendered. What he didn't realize was that the number of possible software solutions was very limited, and the learning curve was steep.

He has tried a few different business-management-oriented software-concepts over the last few months, but none have fulfilled his needs and, in the end, have given him much more work.

**MOTIVATION:** Jordan wants to keep closer track of his company's results, allowing recurring and newer customers to easily hire a competent service provider.

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*Bob is a 33-year-old general plumber who has been employed as a freelancer in Bobsville since the start of his career. He is single and has a German Shepard that he enjoys hiking with on the local trails.*

He is a perfectionist, trustworthy, and very effective in his service delivery, supplying clients with a very competent job while adhering to a stringent set of guidelines in order to maintain his integrity and attract more satisfied customers.

Even though he has a handful of loyal clients, Bob wishes to extend his modest network and provide his high-quality service to those looking for plumbing workers. This can be a time-consuming task, as he must distribute his ads while still keeping track of the compliments and positive criticism he receives.

He attempted to register himself on many online freelancing sites, but was not successful because it required too much of a learning process.

**MOTIVATION:** Bob would like to keep track of his customer reviews and become more involved in the market in order to reach out to potential clients.

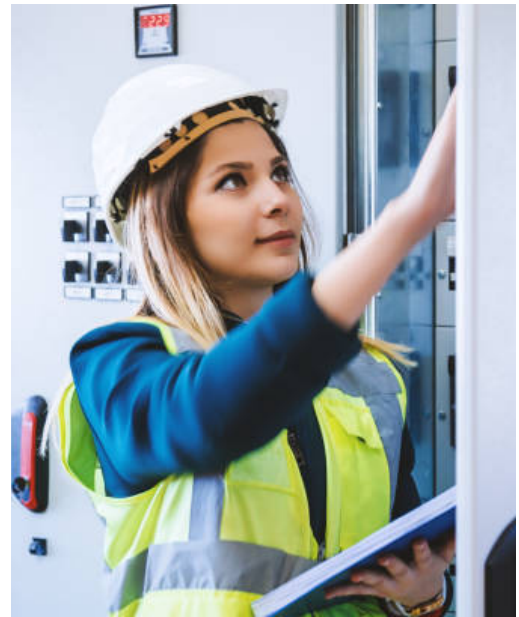
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Wendy is a 30-year-old electrician who has been working at 'Handyman Home Repair' for the last two years. She is single and really enjoys working at that company, being recognized for her good work.

As the director of the *Electricity-Services-Department*, she is responsible for ensuring that all services delivered are of the same high standard, so as not to jeopardize the positive feedback she has received.

Despite the fact that she has a steady position at the firm, Wendy wishes to keep better track of her current customers. This job is inconvenient because the program used at HHR is very old and the data is stored in an inconvenient way.

She tried to make her own spreadsheets, but she soon abandoned the thought because it involved learning how to function effectively with a modern, unknown software tool.



**MOTIVATION:** Wendy would like to view her client's data in a more organized and easy way, as well as being able to update it easily.

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Kate is a 57-year-old woman, she is a well-known psychologist and now she consults her patients online from her home. She lives by herself, she has one son and one daughter but they both live already moved out.

Now that she spends more time at home she has a weekly schedule for household tasks so she can keep the house clean and tidy as she likes.

But nowadays, with the pandemic, she has got more and more patients and her days are getting really busy with work and she lacks time to

accomplish the house tasks.

Kate really needs to find a trustworthy company to contract the services she needs to keep her house clean, tidy and with all eventual problems fixed.

**MOTIVATION:** Kate will need to contract a service to accomplish the tasks at her home as she can't do it all by herself anymore, and also this morning she noticed a leak in her bathroom while showering and she needs to find a reliable plumber to do the job of fixing the leak.

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## 2.3 Main scenarios

There are two main scenarios for the end-users, one for the independent service professionals and service companies to include the services they provide and their time availability and also to get notification for the requested appointments, and another for the clients to visualize and schedule a household service they require and to schedule an appointment with one of the professionals.

Scenario 1:

**Bob inserts his services in the platform** — Bob opens the application and sees a welcome message which informs him about the key features of the application. After registering to the platform, and also informing the area he can make his visits, Bob explores the features that allow him to insert the menu of services he provides and the times he is available to provide his services. He is also able to check when there is any new appointment made for his services.

