Table of Contents

1. INTRODUCTION 4
1.1. PROJECT OVERVIEW 4
2. CURRENT STATUS OE E-BUSINESS 5
3. DESIGN AND DEVELOPMENT TOOLS 6
3.1. MACROMEDIA DREAMWEAVER 8 ..... **6**
3.2. MACROMEDIA COLDFUSION MX7 ..... **6**
3.3. MICROSOFT ACCESS **6**
3.4. WEB BROWSERS **7**
4. HCI APPROACHES 7
4.1. **GENERAL HCI APPROACHES** 7
5. FUNTIONAL TESTING 10
5.1. ACCEPTANCE TESTING 10
6. **REVIEW OF FINAL DELIVERABLE** 11
6.1. **Home page** 11
6.2. **Dynamically generated range web pages** 11
6.3. **Dynamically generated model web pages** 11
6.4. **Dynamically generated Property locality web pages** 12
6.5. **Purchase web page** 12
6.6. **Query Page** 12
7. **CONCLUSION** 13
8. **APPENDIX 1.1** 14
9 . REFERENCES 24

Table of figures:

1. Fig 4.1. Nav bar of the website……..…8
2. Fig 4.2. Footer of the website……9
3. Fig 4.3. Website color theme……9
4. Fig 8.1.Home page……14
5. Fig 8.2. Apartment (Range) page……14
6. Fig 8.3. Single Bedroom (Model) page……16
7. Fig 8.4. Property page……..…17
8. Fig 8.5.login page……18
9. Fig 8.6. Error page……..…18
10. Fig 8.7. Purchase page……..…19
11. Fig 8.8. Purchase database……..……20
12. Fig 8.9. Query page……...…20
13. 8.10. register page……..……21
14. 8.11. Register database……21
15. 8.12. Error message……..…22
16. Fig 8.13. Search query page……23

1. INTRODUCTION

1.1. PROJECT OVERVIEW

Today, technology is extremely essential in many industries. Businesses are in an age where having a digital footprint is critical not just for success, but also for survival. When used effectively, technology can help companies drive growth and profitability by allowing them to attract a wide variety of audiences and foster brand loyalty. Through technology, a unique and personalized experience can be delivered to the customers.

Though real estate is a competitive industry, it is rising rapidly across e-commerce as it draws a number of customers such as property owners, local and foreign buyers, and so on, broadening the spectrum of customers by allowing them to purchase properties from their preferred location at any time. Because of this highly competitive market, as well as its growing audience and benefits, ‘Sindbad Real Estate' has decided to expand their business and join the field of E-commerce by creating a dynamic website for their real estate firm. The Sindbad real estate website aims to provide buyers with the convenience of viewing a variety of their property listings, including all photographs and descriptions, and then selecting and paying for their customizable options at their leisure and online. The website is an attempt to provide their clients with an appealing and immersive web interface that makes use of technology.

Sindbad is a dynamic website created with Dreamweaver that provides an aesthetically pleasing interface and server-side tools such as ColdFusion that can access and change data from the database MS Access based on the consumer preferences .The dynamic Sindbad real estate website is a user-friendly, highly engaging, and visually appealing website that offers fine explanation about the property listings and allows the user to quickly search for their desired property by choosing the range, then the desired model, and the localities to view from the filtered and selected range of property listings. The website also allows to pay for the property online with cash or a credit card, as well as enjoy the flexibility to pay in instalments or single payment. The website contains all relevant information about the company and their contact details on every page, allowing the customer to communicate directly with the company if necessary. As a result, the website is an effective, aesthetically immersive, and user-friendly website that helps Sindbad real estate to expand across e-commerce and allows customers to browse and choose from their property listings at their own leisure.

2. CURRENT STATUS OE E-BUSINESS

E-commerce has expanded rapidly over the years, reaching previously unimagined industries such as real estate. When it comes to real estate, customers prefer e-commerce because it allows them to view and pay for the property more quickly than the offline version (altiussolution, 2020). Even in Oman, the e-commerce market is rapidly expanding, and the implementation of 4G and 5G technology is increasing customer exposure to online shopping. The Oman government's initiatives, such as OEC2020, are fuelling the growth of the e-commerce market (www.mordorintelligence.com, n.d.). With these factors in mind, real estate firms such as Sindbad Real Estate chose to launch their e-commerce website, which will assist the firm in adapting to changing market trends and customer needs, as well as staying current with technology and the audience.

Real estate companies in Oman, such as Savills, Hamptons International, and others that are internationally known, all have an online presence and a website where they provide information about their property listings. Their websites have an excellent user interface and a filter system that allows you to filter property listings based on various criteria and search for properties all over the world. Factors like these not only increase their sales but also their global audience. Regardless of the fact that they have such great features in their website, the property can not be purchased directly online. Instead, the customer is supposed to contact the company's real estate broker and then confirm the sale, as well as pay a minimum fee to the broker, which can increase the customer's cost and time as there are many middlemen in the process.

Sindbad Real Estate, on the other hand, offers a simple interface through which the user can select the range, model, location, and property, as well as view the property details online. Furthermore, the user can directly purchase the property online with various payment options, such as online credit card payment or direct cash payment, and also make the purchase in single instalments or up to 24 instalments. Options like these set Sindbad Real Estate apart from its competitors and reduce any additional time costs to the customer. This is a positive sign for Sindbad Real Estate, particularly in terms of their online presence in the real estate industry.

