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Class of 2024

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# 3rd year internship report

## As a Full-Stack developer
## At ChantierCarré


## Section 1

## From April 1st to July 31st, 2022

# Contents:

# 1. Introduction:

My name is Seraphin and I am a student at Epitech Lille, a school of computer development.

Throughout our five years of schooling, we are led to improve our practice through multiple internships in companies, here during the end of my third year: a four-month internship in the company ChantierCarré.

It is through this internship report intended for future arrivals at ChantierCarré that I am going to explain to you in general what this company is but also in what consists of the work and the stakes of a Full Stack developer within this one;

Hello newcomer, if you are reading this document, I welcome you to ChantierCarré.

# 2. Presentation of the company :

## 2.1. What is ChantierCarré ? :

ChantierCarré is a company founded in 2017 in Brest by Julien Verriele. Before becoming CEO Mr. Verriele worked in the construction industry as a Construction Engineer and later as an Operation Manager.

The complex world of a construction site was not helped by the fact that everything was still done in paper format with syntaxes specific to each company and it is by this observation that Julien had the idea to solve these problems himself by creating his own company; ChantierCarré.

ChantierCarré is a suite of applications and digital tools for sale to help general contractors and their construction teams to digitize and facilitate the construction world.

## 2.2. The services of ChantierCarrée ? :

For now, at the time of writing this report there is only the EtudeCarré service that exists in the ChantierCarré suite and is available for sale. The tool helps to centralize the documents and organize the structure of a construction site in its entirety.

# 3. The team:

During this internship I was accompanied by the director, a senior developer and two of my classmates.

Today our team is composed of five people:

- **Julien Verriele, CEO:**

The leader of the company, Julien, plays a main role in the evolution of his company.

With 10 years of experience in the construction industry, he knows what his customers need and passes on his knowledge to his team.

He oversees giving indications on what to do and of the good cohesion of the group.

- **Jeremy Mathon, Senior developer:**

Epitech alumni working for HiveBrite as a senior full stack engineer, Jeremy helps on the IT development side.

With more than 7 years of experience, including 3 years as a freelance, Jeremy has a lot of experience in web development and more specifically in telecommuting.

He oversees the organization, the project architecture, the sprint retrospectives and helps the blocked developers with his knowledge.

- **Pierre-Joseph Beaugendre:**

Intern Pierre-Joseph worked during his second-year internship in the company PERI-G as a Full-Stack developer, for 3 months.

- **Eliot Martin:**

Third intern of the team Eliot worked during his previous internship at Decathlon in the BtWin village as a Full-Stack developer, for 4 months in alternation.

## 4. The organization:

When you start working in this company and more specifically on EtudeCarré you will discover a tool intended for people working in the building industry, certainly a world you don't know yet as a developer, at least that was my case.

Organization plays a crucial role in your work, as it will be done remotely.

At ChantierCarré we use the agile method, it's a method of organization centered on human and communication. The goal is to deliver results as quickly as possible in order to continuously improve the tool while keeping a certain amount of leeway. Sprints are set up with objectives to be achieved, a retrospective and this at the end of each week.

## 4.1. The logbook:

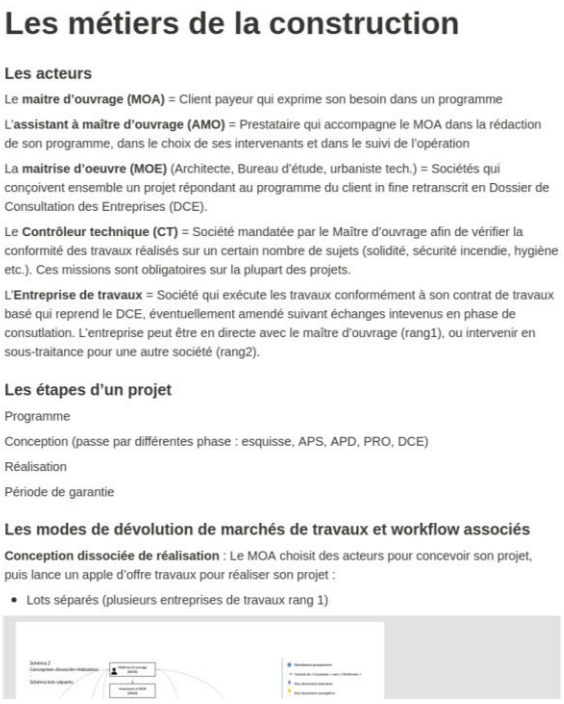
Jeremy has set up a logbook thanks to Notion.

