

## HOUSING SEARCH WEB APPLICATION

Saleh Umar

[Department of computer Science and Information Technology](#)

[Sharda University,](#)

[India.](#)

Tokpe Kossi

[Department of computer Science and Information Technology](#)

[Sharda University,](#)

[India.](#)

### **Abstract:**

Housing is becoming more and more numerous all over the planet and this suddenly becomes a complex problem to be managed by real estate agencies. This present project deals with online housing research whether for sale or rental and aims to develop an application in this direction to facilitate the task for everyone. Putting an online housing search system raises a lot of questions to take into account starting from the regulations of the state-building departments, taking into account security aspects, contracts, consideration of real estate agencies. This system set up in this project automates the existing one which is still not almost digital. In this work, the methodologies adopted for developing the web-based system were Angular JavaScript which will be used to develop the frontend, while the graphics on the pages were designed using Adobe Photoshop, the XAMPP Server version 8.0.6-0 containing MySQL Database and Apache Web Server applications is used as localhost server. The Spring Boot framework of Java is the backend language used in the project (Kiruthika, 2012). At the end of this project, we will realize the interfaces that will allow real estate agents to be able to register their company and add accommodations, and subsequently to visitors to be able to make a reservation. Suggestions for improvements will be made such as the integration of means of payment and mobile alerts.

**Keywords:** *Web, Database, Information System, Housing, Housing Management*

**Introduction:**

The effective management of information helps an organization or institution to achieve its goals and objectives. This application will set up a housing committee to know the occupants who have stayed as a tenant. The information system of this application will be designed in an efficient way to allow the housing committee to carry out a regular status check and to inform the tenant of housing. It is to this end that the web-based housing management system is considered important and designed to enhance the effective management of houses and also to keep pace with globalization trend in which manual records and management systems are being overhauled and replaced with the web-based or electronic one. This system will also improve the quality of information flow.

The main objective of the study developed a housing search web application management system that manages the accommodation of every house seeker, the information details of accommodation occupant, and of course, it will be dynamic because the occupants change from time to time. The study developed a housing website with interactive web pages and an electronic database. Thus the system will take into account all kinds of housing whether houses, buildings, apartments, studios, rooms as well as the security of data provided by real estate agents and housing seekers. The interactive web pages will allow each housing seeker to easily find the results according to his research, the visitor also has the possibility of making inquiries or suggestions.

Housing plays a huge role in revitalizing economic growth in any country, with shelter being among key indicators of development. The universal declaration of human rights gives one of the basic human rights as the right to a decent standard of living, central to which is the access to adequate housing (United Nations, 1948). Housing as a basic human right demands that urban dwellers should have access to a decent housing, defined as one that provides a foundation for rather than being a barrier to good physical and mental health, personal development and fulfillment of life objectives (Seedhouse, 1986).

The process of storing and retrieving data constitutes a vital index in any organization's efficiency and effectiveness. Information systems are mechanisms through which one or more information activities are performed to satisfy the information and information needs of people or organisation (Tiamiyu, 2005). In recent years growth of the Information and Communication Technology (ICT) has had a substantial impact on the way organizations and institutions function. The use of ICT in the institution is on the rise worldwide offering online services. (Gupta et al, 2008). One of such services is housing management.

**Literature Review:**

Information system is a group of interrelated components that collectively work to carry out input, processing, output, storage and control actions in order to convert data into information products that can be used to support forecasting, planning, control, coordination, decision making and operational activities in an

organisation. (Barry et al.,2003). Today the most profound effect on the way in-house IS that are developed are the technologies of the World Wide Web. In a very broad sense, the term information system is frequently used to refer to the interaction between people, algorithmic processes, data, and technology (Kroenke, 2008). Durodoye (2005) opined that two of the vital functions of the information system are the ability to output information to support decision making, coordination, control, analysis, etc, and receive feedback from which further inputs can be derived.

Housing has been recognized as the second most important essential human need. Housing all over the world has remained an interdependent phenomenon that affects every facet of mankind. The house is an economic resource providing space for production and access to income-earning opportunities. Housing can therefore be defined as the process of providing a large number of residential buildings permanently with adequate physical infrastructure and social services in planned, decent, safe, and sanitary neighborhoods to meet the basic and special needs of the population.(Otubu, 2008).

