#### PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA

# MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH



# UNIVERSITY Dr Yahia FARES OF MEDEA FACULTY OF SCIENCE

# DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

# **FINAL THESIS LICENSE**

**Specialty: Computer Systems** 

# propose a phone app and website to display promotions

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# **Thanks**

Before presenting our work, we would like to thank **Allah** for giving us patience and strength and for helping us to carry out this work.

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# Introduction

In today's world, promotions are a key factor in attracting customers to businesses. With the increasing use of smartphones and websites, it is important for businesses to have an effective platform to display their promotions. Therefore, we propose a phone app and website that will allow businesses to easily showcase their promotions to potential customers.

Our app and website will provide a user-friendly interface that allows customers to easily browse through various promotions offered by businesses in their local area.

# **Features**

Our app and website will offer a range of features to both businesses and customers. Businesses will be able to create and manage their own promotions, including details such as duration, discounts, and terms and conditions. Customers will be able to search for promotions based on location, category, and keywords.

Additionally, our app and website will include a feature that allows customers to save their favorite promotions for future reference, as well as a notification system that alerts them when new promotions become available in their area.

# **Benefits for Businesses**

Our app and website will provide businesses with a cost-effective way to reach potential customers. By creating promotions that are easily accessible to customers, businesses can increase their visibility and attract new customers.

Furthermore, our app and website will provide businesses with valuable data on customer behavior, allowing them to tailor the.ir promotions to better meet the needs and preferences of their target audience

# **Benefits for Customers**

Our app and website will offer customers a convenient way to discover new promotions in their local area. By providing a comprehensive database of promotions, customers can easily find deals that match their interests and needs.

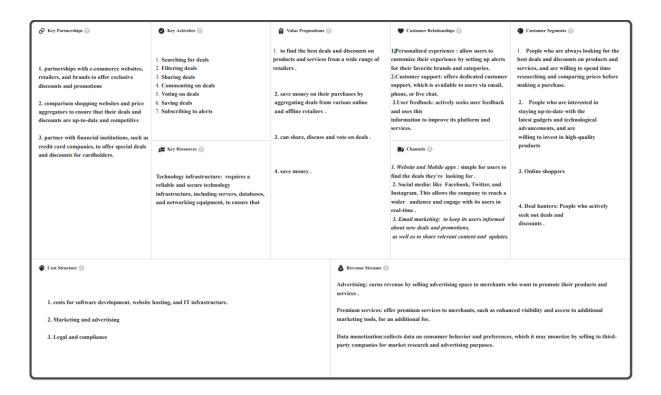
Moreover, our app and website will save customers time and effort by eliminating the need to physically visit multiple businesses to find the best deals. Instead, they can browse through promotions from the comfort of their own home or on-the-go using their smartphone.

# **Marketing Strategy**

To promote our app and website, we will utilize a variety of marketing channels including social media, email campaigns, and targeted advertising. We will also partner with local businesses to encourage them to use our platform to showcase their promotions.

Additionally, we will offer incentives such as discounts and rewards to customers who refer their friends and family to our app and website, thereby increasing our user base and promoting brand loyalty.

# **Business Model Canvas**



# Chapter 1

Study-of-the-existing

# 1. Chapter 01: Study-of-the-existing

## 1.1 Introduction:

All around the world, customers are always looking for product promotions to get the best deals and save money. However, when a promotion is launched, it can be difficult to determine if it is truly worthwhile, especially in Algeria where mobile applications are still in their early stages of adoption. Additionally, there is no reliable way to verify the value of a product promotion through consumer feedback or votes. Sometimes, sellers are not actively engaged with these applications, making it challenging for consumers to easily share new deals by providing the necessary information such as store or website details and deal expiration dates. Consequently, consumers also face difficulties in posting a promotional code when they come across one that seems interesting.

Some applications partially deal with those issues, like Dealabs, Goubba, Almowafir, DealNews and RedFlagDeals. The Dealabs application offers its users the possibility of posting promotions they find themselves, and others can vote on whether they find them interesting, building confidence in the deal. However, this is not the case for Goubba, Almowafir, DealNews, and RedFlagDeals. Nonetheless, these applications are not operational in Algeria

In Algeria, there is the Goubba application that offers limited and unvaried promotional codes and deals. The admins of this app are the ones who post these deals, and there is no option for users to confirm whether they find them interesting or not.

To address these shortcomings, the Matratich application is proposed. The latter offers its users the possibility to post promotional codes and offers themselves, and they can vote and comment on them. So, other users who cannot judge for themselves can rely on the votes and comments to help them decide if the deal is interesting. Additionally, users can access more details about these deals, such as the name and address of the store, the name and URL of the website or the app, the expiration date of the deal, and if the seller offers delivery, among other information.

In this chapter, the Dealabs website is introduced to provide insights into its history, founders, and functionality. Subsequently, similar applications from different countries are discussed, drawing comparisons to the Matratich website. Lastly, the Algerian application, Goubba, is examined to highlight the distinctions from the Matratich website.

# 1.2 Main sale applications:

#### 1.2.1 Dealabs (France):

#### 1.2.1.1 History:

Dealabs, a service offered by Pepper France, a subsidiary of the German company Pepper Media, has a notable history. It was established in 2011 by Hugues and Mederic de Buyer-Mimeure, who drew inspiration from a similar British website. In the following year, Dealabs became part of the Pepper group, which encompasses various international platforms for sharing deals and discounts.sharing deals and discounts.