Notion is a web application for note taking, databases, Kanban boards, wikis, calendars and reminders.

It is both an ideator and a wiki.

It will allow you to follow the evolution of the project thanks to the agile method, you will find:

- A page to explain to you the trades of the construction:



### Les métiers de la construction

**Les acteurs**

Le **maitre d'ouvrage (MOA)** = Client payeur qui exprime son besoin dans un programme

L'**assistant à maître d'ouvrage (AMO)** = Prestataire qui accompagne le MOA dans la rédaction de son programme, dans le choix de ses intervenants et dans le suivi de l'opération

La **maitrise d'oeuvre (MOE)** (Architecte, Bureau d'étude, urbaniste tech.) = Sociétés qui conçoivent ensemble un projet répondant au programme du client in fine retranscrit en Dossier de Consultation des Entreprises (DCE).

Le **Contrôleur technique (CT)** = Société mandatée par le Maître d'ouvrage afin de vérifier la conformité des travaux réalisés sur un certain nombre de sujets (solidité, sécurité incendie, hygiène etc.). Ces missions sont obligatoires sur la plupart des projets.

L'**Entreprise de travaux** = Société qui exécute les travaux conformément à son contrat de travaux basé qui reprend le DCE, éventuellement amendé suivant échanges intevenus en phase de consutlation. L'entreprise peut être en directe avec le maître d'ouvrage (rang1), ou intervenir en sous-traitance pour une autre société (rang2).

**Les étapes d'un projet**

Programme

Conception (passe par différentes phase : esquisse, APS, APD, PRO, DCE)

Réalisation

Période de garantie

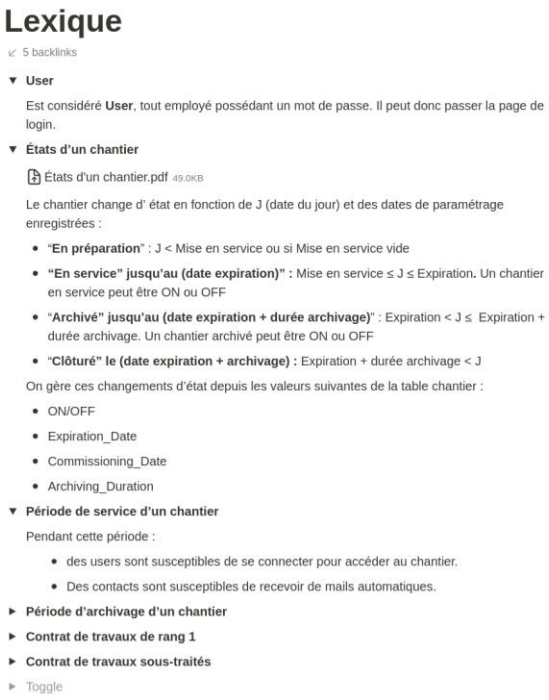
**Les modes de dévolution de marchés de travaux et workflow associés**

**Conception dissociée de réalisation** : Le MOA choisit des acteurs pour concevoir son projet, puis lance un apple d'offre travaux pour réaliser son projet :

- Lots séparés (plusieurs entreprises de travaux rang 1)

- A page that lists the important keys and passwords

- A page to explain the lexicon of the construction world:



## Lexique

5 backlinks

▼ **User**

Est considéré **User**, tout employé possédant un mot de passe. Il peut donc passer la page de login.

▼ **États d'un chantier**

États d'un chantier.pdf 49.0KB

Le chantier change d' état en fonction de J (date du jour) et des dates de paramétrage enregistrées :

- "**En préparation**" : J < Mise en service ou si Mise en service vide
- **"En service" jusqu'au (date expiration)" :** Mise en service ≤ J ≤ Expiration**.** Un chantier en service peut être ON ou OFF
- "**Archivé" jusqu'au (date expiration + durée archivage)**" : Expiration < J ≤ Expiration + durée archivage. Un chantier archivé peut être ON ou OFF
- "**Clôturé" le (date expiration + archivage) :** Expiration + durée archivage < J

On gère ces changements d'état depuis les valeurs suivantes de la table chantier :

- ON/OFF
- Expiration_Date
- Commissioning_Date
- Archiving_Duration

▼ **Période de service d'un chantier**

Pendant cette période :

- des users sont susceptibles de se connecter pour accéder au chantier.
- Des contacts sont susceptibles de recevoir de mails automatiques.

