



FullStackJS Project Report

Development of a social collaborative network

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- Résumé -

Dans le cadre de notre projet intégré, nous sommes amenés à concevoir et réaliser un réseau social collaboratif. Ce document définit le projet et son contexte et décrit les étapes nécessaires à sa réalisation

Mots clés: MongoDB, expressJs, React, NodeJs, FullStackJS, Social network.

- Abstract -

As part of our project, we are led to design and build a Social collaborative Network. This document defines the project and its context and describes the steps necessary to achieve it

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General introduction

Social media is defined by its interactivity, connectedness, and user-generated content.

In today's society, the use of social media has become a necessary daily activity.

Social media is typically used for social interaction and access to news and information, and decision making for the internet users

But for a special category its more than that;

We are talking about the IT community which is so active all over the world in these social networks

and its main goal is to get information in their field of researches, work or school projects

this category is divided into many classes engineers, students, formers ...

If you search for an answer to your problem, tons of developers who had faced the same problem

as yours have already asked for it... and there is a big chance theses answers to that question are on these social networks like Stack overflow!

In the other hand some other social networks allow users to share their skills, certification, curriculum vitae in order to get jobs or to be hired by someone

In this report, we are going to present the Networky web application idea and We will present its

main topic then we will go through the business objectives in order to develop a better understanding.

Chapter 1: Project study

Introduction

We begin this first chapter with a general presentation of our project. We also proceed to the general presentation of the subject with the objectives to be achieved as well as we provide some necessary indications on the methodology adopted during the realization of this project.

1. Project presentation

This part is devoted to present the context of the project, the problem, the existing solution and our proposed solution.

1.1. Project Context

The idea of the project is to create a collaborative social network where users can meet to exchange ideas problems and solutions in their areas of training and develop their skills.

The website « Networkky » includes basic functionalities such as user login, administrator, viewing sharing posts, joining groups. Also receiving recommendations about groups, earning badges

The objective is that it must be functional and useful, meeting the quality criteria studied.

1.2. Problematic

The most used platforms are divided on two main approaches. Some of them are user-based (focus on the connections between users in the network) and some are content-based approach that tends to focus only on the actual content that was shared by users.

Our business model will combine the advantages of collaborative content-based and user-based approach, to find the most influential people in a social network to make the dissemination of information more effectively and efficiently.

1.3.Existing solutions

1.3.1. Stack Overflow

Stack Overflow is a question-and-answer site for professional and enthusiast programmers.

The website serves as a platform for users to ask and answer questions, and, through membership and active participation, to vote questions and answers up or down and edit questions and answers in a fashion similar to Reddit.



Figure 1 : stack overflow logo

1.3.2. LinkedIn

LinkedIn is an employment-oriented online service. the platform is mainly used for professional networking, and allows job seekers to post their CVs and employers to post jobs.



Figure 2 :LinkedIn logo

1.4.Limits of the existing solutions

As described above **Stack Overflow** operates with a content-based approach, and many critics show that SO is not user friendly. The site's culture has been criticized for being needlessly harsh, abrasive, and unfriendly for new users.

As for **LinkedIn**, it operates with user-based approach so there is not much of exchange for ideas.

1.5. Proposed solution

To face these different limits, we thought of designing and developing a social collaborative network that combines the advantages of the content-based approach and user-based approach.



Figure 3 : Networky logo

2. Methodology of the work

To accomplish each phase of the project from planning to production, we need a methodology to follow to make our project successful.

2.1. Scrum Method

It is an Agile method. It allows from its basic principles at the end of a set of iterations (sprints) to arrive at a solution developed jointly with the various actors of the project.

Agility ensures the client's involvement in the project by giving his comments during all the phases of the project as shown in figure 2 on the following page. This type of method is:

- Adaptive: It is flexible in its execution and adjusts to the situation.
- Iterative: A process that repeats frequently and incrementally that depends on previous iterations.
- Simple: a simplicity which facilitates its use and application.
 - Promotion of communication: It promotes communication between the client and project members and therefore increases the likelihood of having a solution that meets the client's needs.

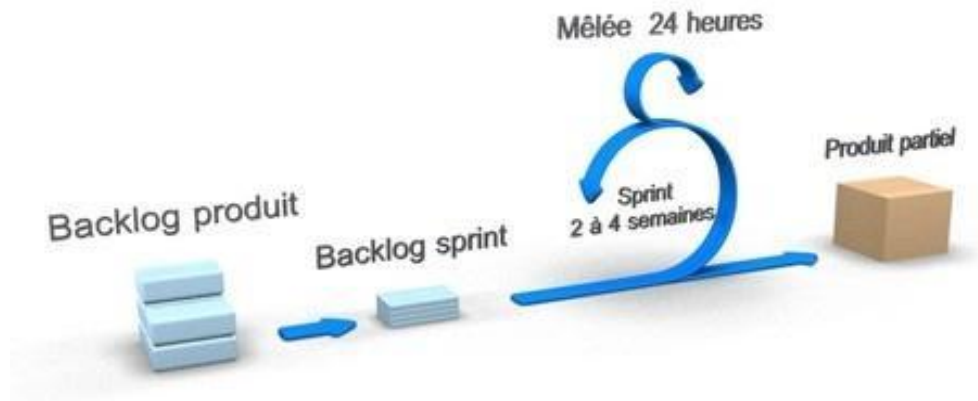


Figure 4:Scrum Method Process

Conclusion

In this chapter, we had an idea about the context of the project, the existing solution with its limits by proposing our solution as well as the work methodology adopted for the conduct of the project.

Chapter 2: Requirement analysis

Introduction

This second chapter includes, the development of the Product Backlog, the analysis of the needs of our project through the identification of functional needs and the identification of non-functional needs.