Scenario 2:

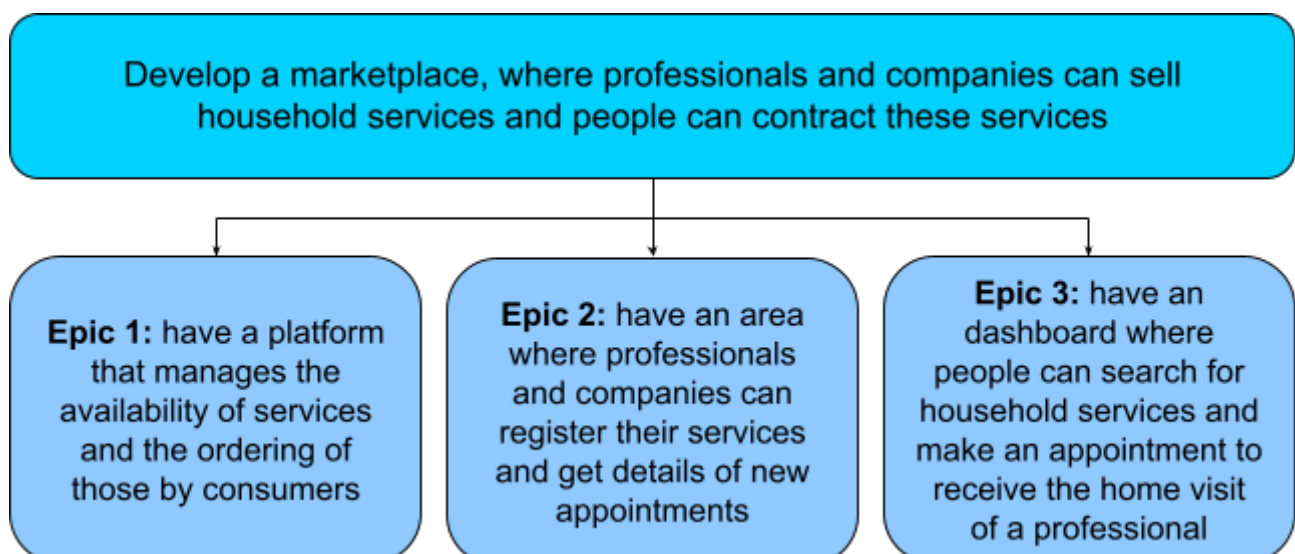
**Kate requests a service on the platform** — Kate has a leak in her bathroom and needs the assistance of a plumber to fix the problem. Kate accesses the platform and finds the service she needs to contract. First of all Kate creates an account to register her address and payment method. Kate logs in to be able to request the service, and finds available plumbing services she needs, and she requires it on the platform. The platform assigns Bob to provide the plumber services, as he is an available professional and close to her area. Kate gets the confirmation of the appointment then waits for the professional at her house. Bob then receives the order for the home visit to provide his services.

After the service is provided:

**Acknowledging the provision of the service on the platform** — Kate received Bob's visit at her home to provide the plumbing service. Bob registers in the platform any extra service provided to fix the leak and allows Kate to acknowledge that the service was properly provided. Kate goes on the platform and informs that the service was finalized which allows the payment to be made. Bob receives the payment through the platform.

## 2.4 Project epics and priorities

It follows below a diagram with the initiative and the epics of this project.



**Figure X - Expected Project Epics**

Below, the plan for the incremental implementation of the solution over the scheduled iterations, with the main functionalities to be reached by each epic.

Iterations	Epic 1	Epic 2	Epic 3
I1 25/05	- Set up a template with a static view of the platform	- Set up a template with a static view of the area for the independent professionals and companies	- Set up a template with a static view of the dashboard for the customers
I2 01/06	- Initial setup of the backend: <ul style="list-style-type: none"><li>• SpringBoot project and main classes;</li><li>• Persistence (persistence);</li><li>• REST API;</li></ul> - Initial implementation of the core stories; - Implementation of unit tests for the core stories implemented;		
I3 08/06	- A few core stories detailed and implemented; - QA tests implemented; - CI Pipeline;		
I4 15/06	- Product increment with a couple of core user stories: search + buy/order; - Comprehensive API; - Set up the CD pipeline; - QA tests; - Comprehensive REST API.		
I5 22/06	- Stabilized product (MVP); - CD Pipeline: services deployed to containers (or cloud); - Quality dashboard and gates; - Minimal Viable Product (MVP) backend deployed in the server (or cloud); - Documentation final version (Product specification report and QA report).		