Figure 1.2.1.2 : Dealabs Logo

#### 1.2.1.3 Main activities:

Dealabs serves as a comprehensive platform for users to discover and share attractive deals and discounts across various categories. Its primary focus lies in facilitating deal sharing, allowing users to post deals they have come across, comment on existing deals, and vote on deals to indicate their popularity and value.<sup>2</sup>

In addition to these core features, Dealabs offers a range of additional services and functionalities to enhance the user experience. These include:

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<sup>&</sup>lt;sup>1</sup> Source: *Wikipédia*<sup>2</sup> Source: *dealabs.com* 

- Alerts: Users have the option to set up personalized alerts for specific products or categories of interest. They receive notifications whenever new deals matching their preferences are posted on the platform.
- Discussions: Dealabs fosters an interactive community where users can engage in discussions related to deals and other relevant topics. They can seek advice, share their experiences, and engage with fellow deal hunters.
- Coupons: The website provides a collection of coupons and discount codes that users can access and utilize for online shopping at various retailers. These coupons offer additional savings on top of the existing deals.
- Cashback: Dealabs has partnered with cashback providers, allowing users to earn cashback on their purchases from selected online retailers. This incentivizes users to make their purchases through the platform, further maximizing their savings.
- Online store: Dealabs operates its own online store, offering a curated selection of products at discounted prices. Users can browse through different categories and take advantage of exclusive deals available exclusively through the platform.

Through these features and services, Dealabs aims to create a vibrant and engaging community where users can find, share, and benefit from the best deals and discounts available in the market.

# 1.2.2 Similar Applications:

#### 1.2.1.1 Almowafir (Kuwait):

Almowafir is a website that offers discount codes and deals for online shopping. You can find offers for a variety of products and brands on their website. The website is available for consumers in the United Arab Emirates, Saudi Arabia, and Egypt. Almowafir offers deals for a variety of products and brands. You can find deals for fashion, food, home appliances, technology, and more. Brands available on Almowafir include Noon, Amazon, Carrefour, Souq, and more.<sup>3</sup>



Figure 1.2.1.1.1: Almowafir Logo

To use discount codes on Almowafir, you can follow these simple steps:

- 1. Go to the Almowafir website or application.
- 2. Click on your favorite store page.
- 3. Many stores have multiple codes and offers listed, so check which code will give you the best deal on your purchase.
- 4. Click "More Details" to check terms and confitions on your chosen code then click "Get Code" to open the code popup.

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<sup>&</sup>lt;sup>3</sup> Source : almowafir.com

#### 1.2.1.2 DealNews (United State) & RedFlagDeals (Canada):



Figure 1.2.1.2.1: DealNews Logo

DealNews.com is a US-based website that provides its users with information and deals related to online shopping in the United States. The website was launched in 1997 and is based in Huntsville, Alabama. DealNews.com aims to help users save money by providing them with a comprehensive database of deals, coupons, and discounts from various online retailers and service providers. It covers a wide range of categories, including electronics, fashion, home and garden, and more.<sup>4</sup>



Figure 1.2.1.2.2: RedFlagDeals Logo

RedFlagDeals.com, on the other hand, is a Canadian website that has been providing discount deals, contests, coupons, and freebies since 2000. It offers a wide variety of popular offers, including deals from Canadian Tire, Best Buy, and Costco. In addition to the deals, RedFlagDeals.com features a forum where users can actively engage and share their own deals and coupons with the community. <sup>5</sup>

Together, DealNews.com and RedFlagDeals.com offer valuable resources for consumers in both the United States and Canada. While DealNews.com caters to the US market, providing a range of deals and discounts across different product

<sup>5</sup> Source : redflagdeals.com

<sup>&</sup>lt;sup>4</sup> Source : dealnews.com

categories, RedFlagDeals.com focuses on the Canadian market, featuring popular offers from well-known retailers and encouraging user participation through its forum. Whether you're looking for online deals in the US or Canada, these websites serve as reliable platforms for finding great discounts and savings.

#### 1.2.1.3 Goubba (Algeria):



Figure 1.2.1.3.1: Goubba Logo

Goubba is an Algerian Fintech Startup, based in Algiers, Paris, Ireland, aiming to improve our Goubbists finances, through a wide exclusive range of services such as tech-payment, cashbacks, daily promotions, provided by a group of passionate youth, having the strong willingness to make an influencial positive impact.<sup>6</sup>

Goubba does offer a lot of functionality, such as promo codes and promotions, but only for certain sites and applications. However, users do not have the possibility to vote on or post deals.

# 1.4 Conclusion:

In conclusion, the study of existing applications reveals the need for a comprehensive and user-friendly platform in Algeria that addresses the limitations faced by consumers when it comes to accessing reliable and varied promotional codes and deals. Matratich aims to fill this gap by providing users with the ability to post and verify deals, as well as vote and comment on them. By empowering users to actively participate in the platform, Matratich creates a trustworthy and engaging community where consumers can confidently make informed decisions about their purchases. With its focus on transparency and convenience, Matratich has the potential to revolutionize the way Algerian consumers find and benefit from product promotions.

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<sup>&</sup>lt;sup>6</sup> Source : goubba.com

# Chapter 2

Conception

# 2. Chapter 02: Conception

#### 2.1. Introduction:

In this chapter we will talk about the most important phase in the development of our work, it is the design phase.

To do this, our approach will be based on the semi-formal language UML (Unified Modeling Language), which offers the possibility of modeling a web application by allowing the representation of the static and dynamic aspects of a web application by a series of diagrams.[7]

We will define the following UML diagrams: use case diagrams, sequence diagrams, class diagram and deployment diagram.



Figure 2.1: Unified Modeling Language

#### 2.2. Use case diagram:

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses. The actors are often shown as stick figures. [8]

# **2.2.1** Use case diagram of visitor and user:

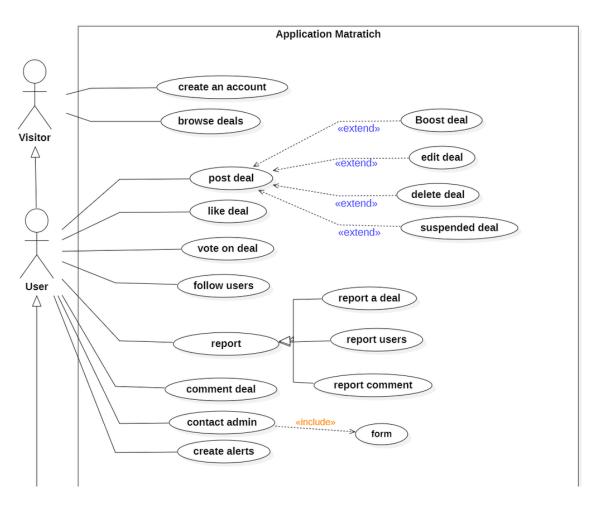


Figure 2.2: Use case diagram of visitor and user .