Nusrat and Nawshin (2016) implemented a constraint satisfaction problem in the search option of their home rental management system. The rental system has a dynamic value for searching and also a combination of public transport tracker and dynamic chat server between admin and agent. Virupaksha et al. (2016) proposed a web-based hostel student detour management system which can be apply in any universities. The system helps the hostel warden to manage the outing record and information of the student. SMS application programming interface was integrated. Junaid et al. (2017) proposed a rental housing management system which possesses all the features provided by the existing system and improving his own system to work with spatial database and non-spatial database. In designing the system, he leverages on ASP.NET using C# and the SQL 2008 database engine. The system allows the user to quickly and easily search a property for buying and selling but was not information on the property location, cost range, etc.

## **Motivation**

It is been for long tenant are finding it very difficult to look for a room or apartment Finding accommodation was really complicated. We had to call couriers and then go to places to visit the rooms. And most often we spent a lot of time looking before finding a room. After finding then comes the step of going to the real estate agency to sign the contract. Arriving at the agency the queues were too long. This is how I started to think about creating a system that could make it easier for people to find housing and that would not require too many formalities while avoiding waiting hours. Thus I started to gather the necessary information through the questions that I asked the real estate agents to use in the realization of my system. And over time the real estate agencies also raised the need for this system which would save them time while allowing them to make a profit.

### Existing system

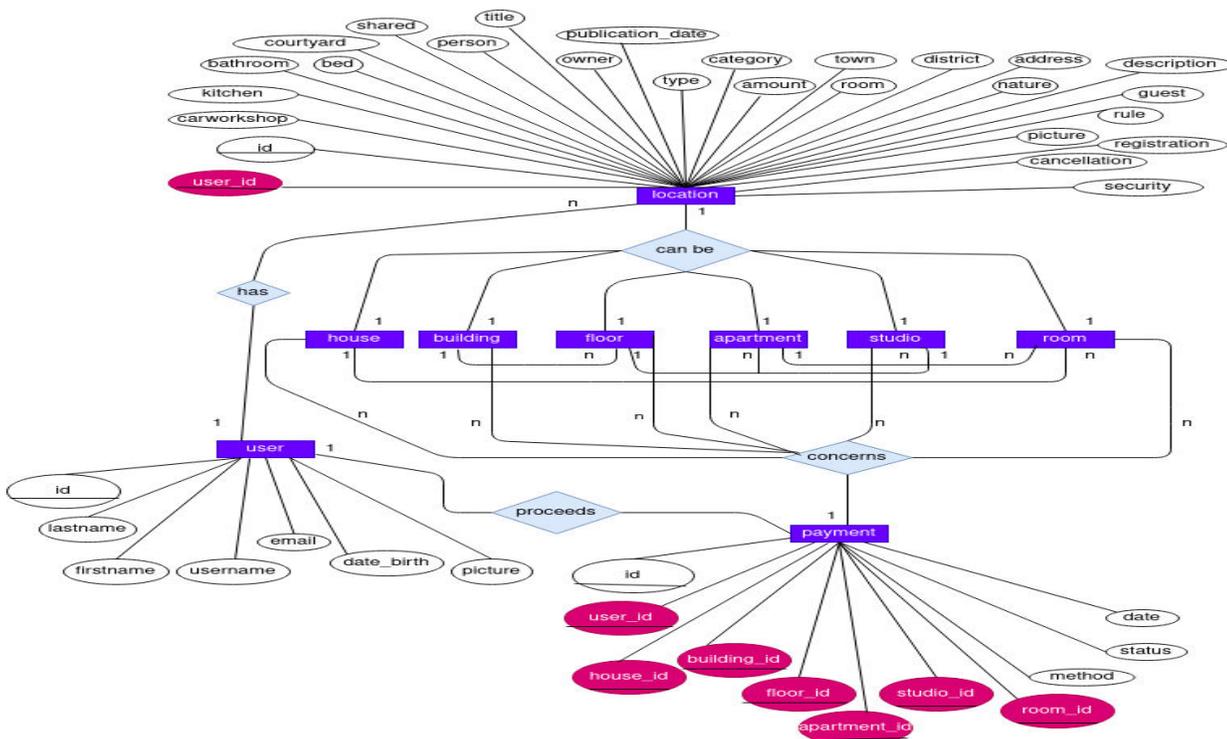
The web-based application structures are more and more numerous and provide housing in their own way. So landlords entrust their housing to these agencies which manage. But the conclusion that emerges from this is that most of the information provided back and forth by landlords and tenants is not digitized. It is written on paper and over time these papers disappear and others decay. So the few agencies that do manage to digitize this information do not store them on remote servers like the hosts. This leads to litigation in the event of loss or theft of computers or even in the event of modification of data by an employee to profit