1. Backlog product

A product backlog is made up of several elements, each element is called a story (User Story). Each story describes a need that the team must fulfill

Table 1 : Backlog product

Module		User Story			Priority
ID	Name	Features	As a / an	User Story	P
1	Users management	Auth	site visitor	i can register by making a new account via GitHub, LinkedIn account via registration form	high
			site member	i can login/logout with my account via authentication form	high

		Profile	site member	I can link my profile to my GitHub account in order to get all my repos and set them to my Networky profile.	high
			site admin	I can edit / delete profiles.	high
		Badge / scores	site member	I can verify some skills and earn a badge.	high
			site member	I can help resolve issues for other users in order to raise my profile levels.	high
			site admin	I can attach or detach badges for users.	high
		Follow / Unfollow	site member	I can follow / unfollow other users	high
			site member	I can get recommendation for users that i might follow	low
2		2.1	user	I can create a public/private group	high

	Groups management	2.2	user	I can be a group member (join group) after answering membership questions properly	high
		2.3	user	I can delete/update my groups informations	high
		2.4	admin	I can approve membership requests	high
		2.5	admin	I can ban a group member for an inappropriate posts or comments	low
3	Content management	Users Interactions	user	I can share problems / ideas / solutions.	
				I can edit / remove my posts	
				I can rate any post	
			admin	I can control /ban posts / comments	

		Interests	user	I can search technology tags that interest me.	
		Courses/ Tutos	admin	I can post, edit or remove courses / tutos	
			user	I can attend courses / tutos	
		Certifications		When the user completes a course, he gets a certificate.	
4	Job Board management	recommendation	business (HR manager)	I can choose preferences to demand best talents.	
			admin	I can identify the hiring need	
		Interests	business	I can express my interests directly to a specific user.	
			user	I can follow and submit for quiz proposals	
			business	I can advertise my proposals.	

		Content-based filtering	admin	I can filter the user responses inside a group conversation	
			admin	I can analyze user behavior and interests	
			business	i can choose the advanced search feature	
			business	i can share links to open positions, news.	

2. Requirement analysis

2.1.Functional needs

The use case diagram on the next page allows us to define the functional needs of our application.

Global Use case diagram

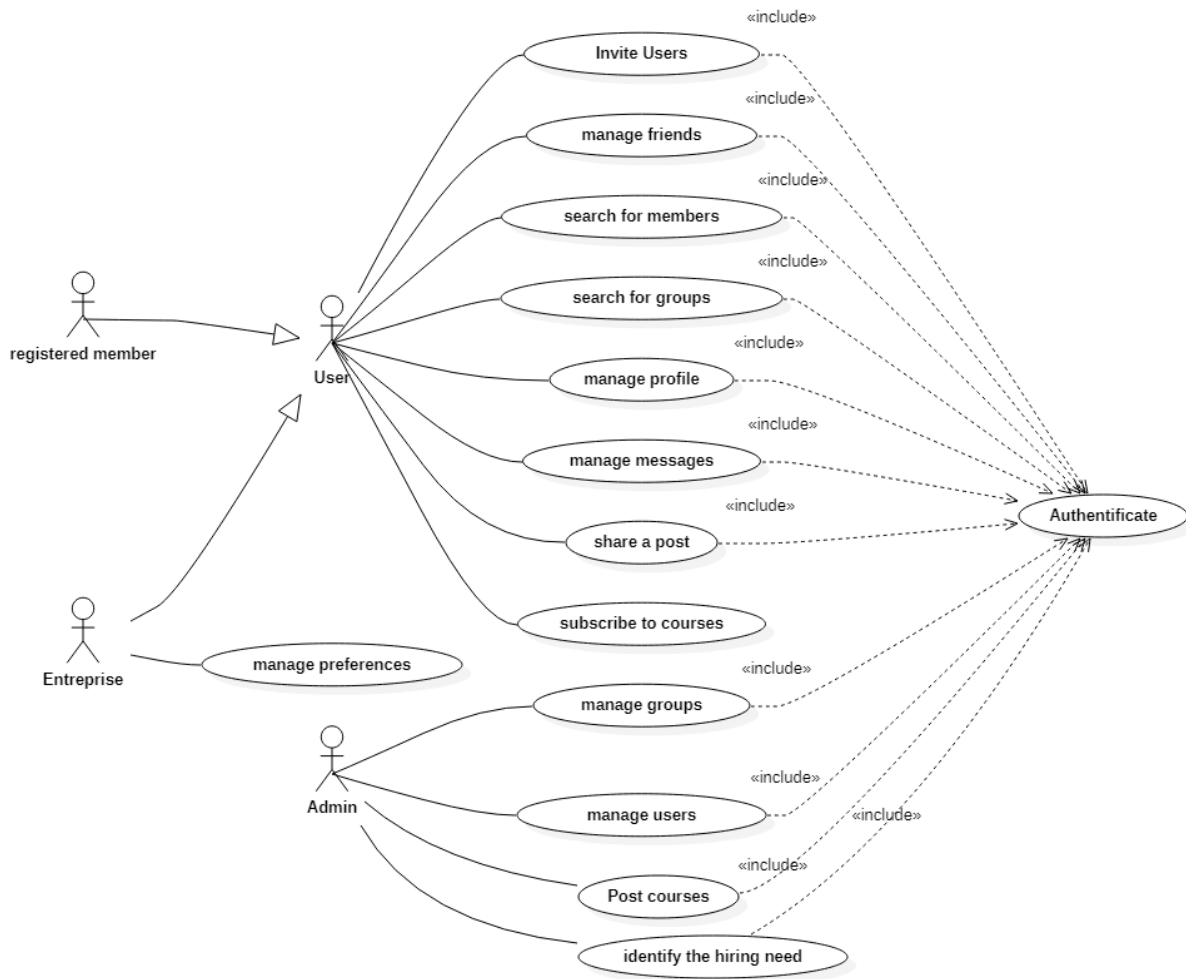


Figure 5 : use case diagram

2.2.Non-functional needs

Our solution responds to the following non-functional needs:

2.2.1. Aesthetic and ergonomic needs

- Simplicity: The application should be simple and easy to use for users.
- Accessibility: The application must be accessible from different browsers such as chrome, Firefox, safari...
- Ergonomics: interfaces should look good to catch the user's attention.