# 2.2.2 Use case diagram of Admin:

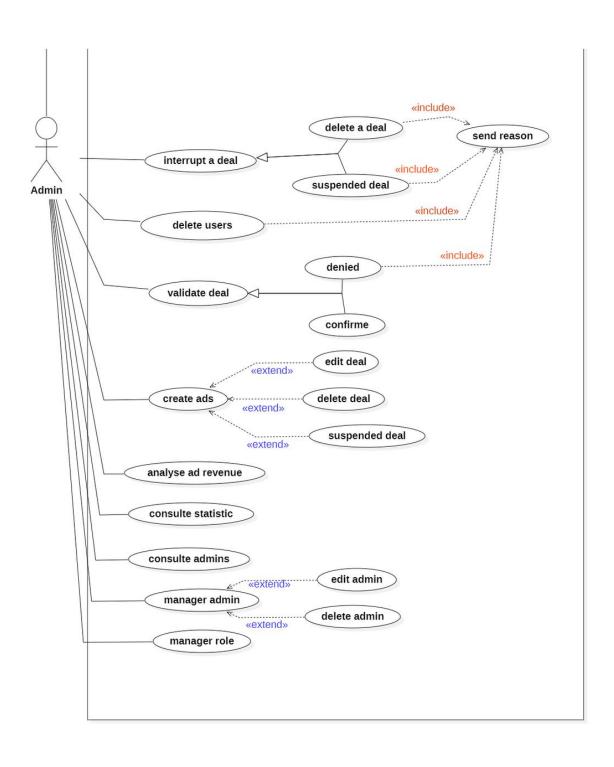


Figure 2.3: Use case diagram of admin

# Development of the dynamic model:

A sequence diagram is a graphical representation of the interactions between actors and systems in time order in the formulation of the unified modeling language.

# **2.3.1** Sequence diagram ' Add to deal catalog management 'for the administrato

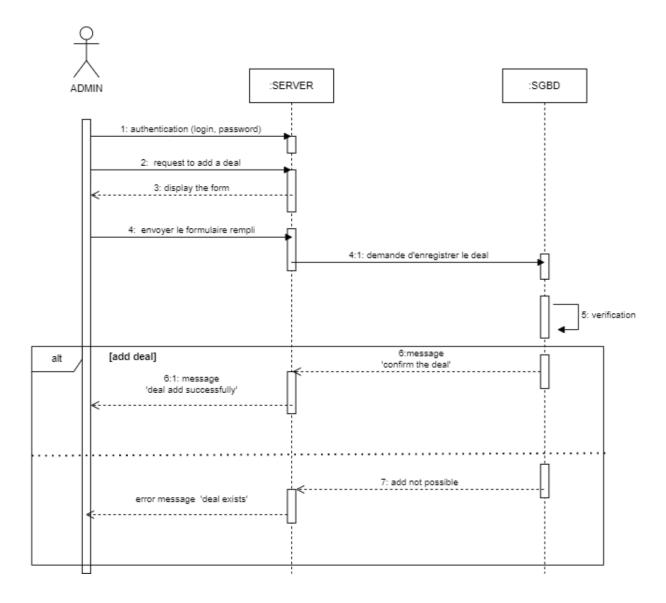


Figure 2.4:1 Sequence diagram 'Add to deal catalog management 'for the administrator

# 2.3.2 Sequence diagram 'Modification in deal catalog management' for the administrator:

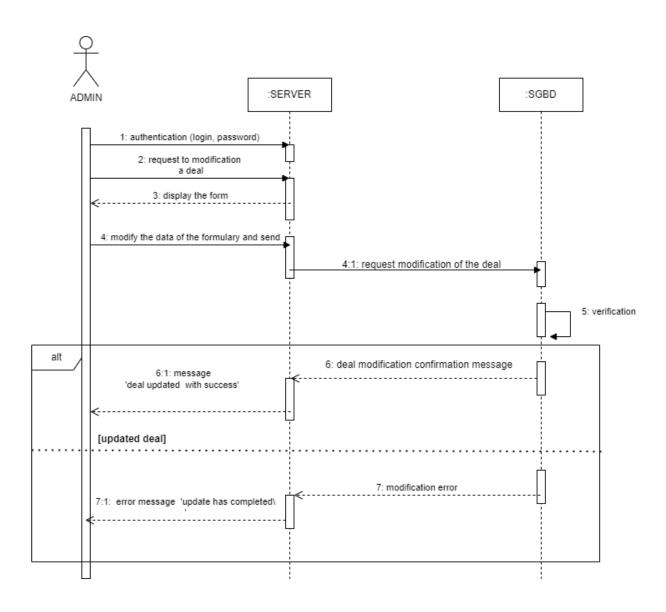


Figure 2.4:2 Sequence diagram 'Modification in deal catalog management' for the administrator

# 2.3.3 Sequence diagram 'Delete in deal catalog management 'for the administrator:

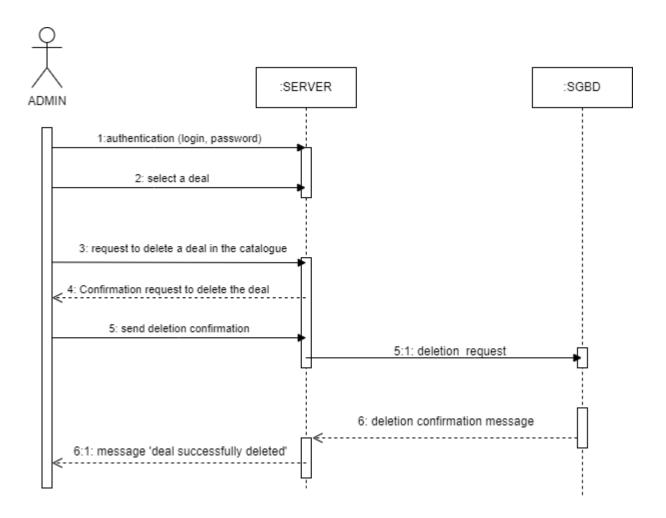


Figure 2.4:3 Sequence diagram 'Delete in deal catalog management' for the administrator