3. DESIGN AND DEVELOPMENT TOOLS

3.1. MACROMEDIA DREAMWEAVER 8

Macromedia Dreamweaver 8 is a web design and integrated development environment (IDE) for creating, designing, coding, and managing websites. It edits files locally and employs a variety of technologies, including CSS, JavaScript (js), HTML, and other scripting languages. It helps the user to write code and design a website using a visual interface at the same time, as well as manipulate it. Dreamweaver assists in automatically creating mark-up, putting together a whole website, and uploading it. Dreamweaver facilitates the creation of websites by including syntax highlighting, code completion, and code collapsing. (SCHÄFERHOFF, 2019). HTML and CSS were used to create the interface for the Sindbad website, and JavaScript and cfm languages were used to build and communicate with databases, as well as access the data from there.

3.2. MACROMEDIA COLDFUSION MX7

Macromedia ColdFusion MX7 is an application server that connects a web application to different backend systems. ColdFusion can be used to build interactive webpages that allow for user feedback, database lookups, and other parameters. The ColdFusion application server parses and processes all instructions provided to it. ColdFusion files have the.cfm extension, and the constructs are interpreted before being sent to the web browser, which then sends the entire output to the browser from which the output was intended. ColdFusion ignores HTML and displays the output in the browser. (Adobe, 2021). Macromedia ColdFusion MX7 was used to bind the website to the database and to retrieve and change data from the MS Access database in the .cfm format file using the ColdFusion language.

3.3. MICROSOFT ACCESS

Microsoft access is a database management system that combines the relational Microsoft Jet Database Engine with a Graphical user Interface (GUI) and software development tools. Ms Access stores data in its own format and can import and connect to data stored in other applications and databases with ease. MS Access allows you to store and retrieve data.(Tutorialspoint.com, 2013). Ms Access contains all of the Sindbad Real Estate data used on and from the website. The data from MS Access can be accessed on the website using

Macromedia ColdFusion MX7 and the ColdFusion language, and can also send and update the data.

3.4. WEB BROWSERS

Google Chrome is the web browser that was used to build the website. It is a free cross-platform web browser that was used to review and validate the website's usability as well as its aesthetics. Google Chrome was chosen because it is quick and intuitive, and it allows you to access the client side code in the inspect section and make modifications without changing the actual code. Testing the functionality and success of each web page can be simple with Google Chrome.

4. HCI APPROACHES

4.1. GENERAL HCI APPROACHES

Human computer interaction (HCI) is the study, planning, and design of human-computer interactions. Software engineering is concerned with the creation of software application solutions, whereas HCI is concerned with the discovery of ways and approaches to assist users. Humans interact with computers via a user interface, hence HCI focuses on user satisfaction and how to design the interface such that it is simple and enjoyable to use (Techopedia.com, 2019).

The primary aims of HCI are to create a system that is safe, useful, and functional. To put it another way, making the interface usable and accessible to the user. HCI is constantly concerned with usability and user experience objectives. Usability is the capacity of a product to achieve the user's objectives. Poor usability aspects and a bad user interface can lead to user dissatisfaction and mistakes, hence usability is critical for the interface. Jones (2019)

Understanding how people use technology and identifying target consumers are required to fulfil HCI goals and provide a positive interaction experience for users. We presume that users are investors, property leasers, or first-time house buyers or normal house buyers for the application, and that they are familiar with real estate, since the interface does not utilize complex languages or technologies that may be confusing or ruin the user experience

The user interface for the Sindbad Real Estate website was designed with efficiency, effectiveness, and safety in mind, with the goal of creating a simple yet useful interface that allows the user to make decisions in a comfortable manner (Jones, 2019). Every website has a navigation bar shown in fig 4.1 and a footer shown in fig4.2, with the home and query page being the first option on every page because if any errors occur during the process or if the user wants to restart the process, the home option is always available. The footer is also the same on all pages and contains business information such as contact details and location, so that the user may contact the firm if they have any questions about their services, etc. The user may also simply travel from one page to the next by using the primary navigation, second navigation, hyperlinks, or buttons. Because we want the user to know they want to move to the next page rather than being led due to mistakenly hitting the hyperlink while choosing to examine the image rather than clicking it and being taken to the next page, the majority of the navigation employs buttons rather than hyperlinks. As a result, buttons were the more useful solution. A breadcrumb trail is featured on the majority of sites to aid users in establishing which web page they are now on and to provide them with a feeling of direction and orientation to complete the task. This is especially beneficial for first-time website visitors since it will assist them in cognitively learning and navigating the property purchase process without causing unnecessary confusion, which can distract users' attention away from the website.