2.2.2. Technical needs

- **The performance:** We must ensure the relevance of the data, the minimum response time of the application.
- **Extensibility:** The code must be clear to allow future evolutions or improvements.
- **Security:** The application must guarantee data security for each customer by defining perimeters and an access rights management policy.
- **Reliability:** The application must guarantee solid information for its users.

Conclusion

In this chapter, we have presented the functional and non-functional needs of our project, the use case diagram as well as the development of the Product Backlog in order to give a clearer vision of our solution.

Chapter 3: Technical requirements & Prototyping

Introduction

This chapter consists in presenting the different stages of realization of our project, starting with the design part by modeling the detailed use case diagrams and closing with the work environments and the different wireframes of the website.

1. The diagrams

In this part, we will develop the uml diagrams of our application.

1.1. Refined use case diagrams

The figures below show the detailed diagrams for each use case.

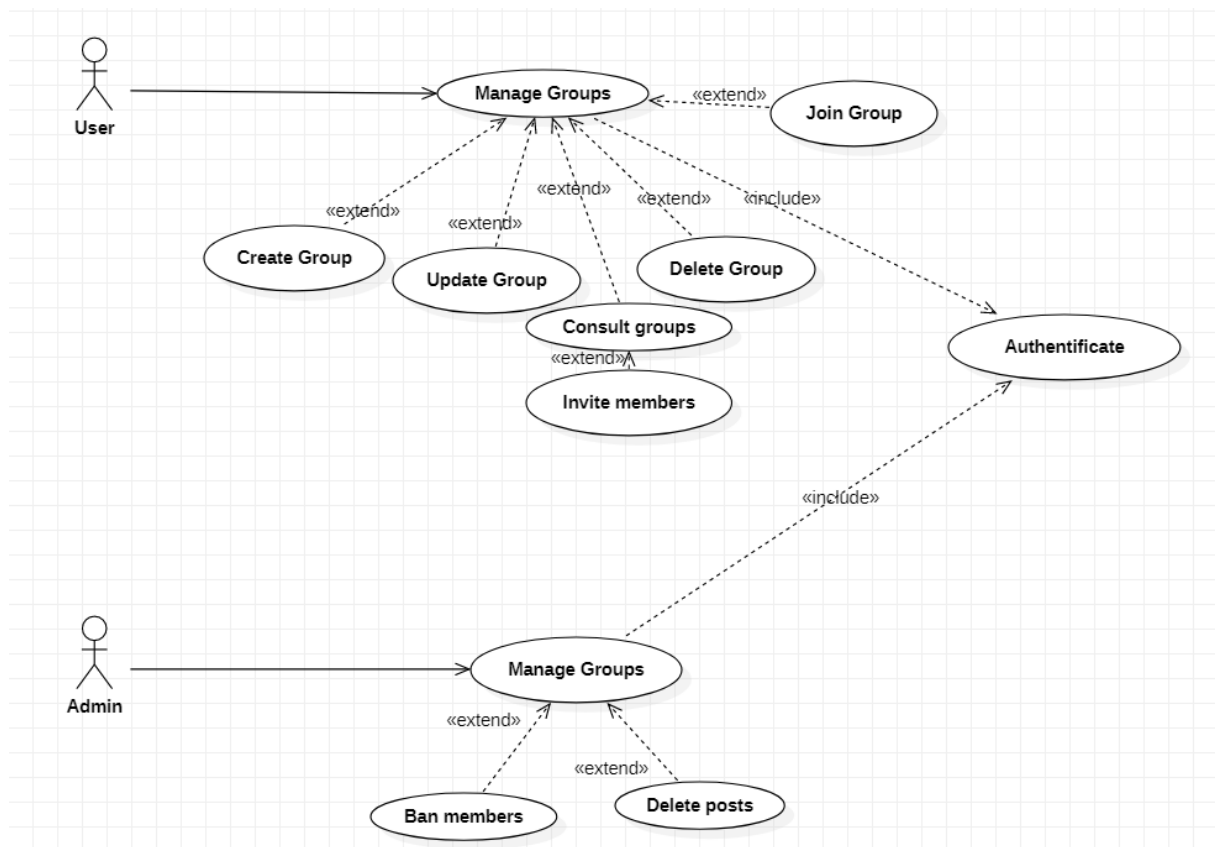


Figure 6 : manage groups us case

Figure 7 describes the manage content use case

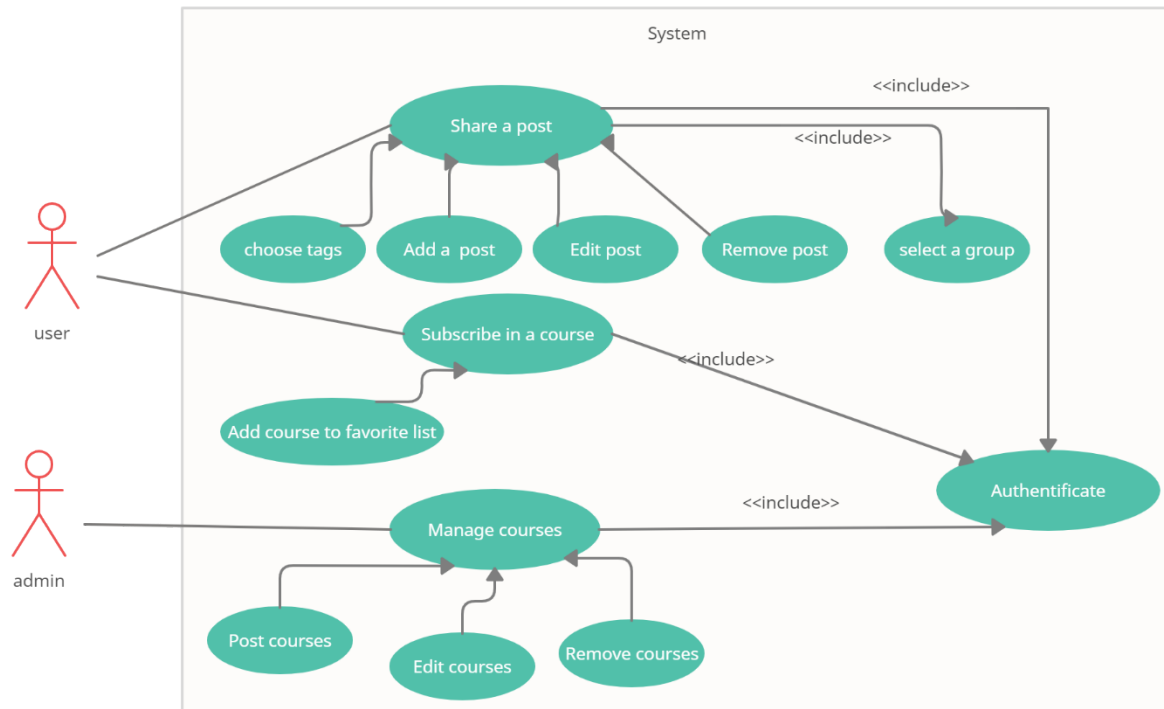








Figure 7 : Content management use case

2. Technical requirement

2.1.Languages and frameworks

Table 2 : frameworks and languages list

Tools	Logo
Typescript	
HTML	
CSS	

JavaScript	
MongoDB	
ExpressJS	
React	
NodeJS	
Vscode	

2.2.Solution architecture

With the help of mongoose driver there will be the connection between node application and mongo db. And from the help of node express mongoose and other utilities we can expose the API. After that, React client application will consume the API exposed by server app and it's a complete application.

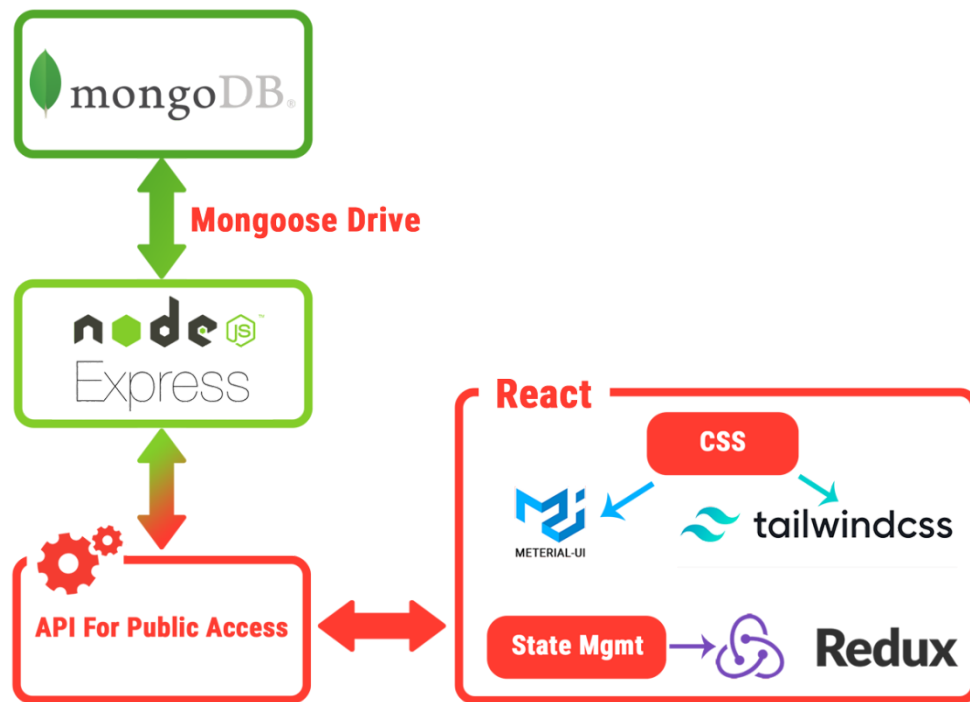


Figure 8 : solution architecture

3. Wireframes and prototypes

In this part, we will describe the scenarios included in our application for the user of the application:

3.1.User wireframes

a. sign in

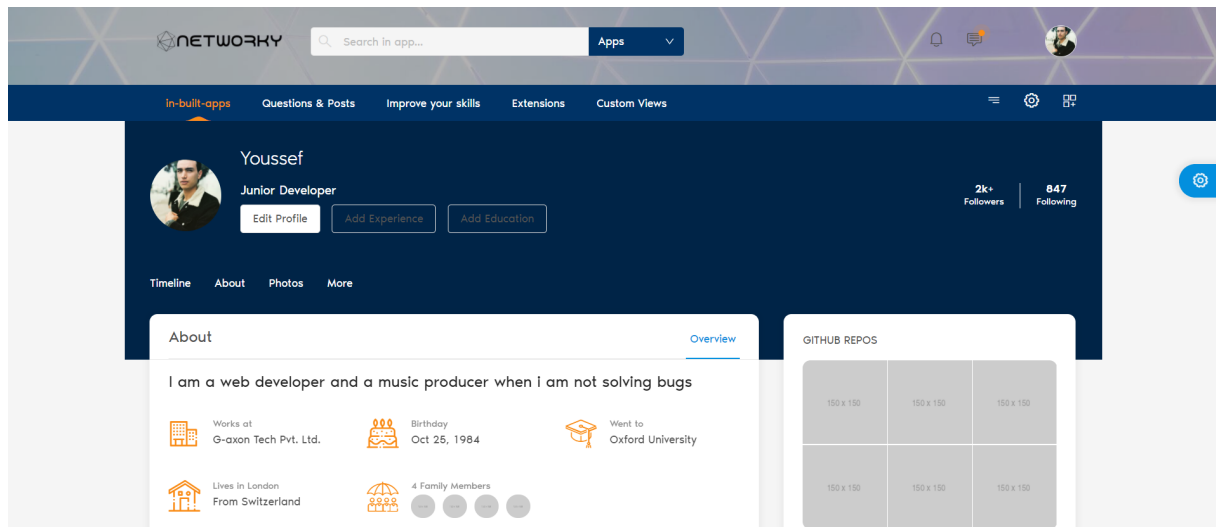


Figure 9 : landing page

b. sign up



Figure 10 : registration page

c. Profile Homepage**Figure 11 : Profile Dashboard**d. Create Profile Form

EDIT YOUR PROFILE

* Status:

Company:

Website:

Location:

* Skills:

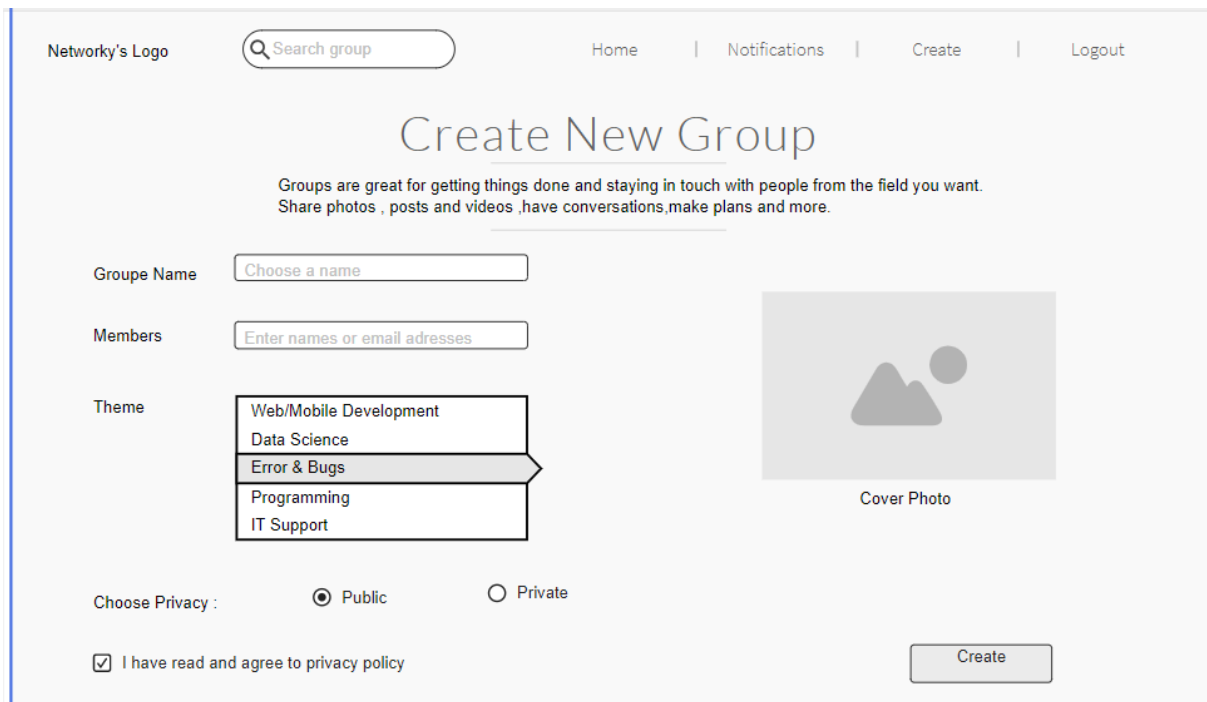
GithubUsername:

* Bio:

Figure 12 : Create Profile Form

3.2.Groups wireframes

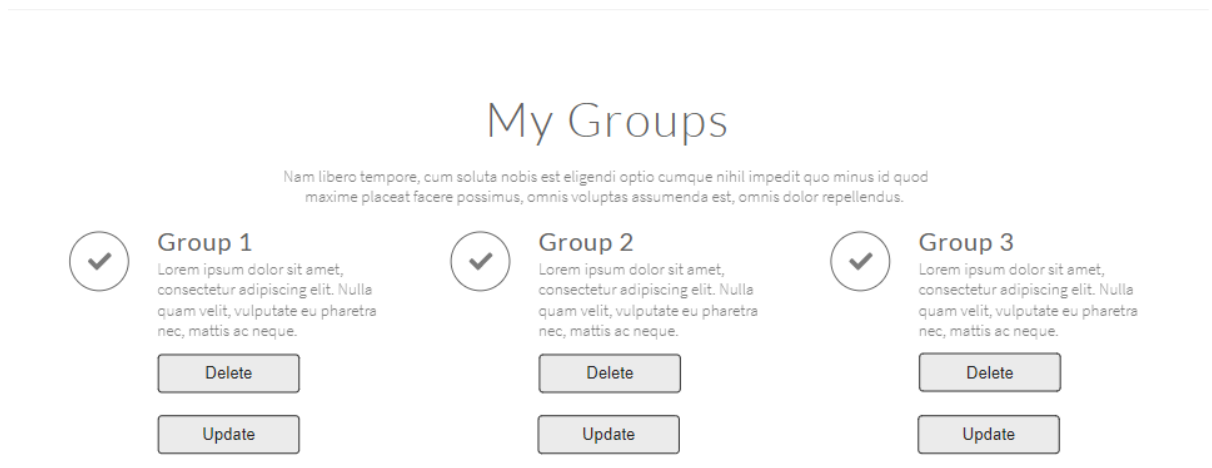
3.2.1. create a group



The 'Create New Group' form is located within a header bar containing 'Networky's Logo', a 'Search group' input, and navigation links for 'Home', 'Notifications', 'Create', and 'Logout'. The form itself has a title 'Create New Group' and a descriptive paragraph: 'Groups are great for getting things done and staying in touch with people from the field you want. Share photos , posts and videos ,have conversations,make plans and more.' It includes three main input sections: 'Groupe Name' with a placeholder 'Choose a name', 'Members' with a placeholder 'Enter names or email addresses', and 'Theme' with a dropdown menu showing options like 'Web/Mobile Development', 'Data Science', 'Error & Bugs' (which is highlighted), 'Programming', and 'IT Support'. To the right of these inputs is a 'Cover Photo' placeholder. At the bottom, there is a 'Choose Privacy' section with radio buttons for 'Public' (selected) and 'Private', a checkbox for 'I have read and agree to privacy policy', and a 'Create' button.

Figure 13 : create group page

3.2.2. my groups



The 'My Groups' page features a title 'My Groups' and a paragraph of placeholder text: 'Nam libero tempore, cum soluta nobis est eligendi optio cumque nihil impedit quo minus id quod maxime placeat facere possimus, omnis voluptas assumenda est, omnis dolor repellendus.' Below this, there are three group cards. Each card starts with a circular icon containing a checkmark, followed by a group title ('Group 1', 'Group 2', 'Group 3') and a paragraph of placeholder text. At the bottom of each card are two buttons: 'Delete' and 'Update'.

Figure 14 : consult my groups page

3.2.3. available groups

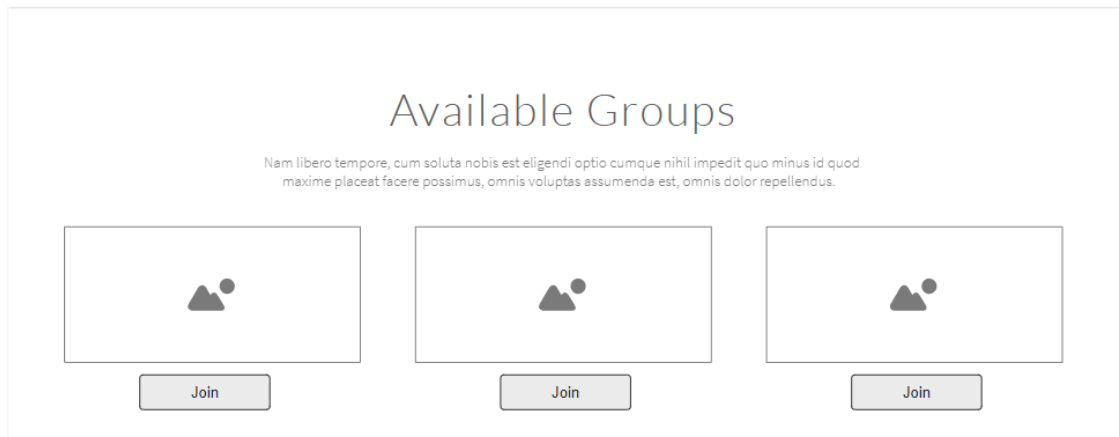
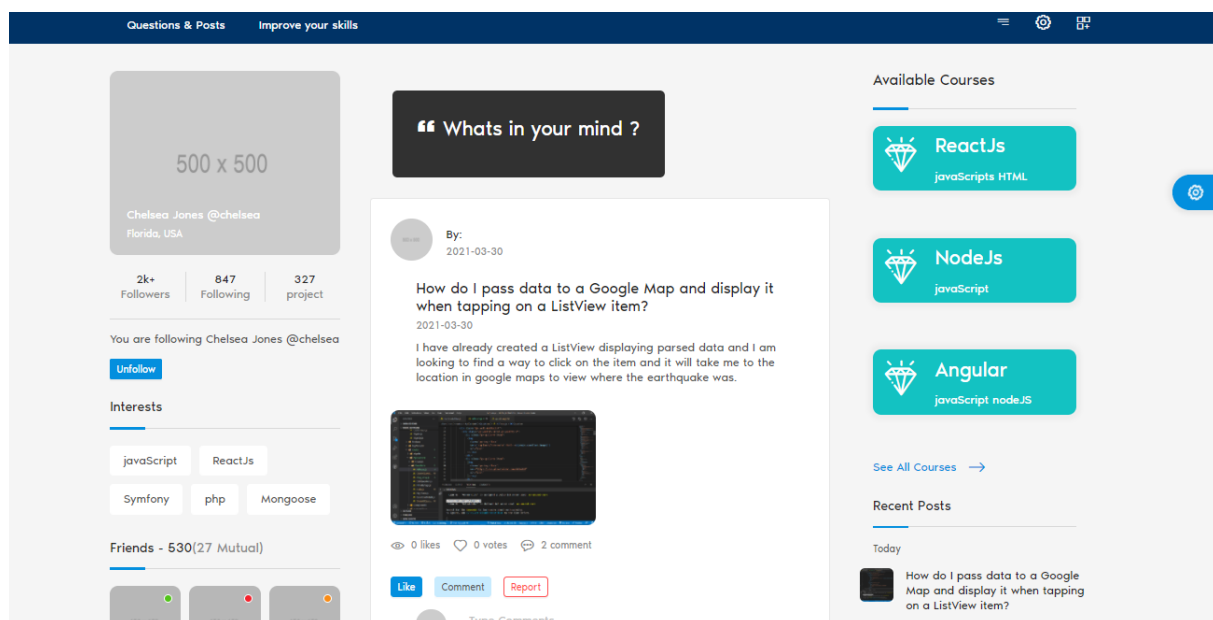


Figure 15 : view available groups page

3.3.Content wireframes

3.3.1.