### 3 Domain model

<which information concepts will be managed in this domain? How are they related?>

<use a logical model (UML classes) to explain the concepts of the domain and their attributes>

## 4 Architecture notebook

### 4.1 Key requirements and constraints

- The users should be able to access the Web-App from remote PCs or Mobile Devices with internet connection.

- The service providers need to register on the platform, in order to access it. This includes providing personal information, such as an email address, password, full name, birth date, gender and services offered. This information will be stored in the database.
- The clients need to register on the platform, in order to access it and be able to hire a service. This includes providing personal information, such as an email address, password, full name, birth date, gender and billing information. This information will be stored on the database.
- The Web-App should be continuously available.
- A Service Provider should have access to his past clients' reviews, organized in various charts, as well as his next employer information.
- When a client leaves a negative review (two stars or lower), the associated service provider should receive a notification about this update within 1 minute.
- The Web-App should be protected with authentication and authorization, meaning that each Service Provider only has access to his assigned clients, as well as each client can only chat with his assigned Provider.

## 4.2 Architectural view

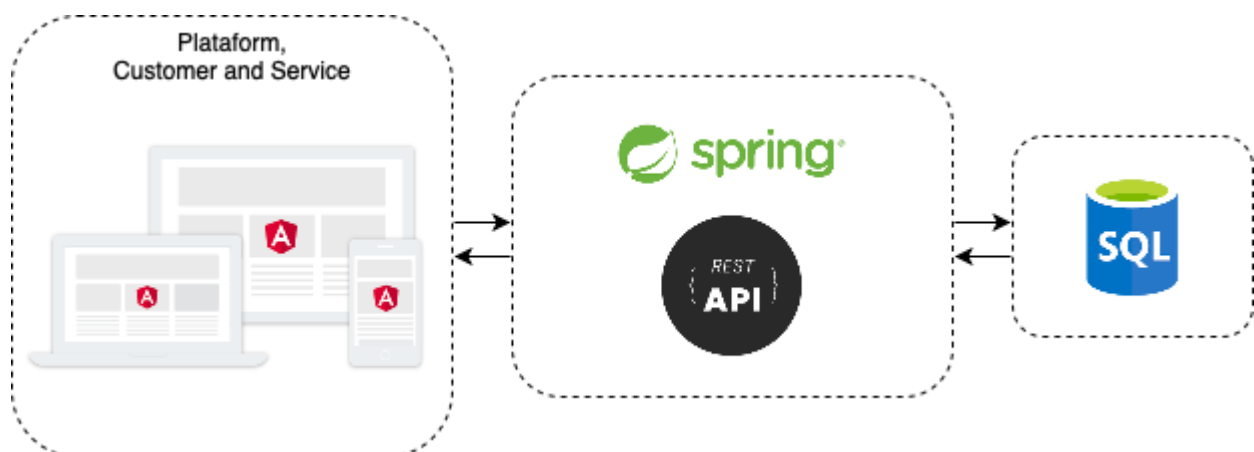
→ Discuss architecture planned for the software solution.

→ include a diagram

<detail the specific technologies/frameworks that were used>

→ explain how the identified modules will interact. Use sequence diagrams to clarify the interactions along time, when needed

→ discuss more advanced app design issues: integration with Internet-based external services, data synchronization strategy, distributed workflows, push notifications mechanism, distribution of updates to distributed devices, etc.>



**Figure X - Architecture view**

### 4.3 Deployment architecture

[Explicar a organização prevista da solução em termos configuração de produção (*deployment*).  
Modelar num diagrama de *deployment*]

## 5 API for developers

[Explicar a organização da API. Os detalhes detalhes/documentação dos métodos devem ficar numa  
solução *hosted* de documentação de APIs, como o [Swagger](#), ou <https://apiary.io/> ]

<what services/resources can a developer obtain from your REST-API?>

<document the support endpoints>

[ Base URL: localhost:8080/weather ]

client	Regular user of the weather forecast API	▼
GET	/now/{latitude},{longitude}	get weather forecast of the current day for the given coordinates
GET	/recent/{latitude},{longitude}/{days}	get weather forecast of the next days starting from today until the given number of days for the given coordinates
GET	/period/{latitude},{longitude}/{start},{end}	get weather forecast of the given time period for the given coordinates
GET	/cached	get weather forecasts previously requested and still present in cache

## 6 References and resources

<document the key components (e.g.: libraries, web services) or key references (e.g.: blog post) used  
that were really helpful and certainly would help other students pursuing a similar work>