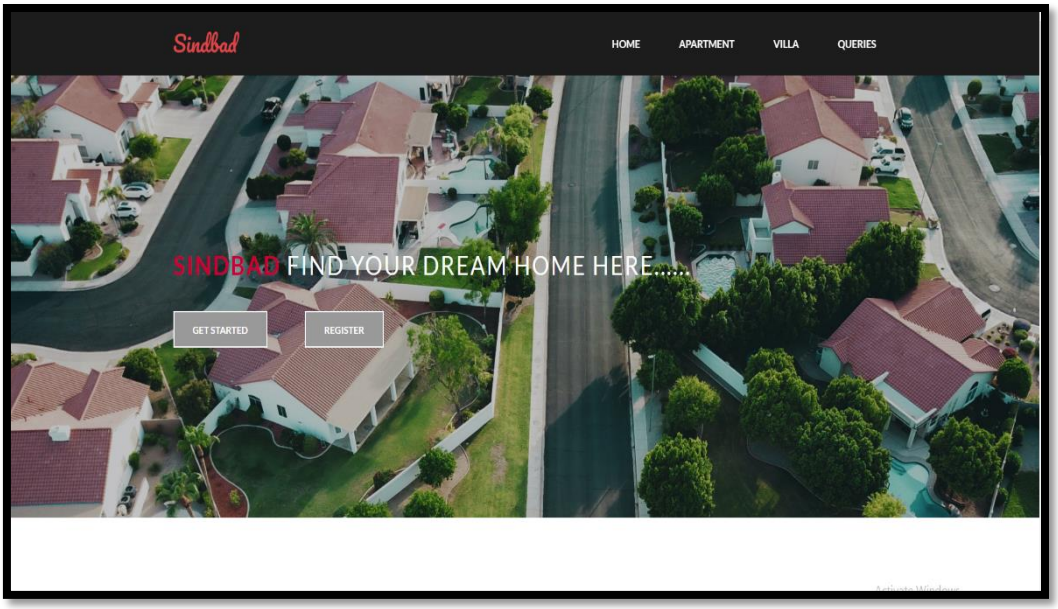


Fig 4.1. Nav bar of the website

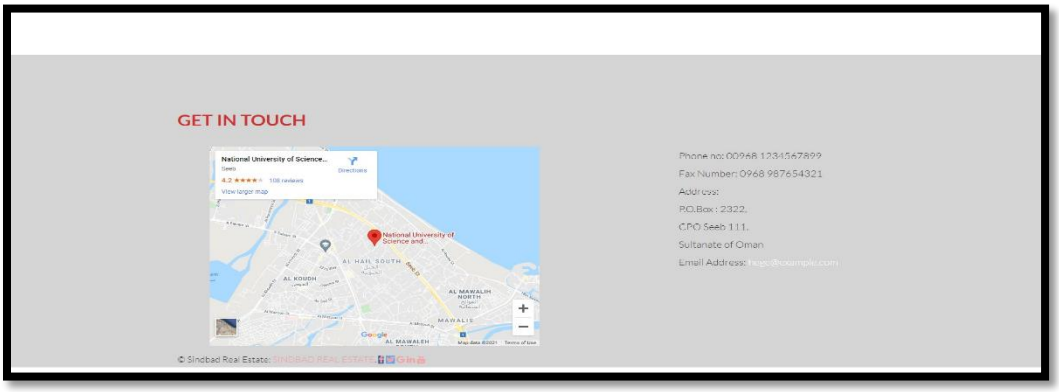


Fig 4.2. Footer of the website

The color theme for the website can be considered slightly unconventional as most of the real estate websites use blue colors in their color theme. This is done to differentiate the website from other real estate websites, and hence the color theme shown in fig 4.3. was utilized. The # 0C0C0C color is used as the backdrop for the nav bar on all pages since it is a luxurious and well-accepted color that inspires anyone who would visit the website. After white (# FFFFFF), # E5474B is used as the main color. The most apparent color in the layout is red, which gives the idea that the website is highly enticing and invites the visitor to take action, in this case, to purchase a property from this site.The footer has a softer tone of red, giving users a more welcome impression. Because this part is used for contacting the company, giving the impression of being able to freely speak when required is critical (FREEPIK COMPANY, 2017).

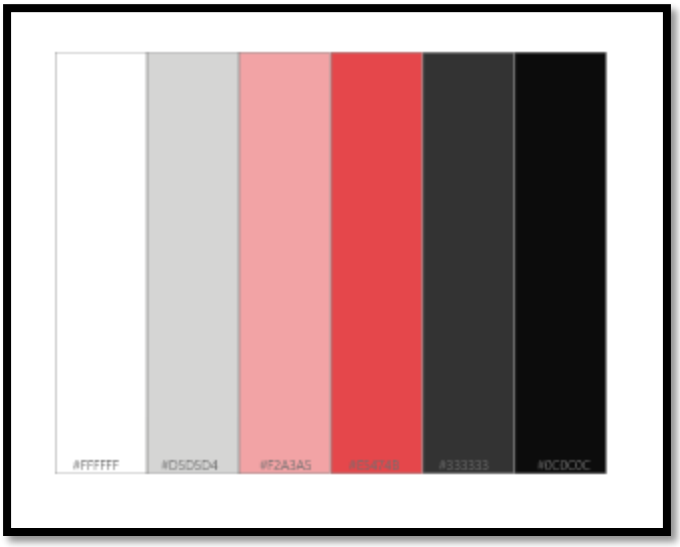


Fig 4.3. Website color theme

The font type, size, and color were chosen with the understanding that the users may be unable to read small and unclear fonts. Thus, black (# 0C0C0C) and red (# E5474B) were utilized for the majority of the critical typefaces, while grey (# D5D5D4) was utilized for the supplementary information. The fonts are somewhat larger, allowing most people to see the material well. White # FFFFFF is used as the backdrop for most pages to showcase the texts, photos, and information to the user rather of having background pictures that may divert the user's attention away from the main purpose or task that they intend to perform.

5. FUNTIONAL TESTING

Functional testing is performed to ensure that the application meets the functional requirements. This testing is done to ensure that each function of the software program works properly. This testing only examines the user interface, database, and client-server connection, not the application's code. We evaluate the primary functionalities, basic usability, and accessibility, as well as discover any error conditions in the program, through functional testing (www.guru99.com, n.d.). Acceptance testing will be performed on the website to ensure that the application is usable. and acceptable.

5.1. ACCEPTANCE TESTING

Acceptance testing is a formal test that evaluates the website in terms of the user's needs, requirements, and processes carried out to determine whether the application meets the acceptance criteria and allows the user to use and accept the system. (Tutorialspoint.com, 2019).

Acceptance testing was performed at the conclusion of the development phase for the website to ensure that the system to be delivered is acceptable.

Appendix 1.1 has extensive screenshots of the tests.

According to the results of the tests, it is possible to conclude that the majority of the users' requirements were effectively satisfied, that all of the system's functions were satisfied, and that the system is highly acceptable to the user.