# 2.3.4 Sequence diagram 'Authentication ' for the client :

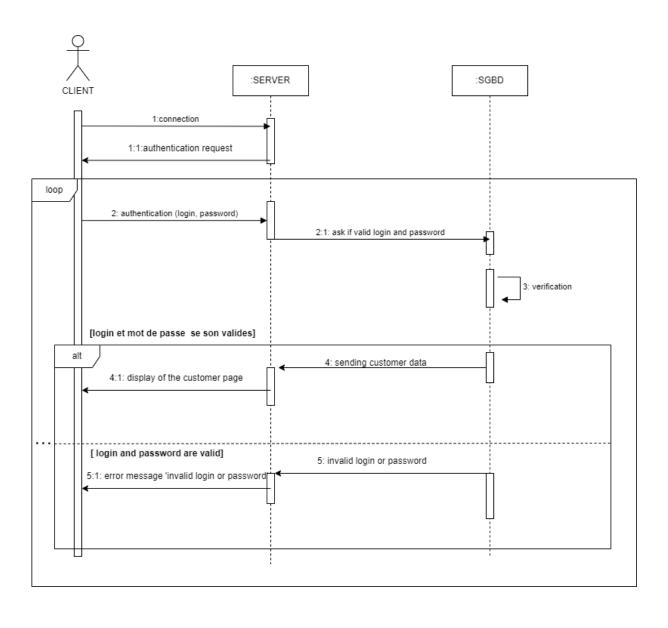


Figure 2.4:4 Sequence diagram ' Authentication ' for the client

# 2.3.5 Sequence diagram Deal catalog consultation for the client :

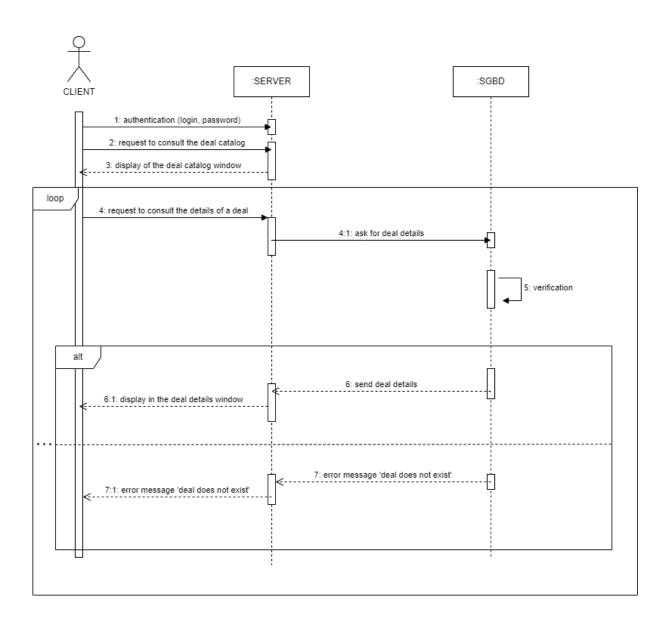


Figure 2.4:5 Sequence diagram `Deal catalog consultation` for the client

# 2.3.6 Sequence diagram 'Research a deal 'for the client :

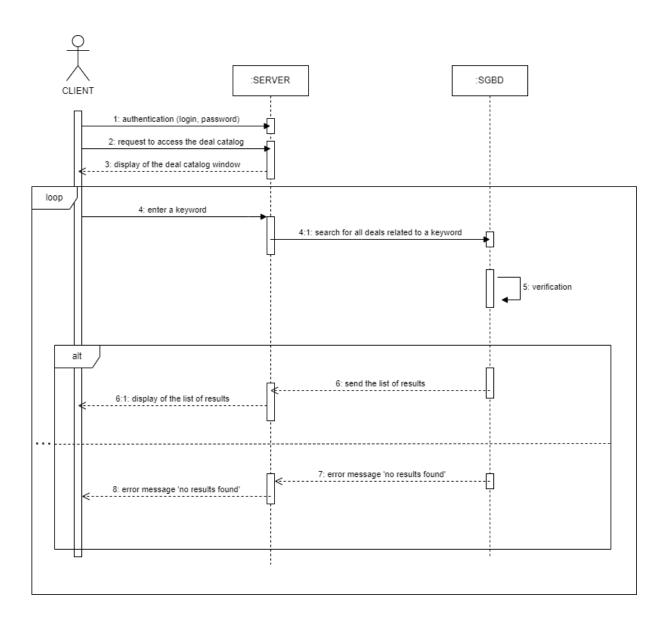


Figure 2.4:6 Sequence diagram 'Research a deal' for the client

# 3.3.1 Introduction:

In this chapter, we will explain how an application is designed using the UML representative concept.

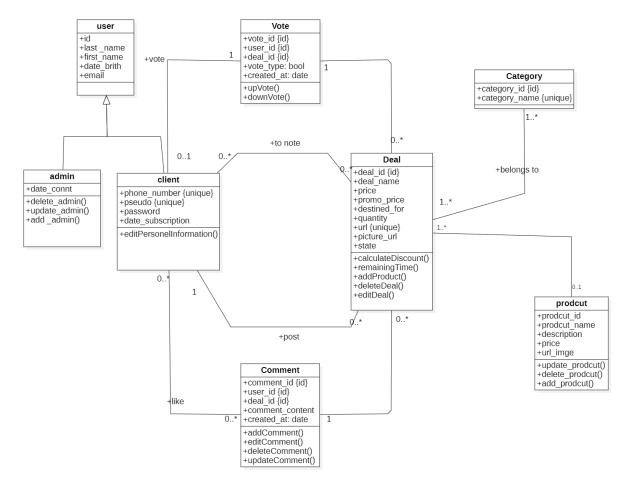
In order to explain the application design, certain drawings must be used, namely the Class Diagram and the sequence diagrams that facilitate the application use process, which is the management of university education.