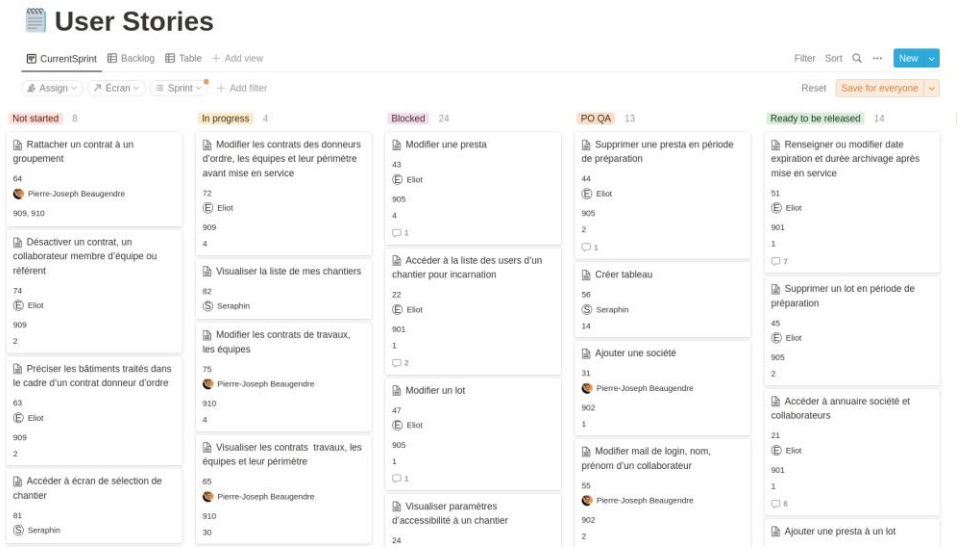
▶ **Période d'archivage d'un chantier**

▶ **Contrat de travaux de rang 1**

▶ **Contrat de travaux sous-traités**

▶ Toggle

- A table that lists the status of the tasks of each developer and therefore yours:



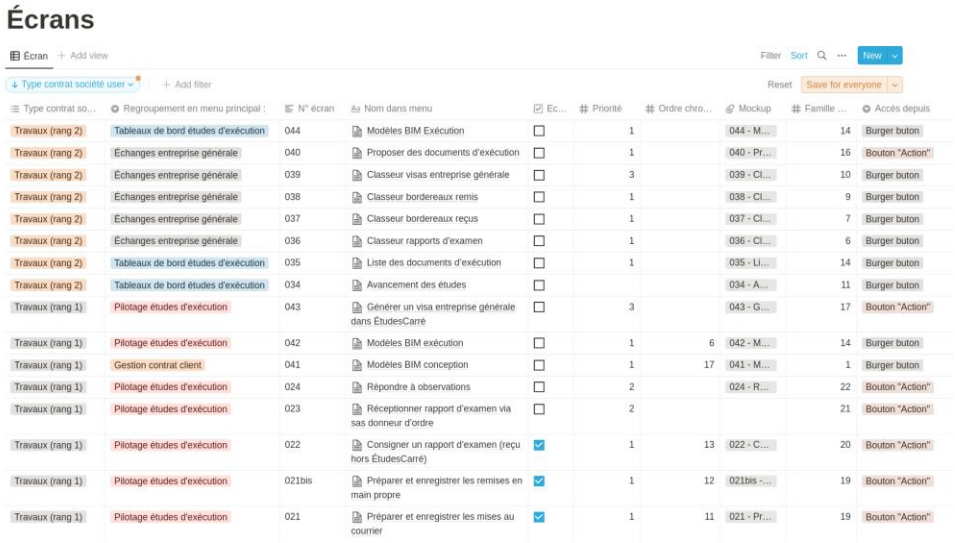
## User Stories

CurrentSprint | Backlog | Table | + Add view | Filter | Sort | New

Assign | Écran | Sprint | + Add filter | Reset | Save for everyone

| Not started 8 | In progress 4 | Blocked 24 | PO QA 13 | Ready to be released 14 |
|---|---|---|---|---|
| Rattacher un contrat à un groupement<br>64<br>Pierre-Joseph Beaugendre<br>909, 910 | Modifier les contrats des donneurs d'ordre, les équipes et leur périmètre avant mise en service<br>72<br>Eliot<br>909<br>4 | Modifier une presta<br>43<br>Eliot<br>905<br>4<br>1 | Supprimer une presta en période de préparation<br>44<br>Eliot<br>905<br>2<br>1 | Renseigner ou modifier date expiration et durée archivage après mise en service<br>51<br>Eliot<br>901<br>1<br>7 |
| Désactiver un contrat, un collaborateur membre d'équipe ou référent<br>74<br>Eliot<br>909<br>2 | Visualiser la liste de mes chantiers<br>82<br>Seraphin | Accéder à la liste des users d'un chantier pour incarnation<br>22<br>Eliot<br>901<br>1<br>2 | Créer tableau<br>56<br>Seraphin<br>14 | Supprimer un lot en période de préparation<br>45<br>Eliot<br>905<br>2 |
| Préciser les bâtiments traités dans le cadre d'un contrat donneur d'ordre<br>63<br>Eliot<br>909<br>2 | Modifier les contrats de travaux, les équipes<br>75<br>Pierre-Joseph Beaugendre<br>910<br>4 | Modifier un lot<br>47<br>Eliot<br>905<br>1<br>1 | Ajouter une société<br>31<br>Pierre-Joseph Beaugendre<br>902<br>1 | Accéder à annuaire société et collaborateurs<br>21<br>Eliot<br>901<br>1<br>6 |
| Accéder à écran de sélection de chantier<br>81<br>Seraphin | Visualiser les contrats travaux, les équipes et leur périmètre<br>65<br>Pierre-Joseph Beaugendre<br>910<br>30 | Visualiser paramètres d'accessibilité à un chantier<br>24 | Modifier mail de login, nom, prénom d'un collaborateur<br>55<br>Pierre-Joseph Beaugendre<br>902<br>2 | Ajouter une presta à un lot |

- A table that lists the pages that make up EtudeCarré:




- A table that lists the common components that make up EtudeCarré:


- A set of pages that lists the sprint retrospectives (Successes, Action successes, Feedback, Points to discuss)

## 4.2. The communication:

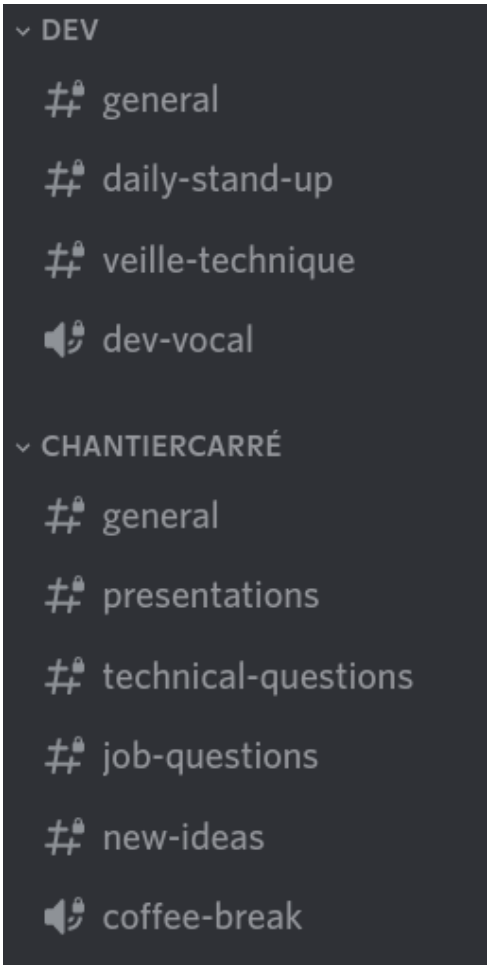
As a teleworker within the company, communication is also crucial; it will be done mainly on Discord, a call and instant messaging application, and is essential to a good understanding of your tasks.

It will help you to progress in your tasks thanks to mutual aid, to give you answers to most of your questions and this, reciprocally, is also valid for your colleagues, your team.

In case you have more technical questions, targeted at the world of construction, Julien will take care to explain to you in length and in width

most of the terms the different actors and different types of organization which constitute a building site.