### Methodology

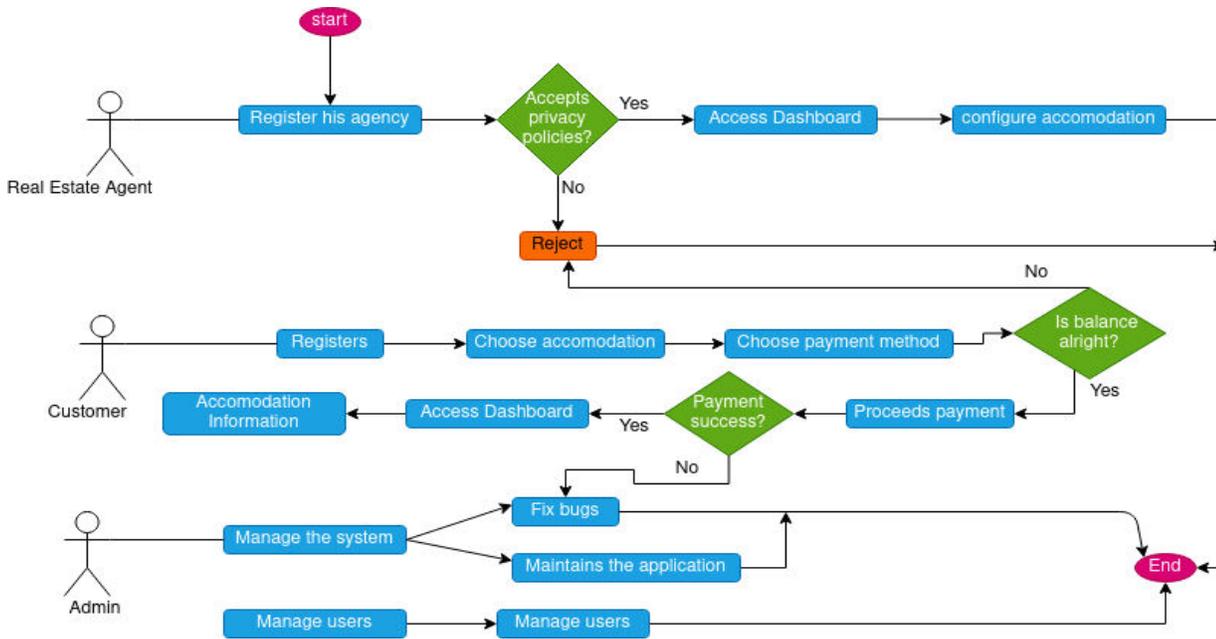
#### Design consideration

The new system developed is a web-enabled application connected to a database and resident on a web server and be accessed by web browsers. The web application relies on hyperlinks as a means of navigating from one web page to another. The new system is divided into two sections namely: User and Administrative. The user section consists of various web pages that can be accessed by anyone. The administrative section consists of access to the database by the Estate Unit authorized staff.