# 3.3.1 Class Diagram:

A class diagram models the static structure of an application, describes the types of objects and shows the relationships between classes, objects, attributes and operations.

The class diagram is used to represent the different integrating entities in our application and the relationships between them. It also allows to present the different information of our application. [2]

After the previous analysis, we defined the class diagram of our application, as shown in the following figure:



# Description of class attributes:

classes	Les attributs			
	field names	type	size	key
	id	int	20	Primary Key
person	name	Varchr()	30	
	Firt name	Varchr()	30	
	mail	Varchr()	30	
	gender	Varchr()	30	
	password	Varchr()	30	
	Date birth	Date	15	
client	address	Varchr()	255	
	zip	Int	15	
	Phone number	Int	30	
Admin	Date conntent	DateTime	15	
	Votes id	Int	11	Primary Key
Votes	Deal id	Int	11	Foreign Key
	Client id	Int	11	Foreign Key
	Deal id	Int	11	Primary Key

deal	Product id	Int	11	Foreign Key
ucai	Dael titel	Varchr()	255	
	Dael decripon	Varchr()	255	
	Start date	Datetime	15	
	End date	Datetime	15	
	Comment id	Int	11	Primary Key
comment	Deal id	Int	11	Foreign Key
	Client id	Int	11	Foreign Key
	content	Varchr()	255	
	Product id	Int	11	Primary Key
product	Product name	Varchr()	30	
	description	Varchr()	255	
	Img url	Varchr()	255	

# Relational data model:

The rules for switching from an object model to a relational model:

The rules of transition to the relational model can be summarized as follows [10]: We have two classes: class A and class B.

Rule 1: Any class becomes a table in which the attributes of the table are the attributes of the class.

Rule 2: Class A - B with cardinality (1, 1): group the content of A and the content of B in the same table (A or B).

Rule 3: class A - B with cardinality (1, n): create two tables A and B, in table A add the primary key of table B as foreign key.

Rule 4: Class A - B with cardinality (n, n): create three tables A, B, and C. C will have as attributes the keys of tables A and B.

# System Relationship Model:

Person (id ,name,Firtname ,mail ,gender,password)

Admin(Date conntent)

Client(Date birth, address, zip, Phone number)

Products (product\_id ,product\_name description price image\_url )

Categories (category\_id, category\_name)

**Deals (** deal\_id , product\_id ,deal\_title, deal\_description, start\_date, end\_date)

Votes (vote\_id, deal\_id, user\_id, vote\_type)

Comments (comment\_id, deal\_id, user\_id, comment\_text)

# Chapter 3

Implementation and realization

# 3. Chapter 03: Implementation and realization

# 3.1. Introduction:

after completing the design phase of the project, we begin in this chapter the development and implementation of the application. We will present everything first the tools and languages used to develop the proposed solution. We will then describe the platform produced, accompanied by screenshots.

# **3.2.** Development tools :

#### • XAMPP:

XAMPP is a set of software for setting up a local web server, an FTP server and an e-mail server. It is a distribution of free software (X (cross) Apache MariaDB Perl PHP) offering good flexibility of use, renowned for its simple and quick installation. Thus, it is within the reach of a large number of people since it does not require any particular knowledge and works, moreover, on the most widespread operating systems. [9]



#### • Visual studio code:

Visual Studio Code, also commonly referred to as VS Code, is a source-code editor made by Microsoft with the Electron Framework, for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add functionality. [10]



#### • MySQL:

MySQL is an open-source relational database management system (RDBMS) that is widely used for managing and organizing large sets of data. It provides a scalable, high-performance, and reliable solution for storing and retrieving data. [11]



#### • Android studio:

Android Studio est un environnement de développement pour développer des applications mobiles Android. Il est basé sur IntelliJ IDEA et utilise le moteur de production Gradle. [12]



# **3.3.** Development language:

## • HTML (HyperText Markup Language):

The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It is often assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for its appearance. [13]



# • CSS (Cascading style sheets):

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML or XML (including XML dialects such as SVG, MathML or XHTML).CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. [14]



## • JAVASCRIPT:

JavaScript often abbreviated as JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. As of 2022, 98% of websites use JavaScript on the client side for webpage behavior, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on users' devices. [15]



#### • BOOTSTRAP:

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. [16]



#### • PHP:

PHP is a general-purpose scripting language geared toward web development. is especially suited to server-side web development, in which case PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content or dynamic images used on websites. [17]



#### • LARAVEL:

Laravel is an open-source web framework written in PHP respecting the model-view-controller principle and entirely developed in object -oriented programming. Laravel is distributed under the MIT license, with its source hosted on GitHub. [10]



## • DART:

Dart is a programming language designed by Lars Bak and Kasper Lund and developed by Google. The programming language can be used to develop web and mobile apps as well as server and desktop applications. [11]



#### • FLUTTER:

Flutter is an open-source user interface software development kit (SDK) created by Google. It is used to develop applications for Android, iOS, Linux, Mac, Windows, Google Fuchsia and the web from a single code base. [18]



# 3.4. App Overview:

Our application provides an overview of deals, discounts, and promotions across various categories such as electronics, fashion, home goods, travel, and more. Users of Our application can share and discover deals.

In the following we will present our application through screenshots screen .

## **3.4.1** User side :

#### **3.4.1.1** The home page:

The homepage acts as a central hub where users can find a variety of deals from various online retailers and brands. It saves users the time and effort of visiting multiple websites or stores individually to find the best deals. By aggregating deals from various sources, the homepage provides convenience and efficiency to users in their search for discounts.