This is what the ChantierCarré Discord server is mainly made of:




- A **"general"** written channel for developers.
- A **"daily-stand-up"** written channel where we write each day what we did the day before, our goals and our blockers of the day.
- A **"veille-technique"** written channel where we share links to articles, various and interesting videos talking about computer development
- A **"dev-vocal"** vocal channel to be able to talk in real time between developers and to be able to share your screen, often used to help each other
- Another **"general"** written channel but this time more global to the company

- A **"technical-questions"** written channel for all technical questions related to the world of computer development
- A **"job-questions"** written channel for all technical questions related to the world of construction

# 5. The project architecture:

## 5.1. The application:

EtudeCarré is an existing product; made from PHP and BackboneJS by a digital service company, the result was not what Julien was hoping for.

The first version was sloppy, it used a rather old technology which made the application insecure, hard to modify and to understand for newcomers but one of the biggest problems of this version was the loading times. The loads took too much time because all the data, which are rather large, were loaded in their globality before they could be displayed only partially.

The objective of my internship being to work on the second version of EtudeCarré, we started from scratch and with young and powerful technologies. The goal was to have an application that was faster, more scalable, better in terms of user experience and interface than the previous one.

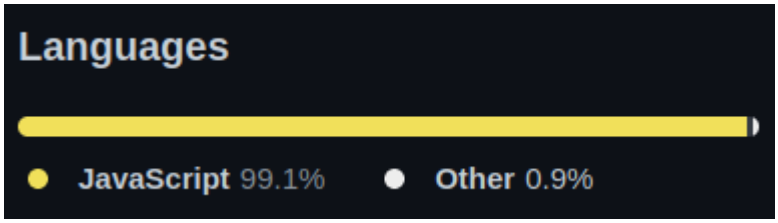
## 5.2. The tech stack:

The term tech stack defines a set of technologies that an organization uses to build a web or mobile application. It is a combination of programming languages, software infrastructure, libraries, servers, patterns, UI/UX solutions, software and tools used by its developers.

The technologies we have chosen to use for the second version of EtudeCarré are the following:

- **JavaScript**, more commonly known as JS is a functional scripting programming language mainly used in interactive web pages. In EtudeCarre as we are using the Next.js software infrastructure, therefore we are using a syntax extension of JS called JSX; which allows us to write HTML directly from our JS files.
- **Tailwind CSS** is a software infrastructure facilitating the writing of CSS mainly because it allows contrary to the latter to keep the content, the JSX, of a page; with its form, the CSS and that in a single JS file.
- **Next.js** est une infrastructure logicielle basée sur du Node.js pour aider à faciliter la construction d'applications web efficace et évolutive.
- **PostgreSQL 12** is a relational and object database management system that we host on our server to store EtudeCarre data, to retrieve, delete, modify data from Postgre we must use SQL queries that are not necessarily explicit and pleasant to write.
- **Prisma** is an object-relational mapping, or ORM, that helps us replace these SQL queries by using an object-oriented paradigm in the form of a schema, the schema.prisma file that we call, then use in JS functions.
- **Coolify** is a web application that allows to build and monitor applications hosted on a server.
- **Storybook** is a web application that allows to list all the graphical components of a web application.
- **GitHub** is a web application that allows to host, monitor and help the organization of projects.
- **Discord** is a calling and instant messaging software.
- **Notion** is a web application for note taking, databases, Kanban boards, wikis, calendars and reminders. It is both an ideator and a wiki.

Since we use JSX to replace HTML and Tailwind CSS to replace CSS this gives us 99.1% of the files that are written in JavaScript:




## 5.3. Overview:

Let's move on to the visuals to support the theory, explanations of the project's architecture that you need to have to get a little bit more of an overview of the thing like knowing where the user is and how they interact with it.

First, there are the front ends like:

- **The web application** itself, which represents the link between the user and the interactions they might have within it.
- **The back-office** which represents the link between Julien and the user and data management side. To follow the evolution of his application but also to keep the hand in case of user error.