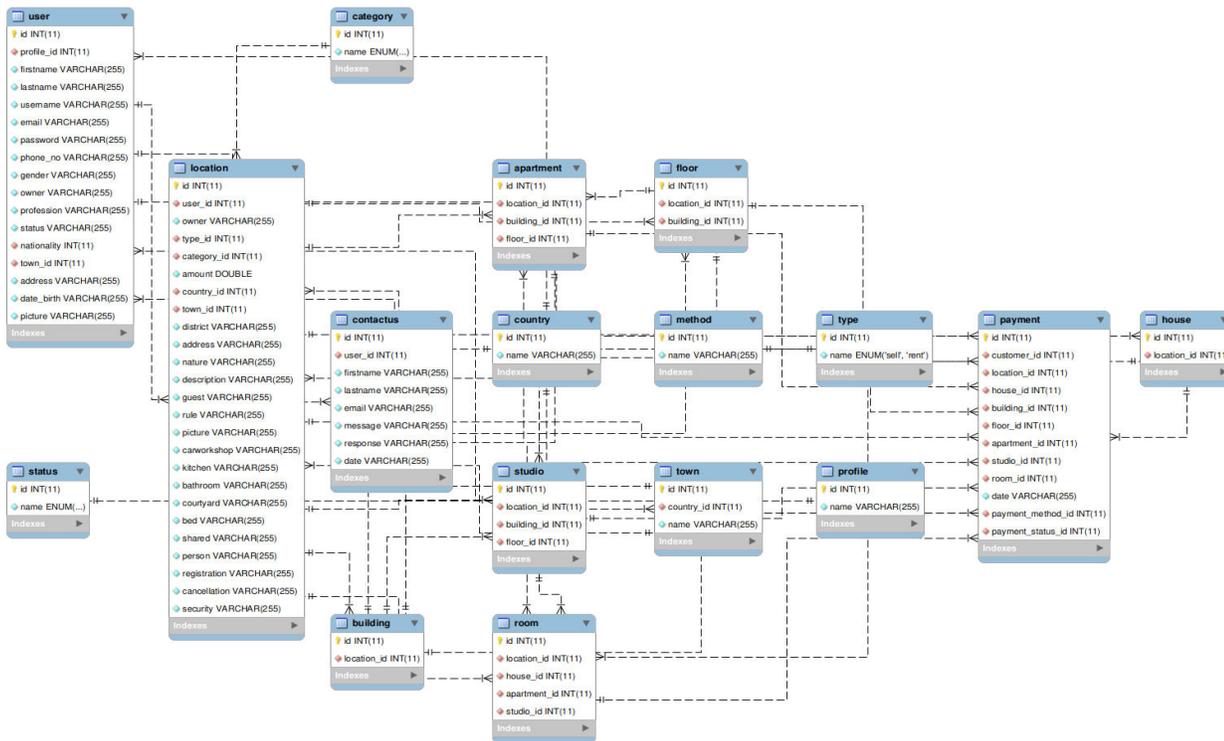
### Entity-relationship



### System Flow



### Class Diagram



## Web service Technical Architecture

The architecture of the project is a web service. The backend of the project is made with Spring Boot and the frontend with AngularJS. The two parts of the project communicate via HttpClient

### Backend Language Spring Boot

Spring Boot is a beautiful framework of Java with rich functionalities.

Spring Boot makes it easy to create stand-alone, production-grade Spring-based Applications that we can "just run". Spring Boot comes with an opinionated view of the Spring platform and third-party libraries when starting each application with minimum fuss. Most Spring Boot applications need minimal Spring configuration.

In this project, we will use the latest version of Spring 2.4.0

#### ➤ Spring Rest Controller

REST has quickly become the de-facto standard for building web services on the web because they're easy to build and easy to consume.

### Database Management Msql

MySQL is the relational database management system used to perform operations in the database as a spring boot entity.



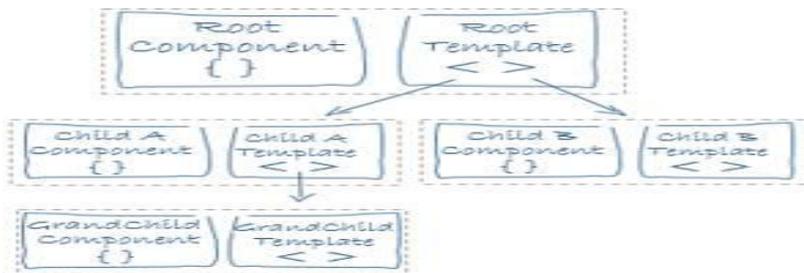
## Front end Language Angular JS

The version of Angular used in this project is Angular 10.0.5

### ✓ View Templates

A template is a form of HTML that tells Angular how to render the component.

Views are typically arranged hierarchically, allowing you to modify or show and hide entire UI sections or pages as a unit. The template immediately associated with a component defines that component's host view. The component can also define a view hierarchy, which contains embedded views, hosted by other components.