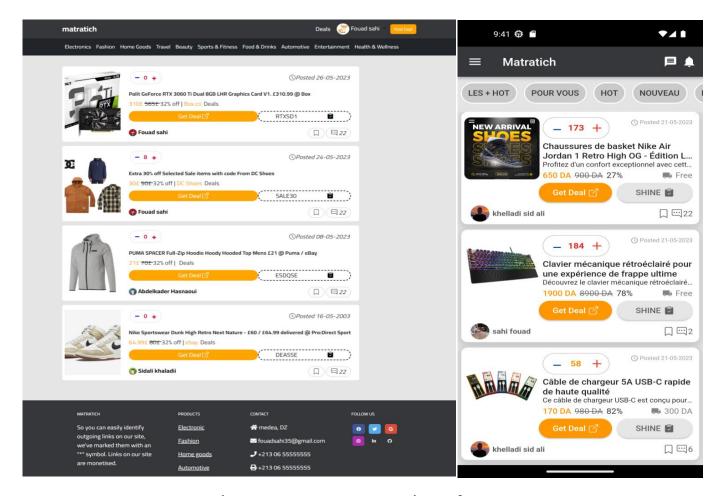
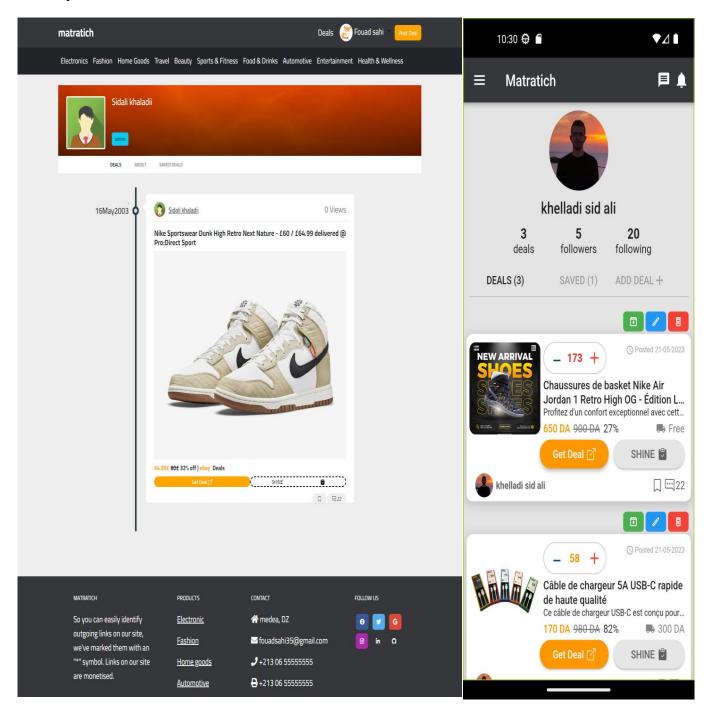


Figure 3.1: Home page interface

## 3.4.1.2 *User profile* :

# 3.4.1.2.1 Index profile page:

The profile page offers users the ability to manage their account settings, including personal information, privacy preferences ,and saved deals and posted deals by this user.



# Figure 3.2: Profile page interface

#### **3.4.1.2.2** About user page :

The user page displays basic information about the user, such as their username, profile picture, address, mobile number, email.

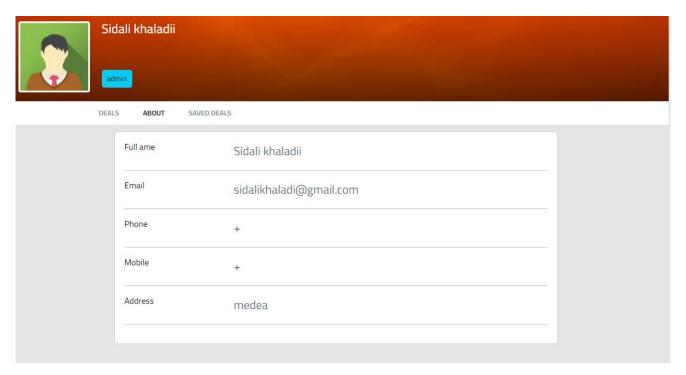


Figure 3.3: Profile page interface

#### **3.4.1.2.3** User save deal page :

The user save deal page displays a list of deals that the user has saved for future reference. These could be deals that the user wants to explore further, compare prices, or purchase at a later time.

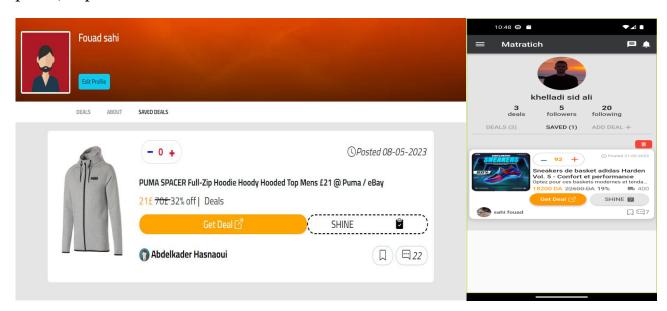


Figure 3.4: Profile save deal page interface

#### **3.4.1.2.4** Edit profile page :

Users can edit their personal information on the profile page, including their name, profile picture, location, birthday, phone number .

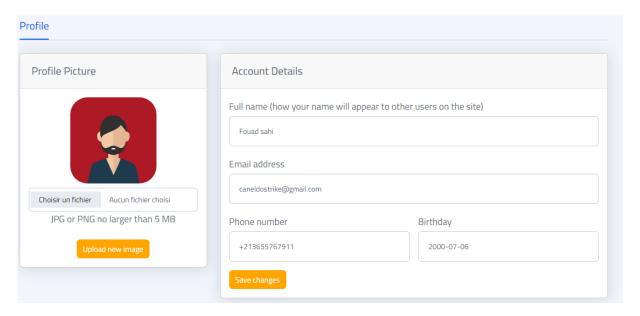


Figure 3.5: Edit Profile page interface

# 3.4.1.3 Contact admin page:

The contact admin page typically includes a contact form where users can fill out relevant information and submit their message or request.



Figure 3.6: Contact admin page interface

## **3.4.1.4** Login page:

The login page requires users to enter their registered email address and the associated password to log into their accounts.