6. REVIEW OF FINAL DELIVERABLE

The screenshots of the final deliverable can be viewed in the Appendix1.1.

6.1. **Home page**

Since the home page is the first page that the user views, a basic yet modern layout was chosen to avoid overwhelming the user with too many details while making the page informative enough. The user is first presented with a basic navbar that includes the firm's logo on the left and links to the home, range, and inquiry page on the right. In the form of a button, a greeting message with a link to register or continue with the page is displayed. If the user clicks on get started, they will be directed to the about section of the page, which will provide some background information on Sindbad Real Estate. Below that is where the user can read and choose between the ranges which, when clicking the button 'Get started', the user will be directed to the selected range page.

A promotion section is there, showcasing any offers made available by the company, and the visitor is led to the offers page when they click learn more.

At the bottom is the footer, which is identical to the footer on every other webpage and displays the firm's contact information and location.

6.2. **Dynamically generated range web pages**

The navbar and footer on the range pages are identical to those on the home page. The rest of the webpage's data will be presented dependent on the range the user picks on the home page. The user will see a breadcrumb trail and a welcome message at the start, indicating which stage they are in. The next part contains the second model navigation bar and a short bit of information about the range picked with the image on the side. Following this, the model section includes an image of the models available, along with information and an image, as well as a button that will take the user to the webpage for the selected dynamic model.

6.3. **Dynamically generated model web pages**

A breadcrumb trail, similar to the ranges page, indicates that the user has arrived at the model page after picking a model from the ranges page, and a welcome message is present. There is a secondary navigation with model options, but the user can not pick the other models since they must travel to the range page to update their model choice. A

brief amount of information on the model is provided, along with an image. The user may further pick the location they wish to pick using the information and image provided with a button, which will bring the user to the location webpage, which will include a list of all properties under the model and location selected, from which the user may pick and purchase the property. The final section has a list of all the properties associated with the model selected, along with the property image, information, and price, as well as a button that will lead the user to the property page with additional information related to the property selected.

6.4. **Dynamically generated Property locality web pages**

The property locality web page is identical to the model page, but it lacks secondary and tertiary navigation since we wanted the main focus to be on the property. The property page contains all of the information about the property as well as images, such as the property plan and other pictures. The user can pick buy now and will be sent to the login page, where they can only make a purchase after entering their registered email address and password. If the user does not have the login information, he or she can register by clicking the register link.

6.5. **Purchase web page**

Following a successful login, the user will be able to read all details about the chosen property as well as the client ID. The user cannot edit the text field's with automatically produced values and can only pick the payment method and mode, as well as enter the discount code. The final payable price will alter automatically if the user successfully obtains the discount or chooses the instalments. If the purchase was successful, a message will be displayed.

6.6. **Query Page**

The query page will have the same nav bar and footer as the home page, with the exception that the automatically produced information will be absent, leaving only the home and query options. The user may choose between a registered account, view clients' details, and search property on the query page. The search property allows the user to pick the range, model, and property filter on a single page rather than on numerous pages, streamlining the search procedure for those who do not wish to go through the phases.

7. **CONCLUSION**

Sindbad Real Estate's website was created in Macromedia Dreamweaver with the languages html, CSS, JavaScript, and ColdFusion for front end development and MS Access for backend development. The website effectively transitioned from one page to the next, providing the user with information and alternatives from which to pick. The interface's aim was to build a simple and easy-to-use website while also separating itself from other ecommerce real estate websites. We could determine if the website was accessible and ready to deploy by testing. The general appearance of the website is basic, and all operations are completed in accordance with the specifications provided. The website satisfied all of the objectives, but it lacked personality and engagement since, though it was simple, it might seem even more appealing with additional information on the properties and clear images. The website lacks any impaired accessible features, such as voice control or keyword access to content, and perhaps a magnification for individuals who believe the font is too tiny. Overall, if given the opportunity again, I would concentrate more on the HCI components of the website.

My advice is to focus on the HCI aspects of the website because consumers can only see the front end while the backend is only visible to developers, and the website is being designed for users, so it is critical to focus on HCI. It is essential to learn new programming languages and utilize them in projects since it helps developers grow and understand how the website works, which allows us to improve the website every time. Time planning is fundamental. Such as planning when and what to accomplish to finish the project before deadlines and, most significantly, adhering to the software development life cycle stages, which not only aids in project completion but also in the preparation and comprehension of reports.

8. **APPENDIX 1.1**

8.1. HOME PAGE: All the buttons successfully direct the user to the requested webpage and all the images are clearly viewable.