Figure 16 : user homepage



3.3.2. buy a course

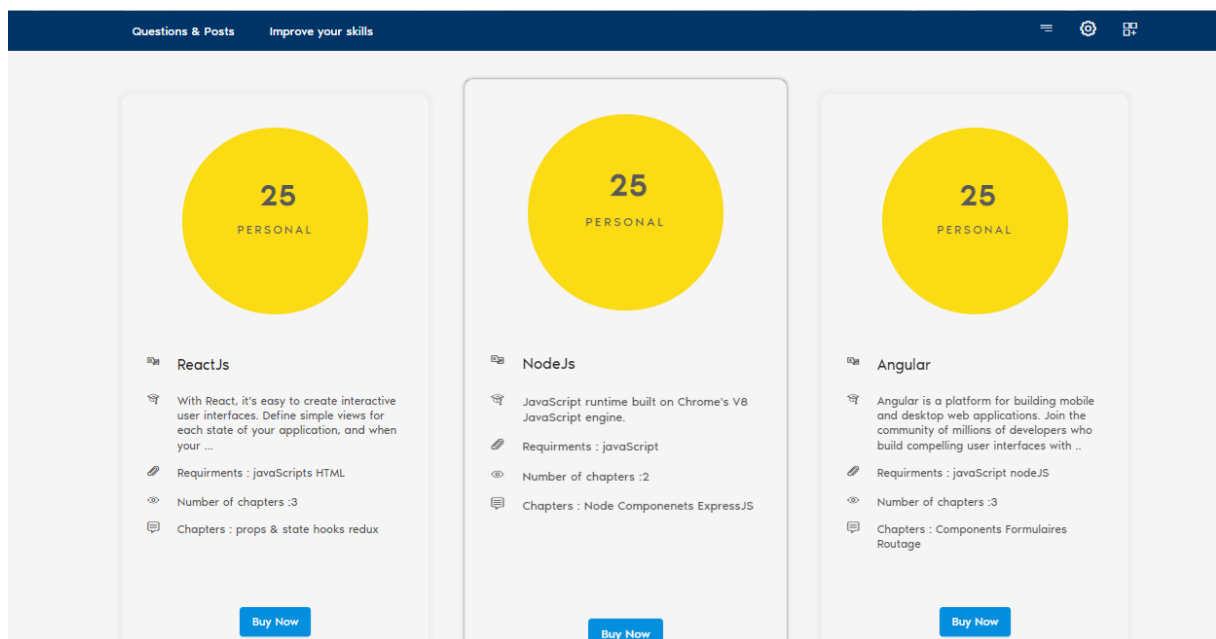


Figure 17 : subscribe to a course page

3.3.4 JobBoard wireframes

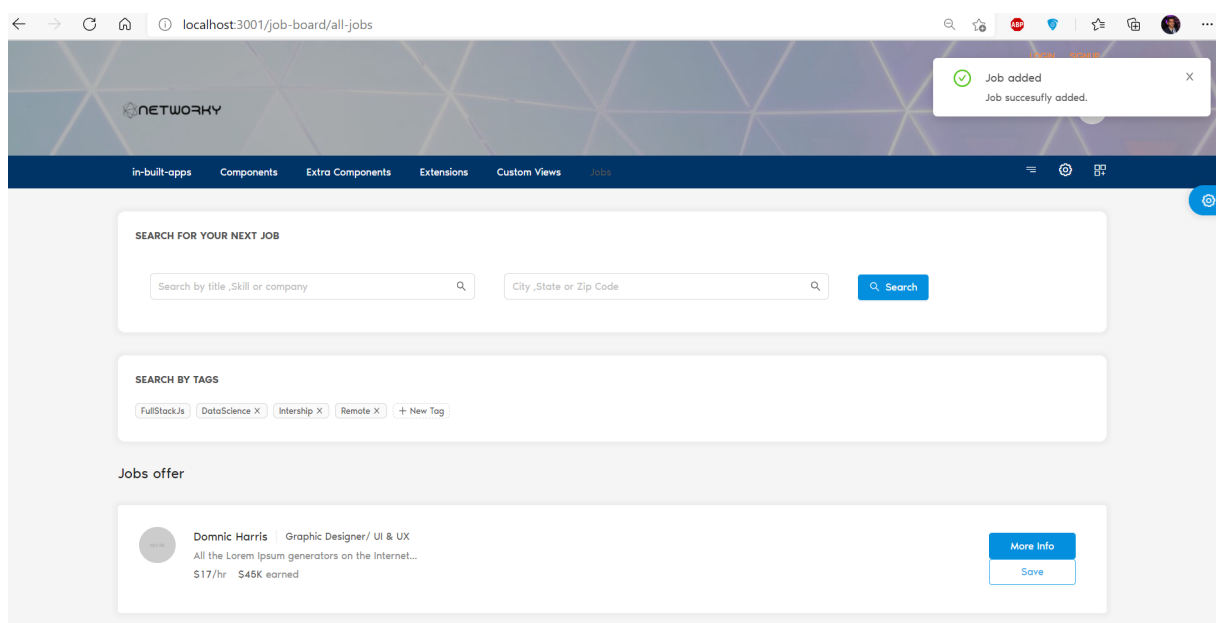


Figure 18 :apply for jobs page

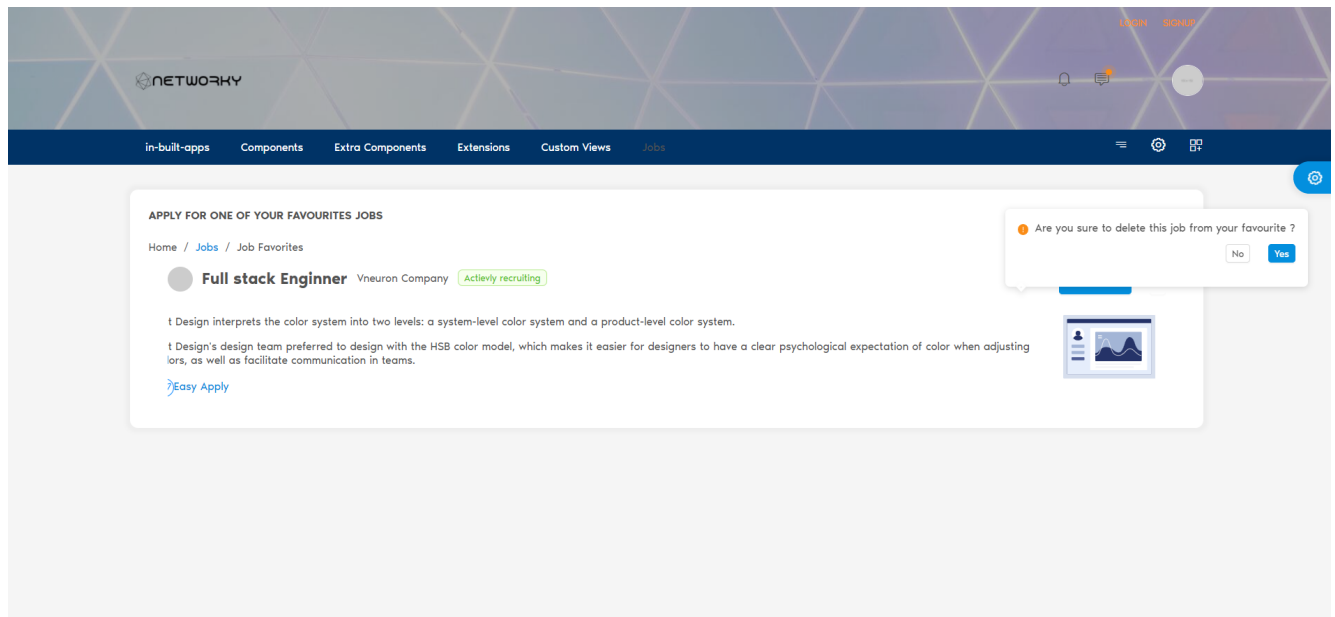


Figure 19 :job favourites page

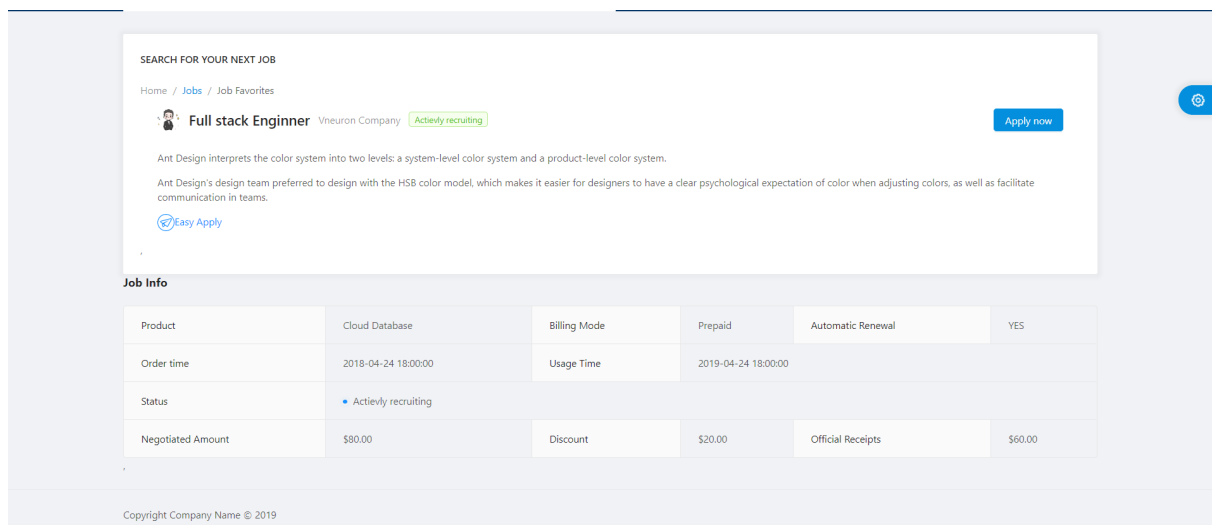


Figure 20 :job Detail page

4. Tasks distribution

4.1. User module

This module focuses on User registration and authentication as well as Profile management and display.

User API routes and JWT authentication.

Profile API routes

Integrating React with the backend in an elegant way, creating a great workflow

Redux setup for app state management

Setting up alert reducers and actions

Create Profile form

Integrating Github API for fetching the user's github repos

4.2. Groups module:

The user in this platform can access to the group interfaces in order to create public or private groups , join groups , invite users as admins or simple members

to manage the group posts and content , accept invitations from other users .

the main attributes of a group are : a name ,a theme , a cover photo , a list of admins ,a list of members and a superadmin which is the creator of the group (setted as default).

4.3. Content module

This module is the operations related to posts and courses.

The user can comment or like a post, and for sharing he has to enter the title, content text, technologies (tags) and he can also add a screenshot of the post.

The user also has the ability to browse courses and buying one or more.

Each user has a score, by attending a specific rate he gets a free course.

4.4. Job Board module

Our search Engine supports free text keyword and category searches, and can also display results on an interactive map

Job Applications

Candidates can apply very quickly and easily via the application form attached to each job. Applications are recorded and can be reviewed via the admin system.

Bookmark Jobs

Enables candidates to save jobs they're interested in so that they can come back and apply to them at a later date – for example if they're checking the site when they're out and about but don't have time to apply straight-away.

Conclusion

We have presented in this last chapter, first, the diagrams of detailed use cases. Then we developed the technical architecture of our solution. Finally, a presentation of the different scenarios of our web application.