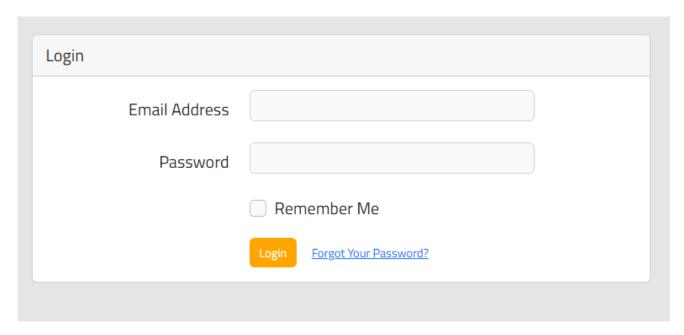


Figure 3.7: Login page interface

## 3.4.1.5 Register page:

The register page includes a registration form that users need to fill out with their personal information. This include fields such as username, email address, password.

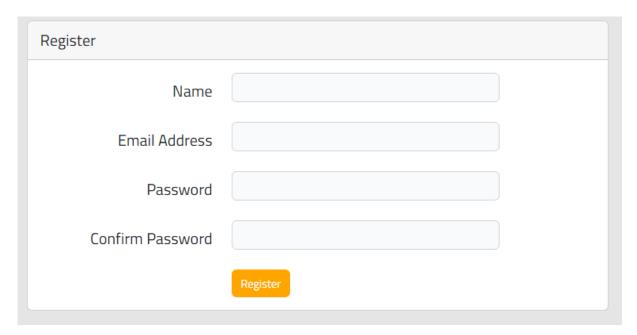


Figure 3.7: Register page interface

## 3.4.1.6 Create deal page:

The create deal page includes fields where users can enter the details of the deal they want to share.

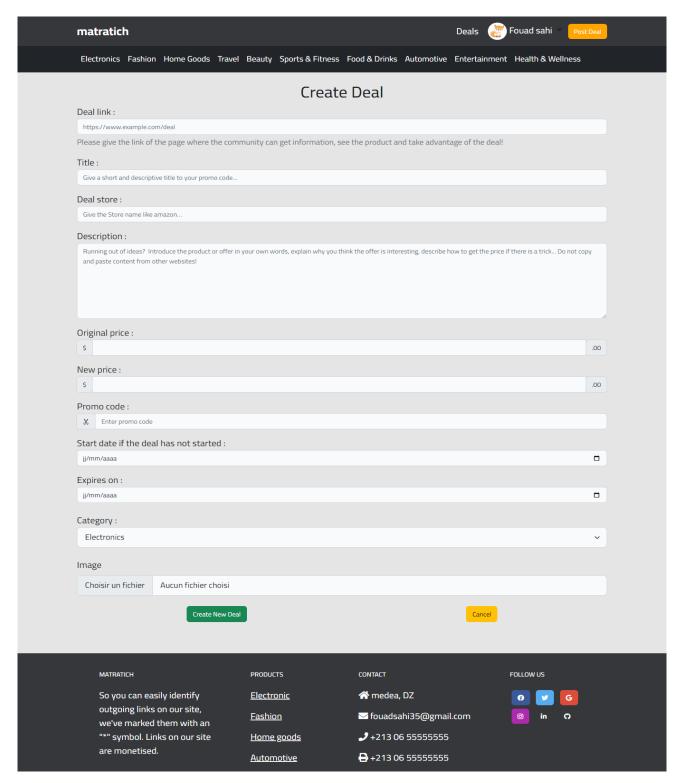


Figure 3.8: Create deal page interface

## **3.4.1.**7 Show deal page:

The show deal page features the title of the deal, which provides a concise summary of the offer. The description section provides more details about the deal, including product specifications, Deal Source and Link, Pricing and more .

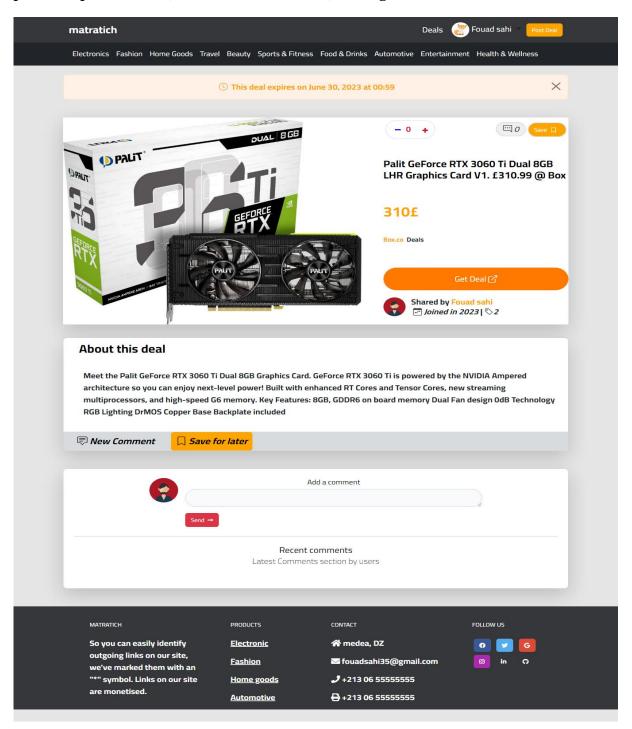


Figure 3.9: Show deal page interface

## **3.4.1.8** Edit deal page:

In the edit deal page, users will find the existing information of the deal prefilled in the respective fields. This includes the deal title, description, pricing details, expiration date, deal store, and other information that was initially provided.