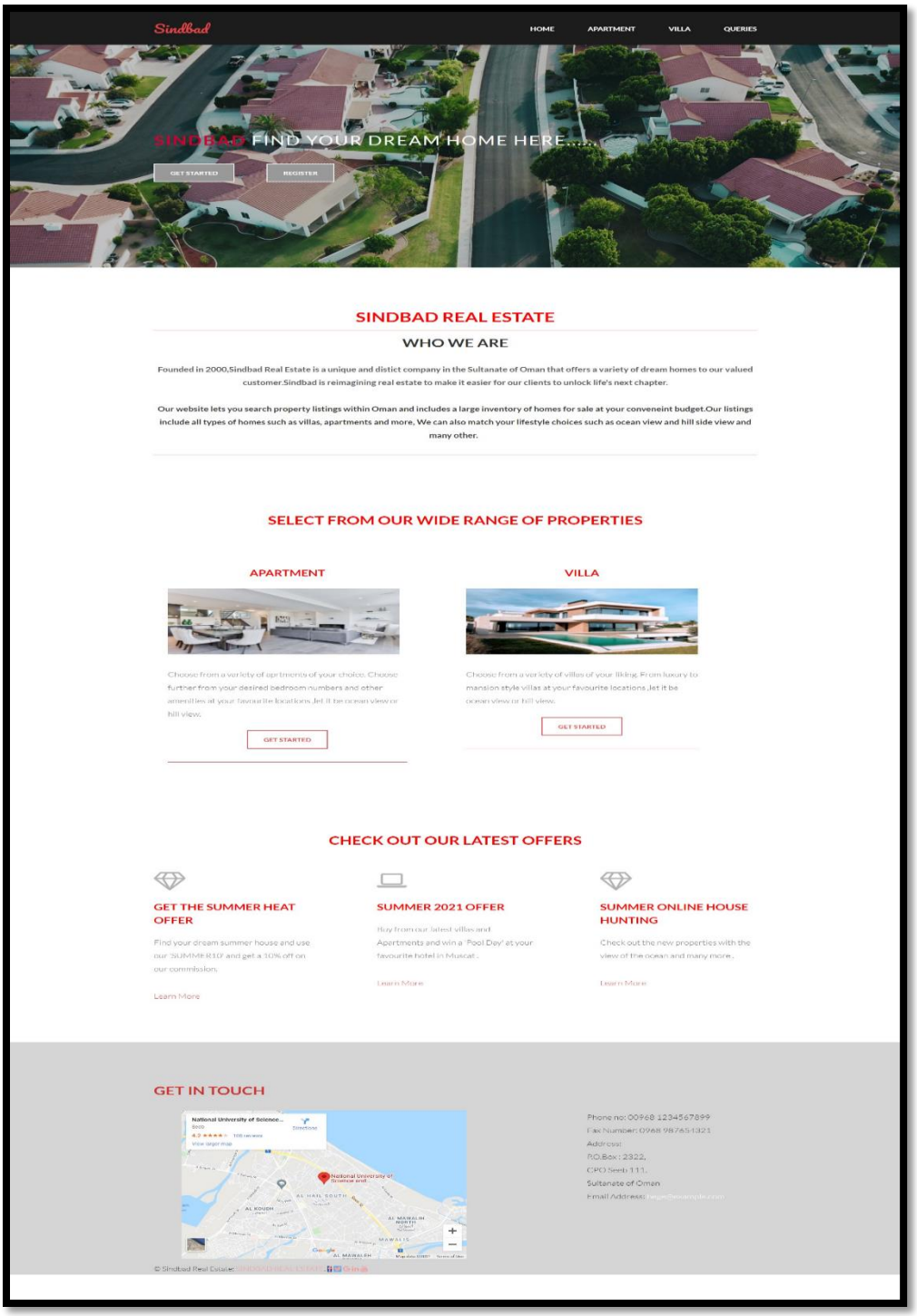


Fig 8.1.Home page

8.2. DYNAMICALLY GENERATED RANGE(Apartment) PAGE : In the range page the apartment link is not seen so the user does not click the same range page again . All buttons direct the user to the requested file and the images are all clearly seen