### ✓ Components

A *component* controls a patch of the screen called a view.

### ✓ Services

*Service* is a broad category encompassing any value, function, or feature that an app needs. A service is typically a class with a narrow, well-defined purpose. It should do something specific and do it well.

Angular distinguishes components from services to increase modularity and reusability. By separating a component's view-related functionality from other kinds of processing, you can make your component classes lean and efficient.

## Terms of Service and security

Safe online housing search tips

URL address on the address bar of your internet browser begins with "HTTPS"; the letter's at the end of "HTTPS" means 'secured'.

Look for the padlock symbol either in the address bar or the status bar (mostly in the address bar) but not within the web page display area.

Verify the security certificate by clicking on the padlock.

Do not enter login or other sensitive information in any pop-up window.

The address bar has turned green indicating that the site is secured with an SSL Certificate.

## Implementation

### Navigation bar

The navigation bar of the application contains these fields shown as follows:



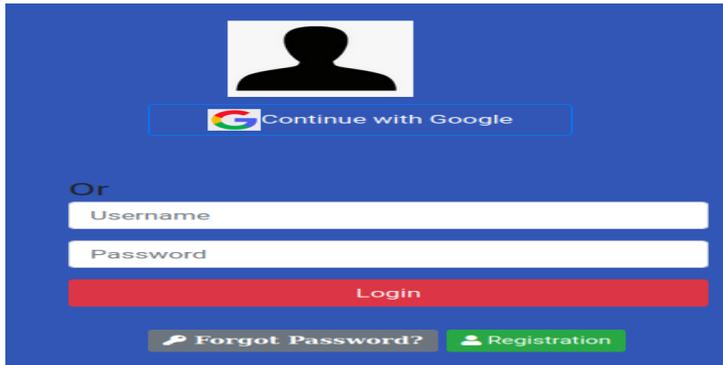
### Login

The login functionality allows a user to log on to the application and access his dashboard. To log in the user must provide an E-mail Id and Password. If this information is not valid the user is prompted to re-enter their password until their information is correct. If he has forgotten his password he can reset it by clicking only on **Forgot Password?**

The user can also choose to log in with Google by clicking only on **Continue with Google**. And in this case, Google asks him to log in with his google

e-mail ID.

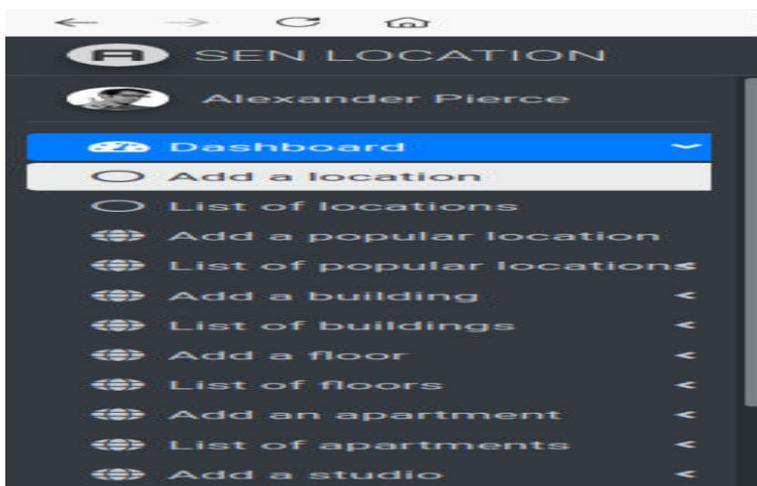
Login



### Dashboard of the Real Estate Agent.

In this part, we describe the dashboard of a Real Estate Agent.