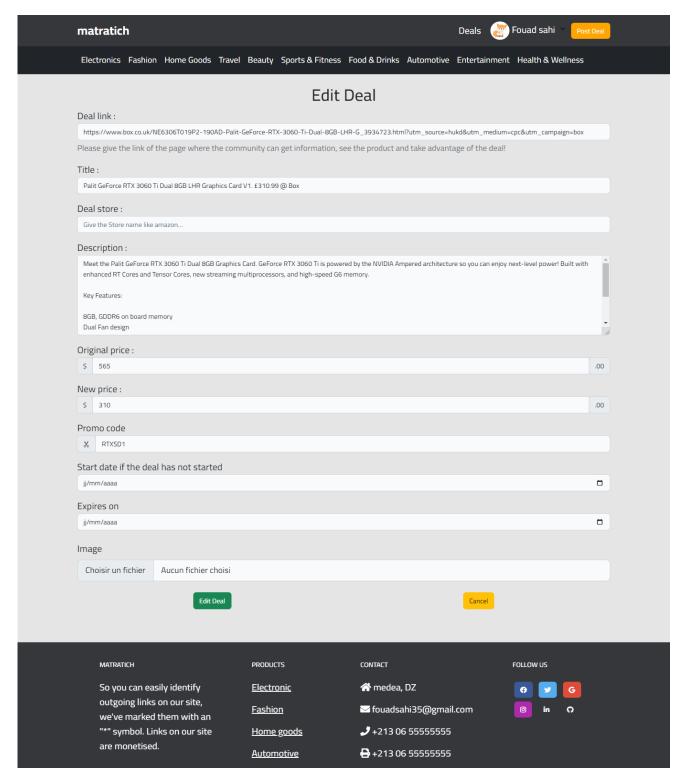


Figure 3.10: Edit deal page interface

# **3.4.2** Admin side:

# 3.4.2.1 Admin dashboard page:

#### 3.4.2.1.1 Index dashboard page:

The admin dashboard provides an overview of important statistics and metrics related to the platform's performance.

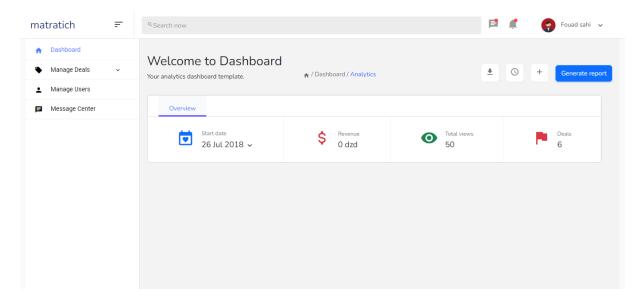


Figure 3.11: index dashboard page interface

## 3.4.2.1.2 Manage Deals page :

This page allows administrators manage the deals shared on the app (create, edit, update, delete).

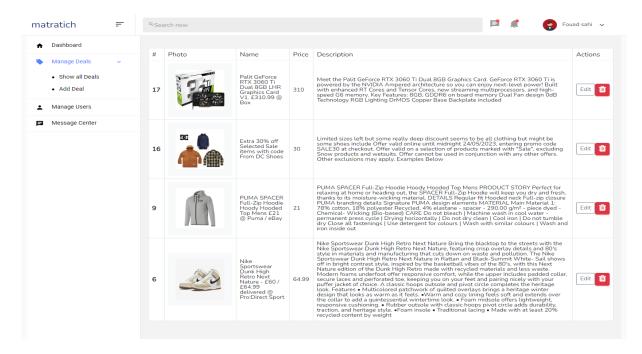


Figure 3.12: Manage Deals page interface

### 3.4.2.1.3 Manage Users page:

The Manage Users page displays a list of all registered users on the platform. The user listing include information such as photo, email addresses, full name, registration dates, and user roles, and we can manage all this information(create,edit,update).

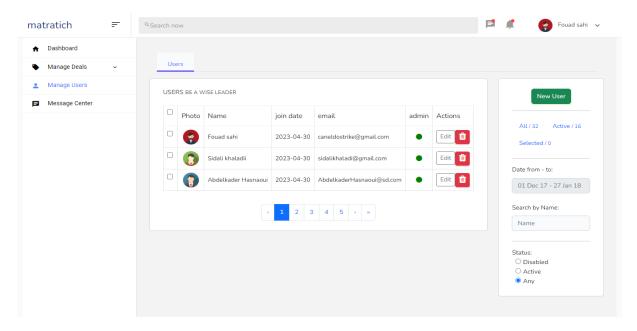


Figure 3.13: Manage Users page interface

#### 3.4.2.1.4 Message Center page :

The Message Center page displays the user's reports, which contains a list include full name, email, subject, message.

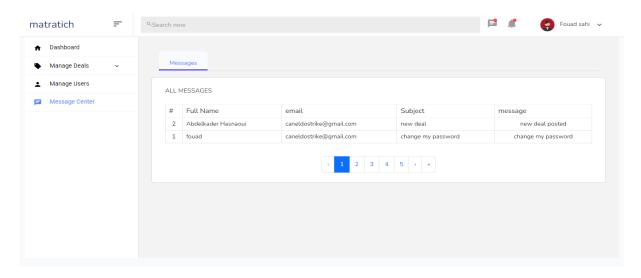


Figure 3.14: Manage Message page interface

## 3.4.2.2 Admin profile page:

In this page the administrators can manage and update their profile information and settings.

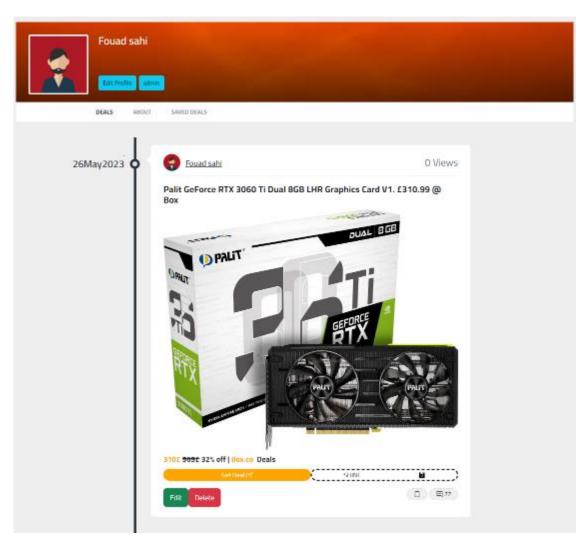


Figure 3.14: Admin profile page interface

# 3.5. Conclusion:

In this chapter, we have given a general overview of our platform, starting by detailing all the tools and languages, up to a presentation illustrated with each of the main features of our application.

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