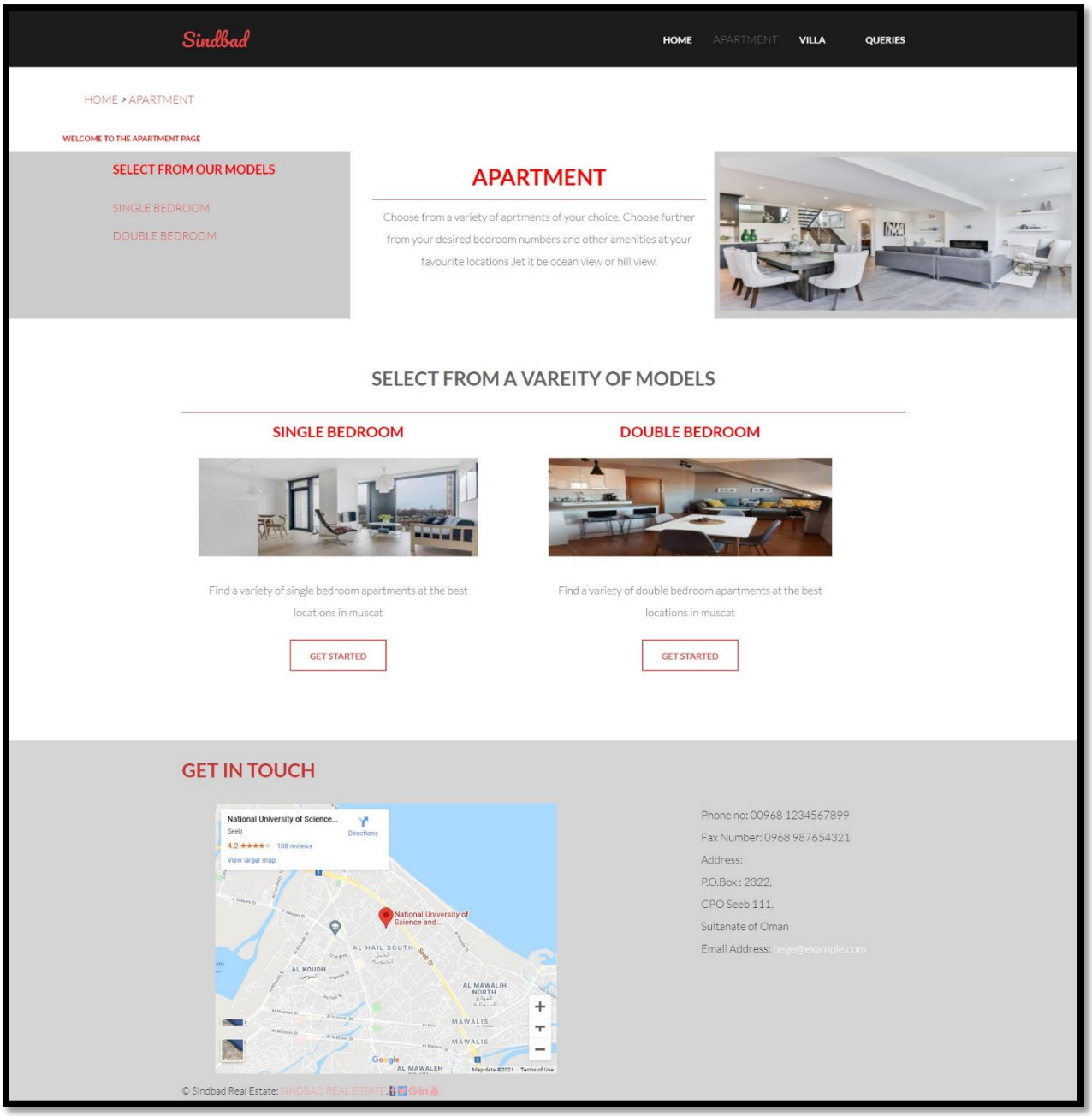


Fig 8.2. Apartment (Range)page

8.3. DYNAMICALLY GENERATED MODEL (SINGLE BEDROOM)PAGE: All the links and buttons work well including the images but not all images are clear. There was an error in the secondary nav as when clicking the double bedroom link the page is not getting directed to that page.

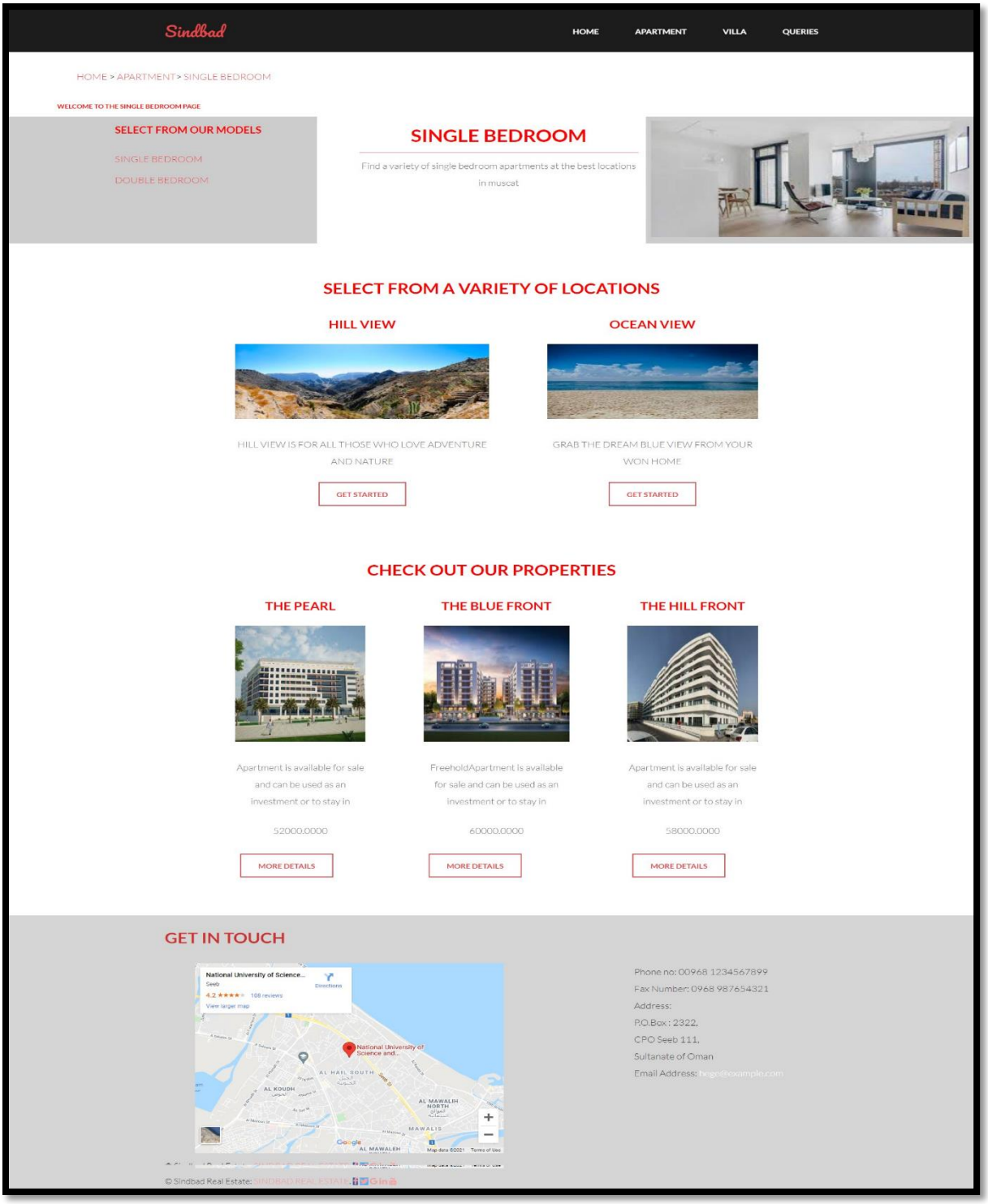


Fig 8.3. Single Bedroom (Model)page

8.4. DYNAMICALLY GENERATED PROPERTY LOCALITY WEB PAGE: The property page is generated with all the images and information in one place.