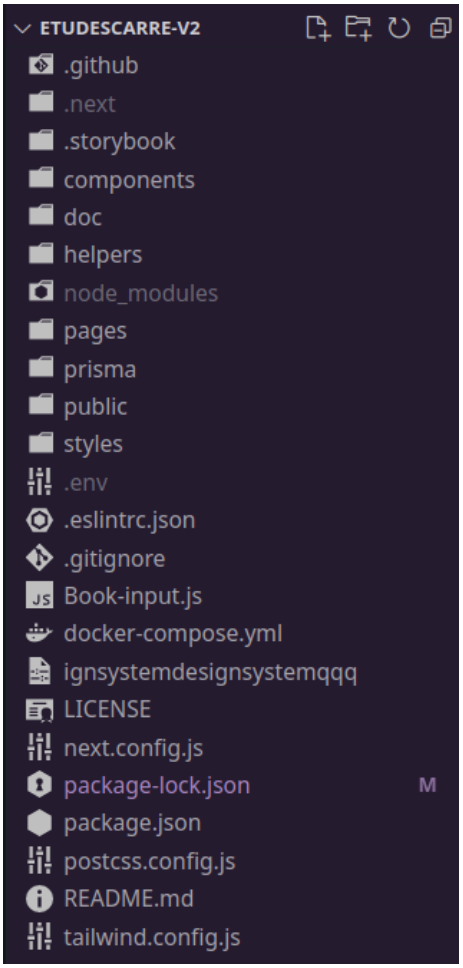
Then there are the back ends like:

- **The server**, which represents the one we hosted at OVH to store the user data with PlanetScale.

## 5.4. The file organization:

As said before we used GitHub to store our files in what is called a folder, a repository.

A file organization is very important in the sense that EtudeCarré currently has 71,585 files, each one having a use and each one being grouped in folders sometimes even recursively.




- At the **root** there is the README.md, a file where most of the information is written like a description of the project, how to launch it; but there are also all the configuration files like package.json or postcss.config.
- In **components** there are all the components that the EtudeCarré application could use like for example buttons, tables; it is divided in three subfolders:
    - **BackOffice** for everything that is back-office components.
    - **DesignSystem** for all general components.
    - **FrontOffice** for all front office components.

- In **doc** there are documentation files like workflow.md which explain everything you need to contribute to the project.
- In **helpers** there are all the functions that help us on the different pages of EtudeCarré like for example alphaSortCompanies that sort the companies alphabetically.
- In **pages** there are all the different pages that compose EtudeCarré. There is also a sub-folder called **api** which is used to list all the query pages linked to the backend.
- In **prisma** there is the schema.prisma that we call to use it in some functions that require some data
- In **public** there are all the contents called static that we can access easily thanks to their name at the root of the url
- In **styles** there are all the style files, often filled with css files as we use Tailwind there is only one file that links all the JS files to Tailwind, the global.css.

Séraphin PERROT

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Class of 2024

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Chief Executive Officer

# 3rd year internship report

## As a Full-Stack developer
## At ChantierCarré


## Section 2

## From April 1st to July 31st, 2022

Hello Julien,

In view of my internship which is coming to an end, I'm already looking forward to the next years, for my 4th year abroad but especially for my 5th year where I should do an internship in a company

I really enjoyed working with this small friendly team, in this growing startup that is ChantierCarré.

I was able to practice working in a company by telecommuting which was not easy to do at the beginning but thanks to this unique experience that few companies give to young interns, I grew up and I hope to learn more.

I have taken a liking to this working method, to the project itself, I am looking forward to it and I would really like to continue working with you for my internship at the end of my 5th year.

As I had written in my cover letter I am, but I remain a curious person, passionate about new technologies, their uses in society and this is what ChantierCarré brings me.

I like the idea of being able to help multiple people in their task in a world where I continue to discover that of the diver and varies, the BTP.

During these 4 months I was able to spend my time perfecting one of the most essential components of EtudeCarré, the tables and after having passed this stage I was able to quickly advance on a page of the Front-Office, the page "My building sites", which is also very important to the application.

Besides that, my knowledge of the technologies used in the project has been quite useful to help my friends many times, especially in the style with Tailwind.

Besides that, I learned a lot technically about the deployment of an application in general but also about the organization side.

Indeed, it was the first time I saw technologies like Vercel, techniques like PullRequests or a well-functioning branching system; tools like Notion (which I now use daily, scholarly and personally) and well applied Agile methodologies.

Jeremy and you, Julien, are both very pedagogical people who have kept one of the best organizations I have ever met during my internships.

It was a pleasure to work with you on this common project and it is in this perspective that I would like to continue working with you for my next internship.

Sincerely

Seraphin PERROT