#### Menu

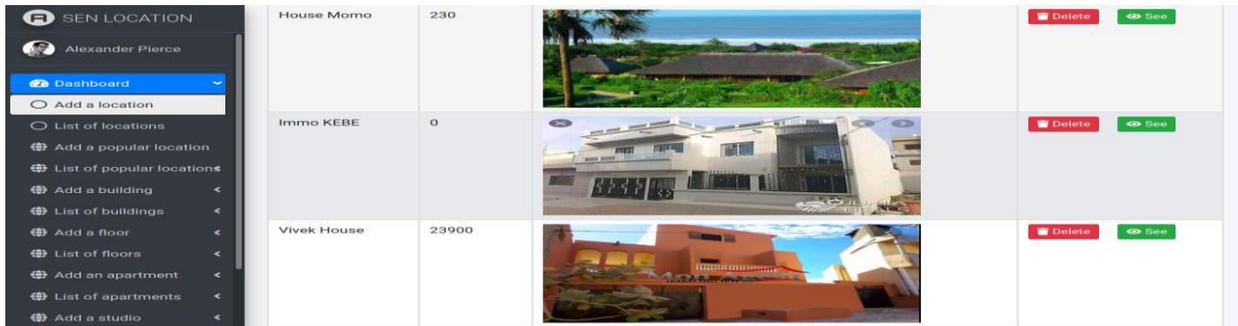


#### Add a new location

#### List of accommodations

The list of accommodations registered by the Agent is shown below. He can also delete or can update the accommodation.

### List of accommodation



### Add a gallery of images

For a specific accommodation, the Agent can add several images concerning it. And he can delete one or all images added.

### Home page of the application

The home page represents the first page visible to the customer. It is made of header, body, and footer. The body of the page is made with the accommodations added by the Real Estate Agent to know Houses, Buildings, Floors, Studios, Apartments, Rooms. Also, the visitor of the page can make research for accommodation by entering the name of the city in the search bar. It is shown below:



House



Room with balcony - 1 lits

23900 FCFA

Dakar, Street Red far of the last place of Independence

★★★★★ 5



Room with balcony - 1 lits

0 FCFA

Dakar, Street 66 far Noida Sharda University

★★★★★ 5



Chambre vue ocean - 1 lits

230 FCFA

Dakar, District 29 near the supermarket

★★★★★ 5



Logement entier - 3 lits

34900 FCFA

Pikine, District 9 far of the Great University

★★★★★ 5

IX/ Implementation

Building

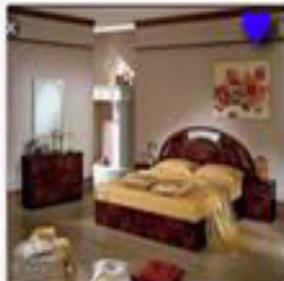


Room with balcony - 1 lits

0 FCFA

Dakar, Enter exact address of the building

★★★★★ 5



Room with balcony - 1 lits

0 FCFA

Dakar, Enter exact address of the building

★★★★★ 5



Room with balcony - 1 lits

0 FCFA

Dakar, District 9 far of the Great University

★★★★★ 5



Room with balcony - 1 lits

0 FCFA

Dakar, District 29 near the supermarket

★★★★★ 5

## IX/ Implementation

### Apartment



Room with balcony - 1 lits

0 FCFA  
Dakar, Enter exact address of the apartment  
★★★★★ 5



Room with balcony - 1 lits

0 FCFA  
Dakar, Enter exact address of the apartment  
★★★★★ 5



Room with balcony - 1 lits

22330 FCFA  
Dakar, Enter exact address of the apartment  
★★★★★ 5



Room with balcony - 1 lits

0 FCFA  
Pikine, District 9 far of the Great University  
★★★★★ 5

8/21/2021

40

### Room



Room with balcony - 1 lits

13330 FCFA  
Dakar, Piki nord  
★★★★★ 5



Room with balcony - 1 lits

0 FCFA  
Dakar, Enter exact address of the room  
★★★★★ 5



Room with balcony - 1 lits

0 FCFA  
Dakar, Enter exact address of the room  
★★★★★ 5



Room with balcony - 1 lits

0 FCFA  
Dakar, Enter exact address of the room  
★★★★★ 5

#### Quick Links

Home  
Become Host  
Help Us  
Registration  
Login

#### Contact Us

Support  
Contacts  
Sponsorships  
Terms and Services

#### Social Network

Instagram  
Facebook  
Youtube  
Twitter

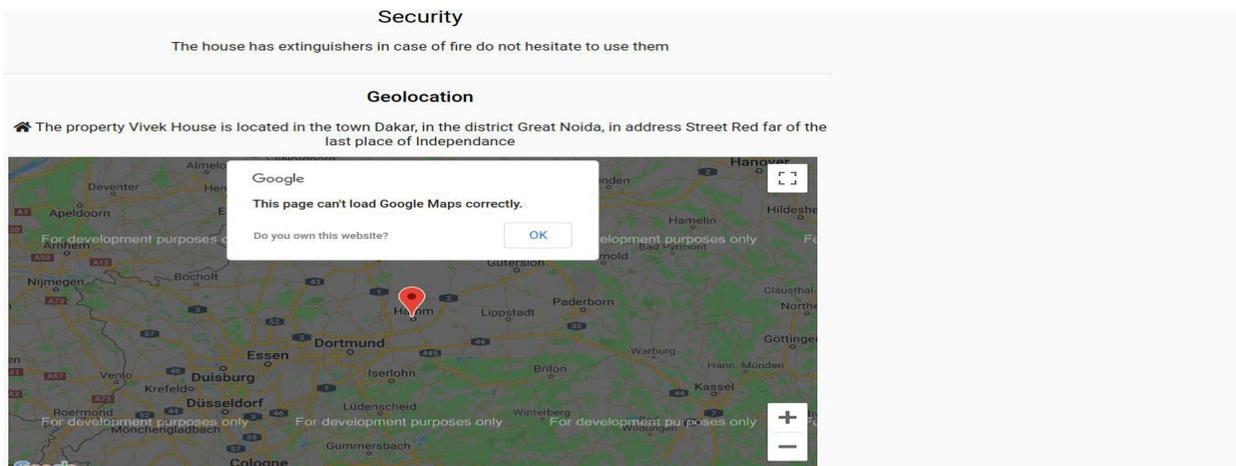
#### Subscribe to our newsletters



### Details of an accommodation

The visitor of the website can click on accommodation to see its details as shown as below. The details show also the geolocation of the accommodation and he can contact the publisher by clicking on Contact Publisher

## Details of an accommodation



## Contact of Publisher

This page shows all information concerning the publisher of the accommodation. The customer can contact the publisher by phone number, by email Id, or by WhatsApp social network. It is shown below:

## Deployment of the project

For testing needs before deployment, we do the tests locally following the host provided by Angular which is localhost:4200

Once all the tests are finished we will proceed with the final deployment on a remote host.

## Future Prospect

“Housing Search Web Application” is our ambitious and big project. We are thankful for being provided this great opportunity to work on it. As already mentioned, this project has gone through extensive research work. Based on the research work, we have successfully designed and implemented Housing Search System. To know what the future of Housing looks like, it’s probably worth looking at the present because Online Housing System isn’t new. When you think of online Housing, you probably think about a computer or laptop, a three or four-step security process, and then an interface that lets you view your Housing booking. And you’re not wrong either. The most valuable future looks are the following below: make this application global and allow several banks to interact via this platform, Customer issues are developed based on their needs, so the help desk will be aware of their needs and easy to use. Developing a mobile app for this system that helps users to do their operations without using a personal computer. Updates of the system will be done automatically without administrator intervention. The current system implemented works properly with two languages available in French and English but shortly, we will make this application available in several languages.

## Discussion

This work aimed at developing a Secured Mobile Cloud-based House Rent Management System for landlord/agent/tenant/prospective tenant. The work is expected to overcome the problems faced by users with the current system used. The expected outcomes of using the developed cloud based house rent management system include: (i) The system enables accurate registration of landlord/agent/tenant/prospective tenant (ii) It facilitates authentication, so as to ensure that only authorized users gain access to services (iii) It provides functions and features such as validation and user friendliness (iv) It provides a mobile rental system enabled by the cloud. (iv) The system provides seamless communication between tenant/prospective and landlord/agent (v) The system can be use using iOS/ android smart phone or websites

## Conclusion

This project eliminates the long queues in front of real estate agencies and is developed to automate the search for accommodation in an easy, fast, efficient, and secure way. In the future version of this project, it will still be much enhanced than the current version. We will develop a larger system to take into account other aspects such as contracts between the platform and banks to facilitate payments for those who would like to make transactions through banks. We will integrate online payment methods taking into account local telecommunication operators and also we will extend the language fields which are currently only French and English. The housing website application offers a good privilege to start a business and provide services other than companies already in existence in this area. Thus the objectives set at the beginning of this project have been achieved and the Housing search Web Application System is developed and executed successfully

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