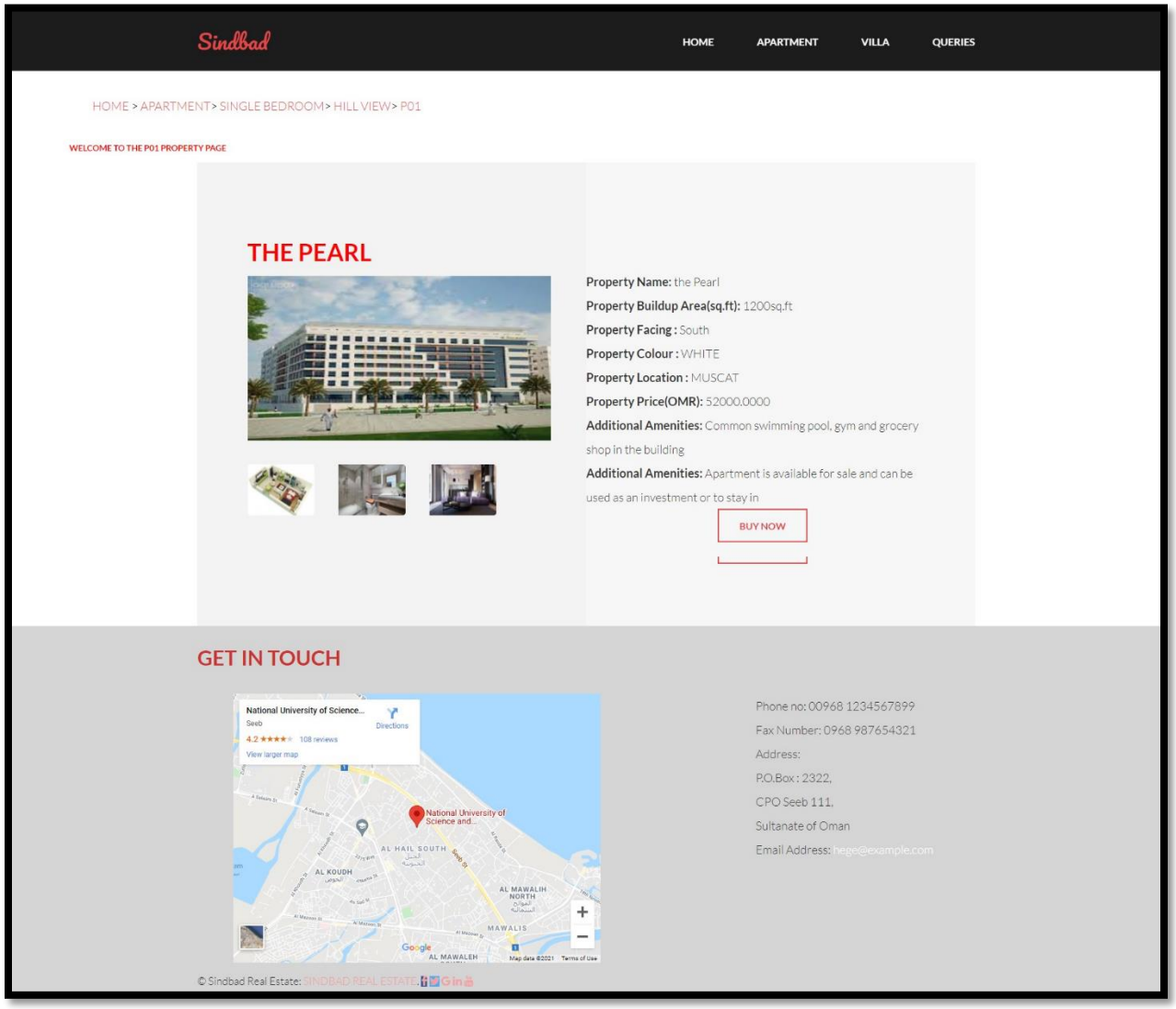


Fig 8.4. Property page

8.5. LOGIN PAGE

Login page accepts the details if entered details were registered or it will show an error message as shown below

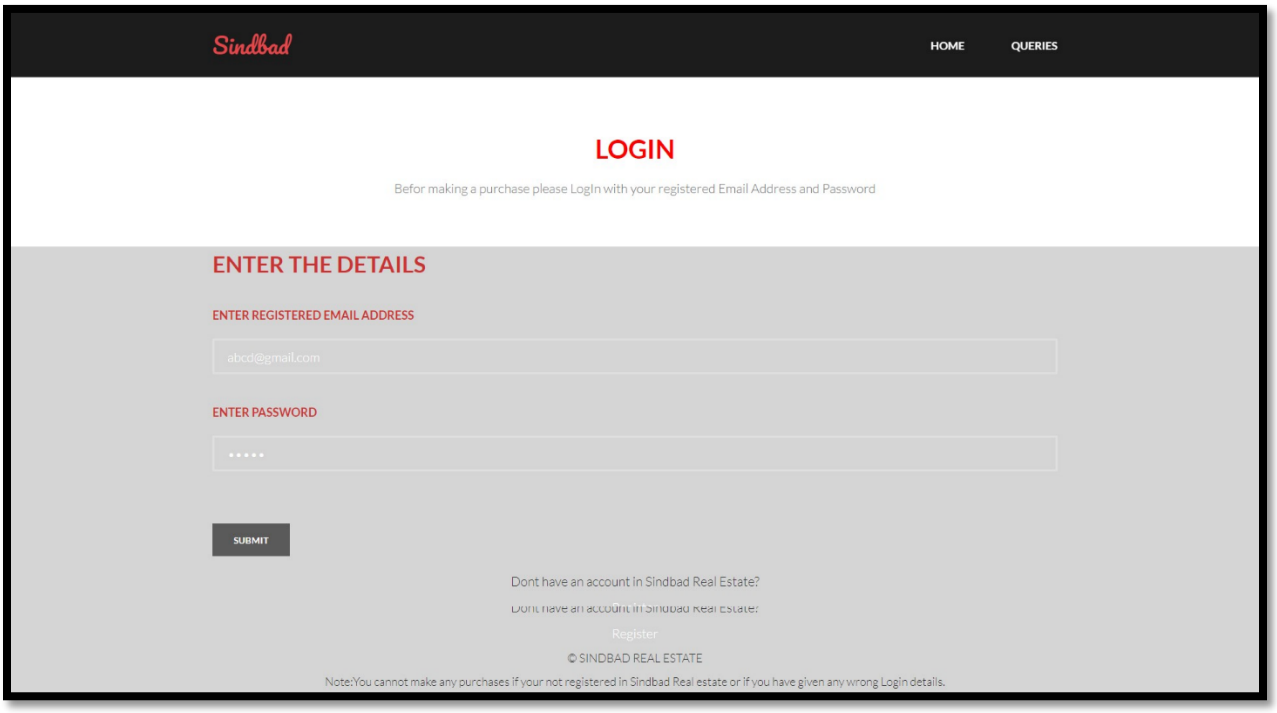


Fig 8.5.login page

Fig 8.6. Error page

8.6. PURCHASE WEB PAGE : The web page only can be viewed after the successful login of the user and most of the details are automatically generated. The details were successfully inserted to the database but the installments value was not being accepted due to an error and so the installment details were left with 0

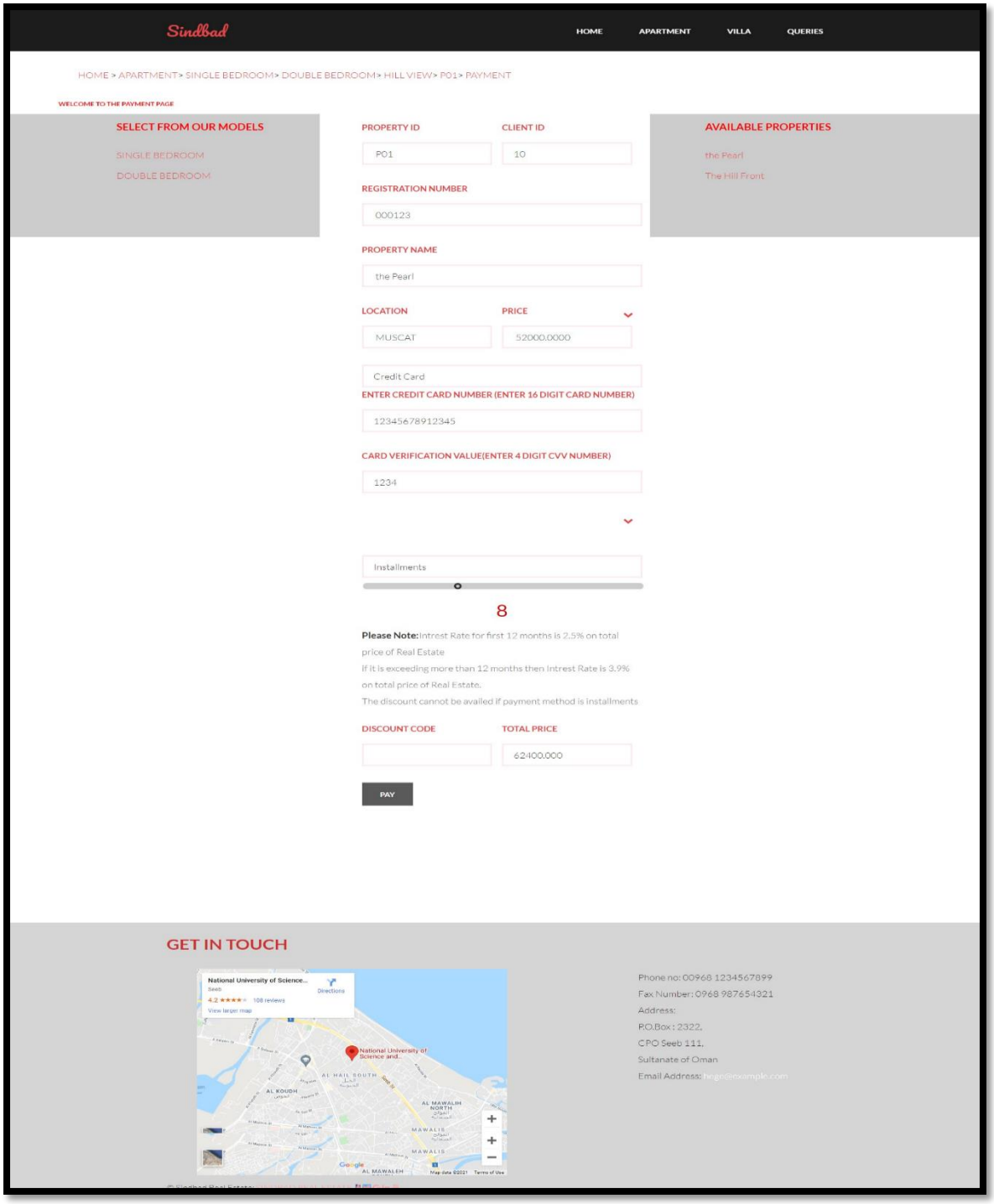


Fig 8.7. Purchase page

Purchase

Prop_ID	Client_ID	Payment_Ty	Payment_Mode	No_Installments	Final_Price
P01	10	Creditcard	installments	0	62,400.000
*	0			0	0.000

Fig 8.8. purchase database

8.7. QUERY PAGE :All the buttons direct the user to the selected webpage and the images are clear

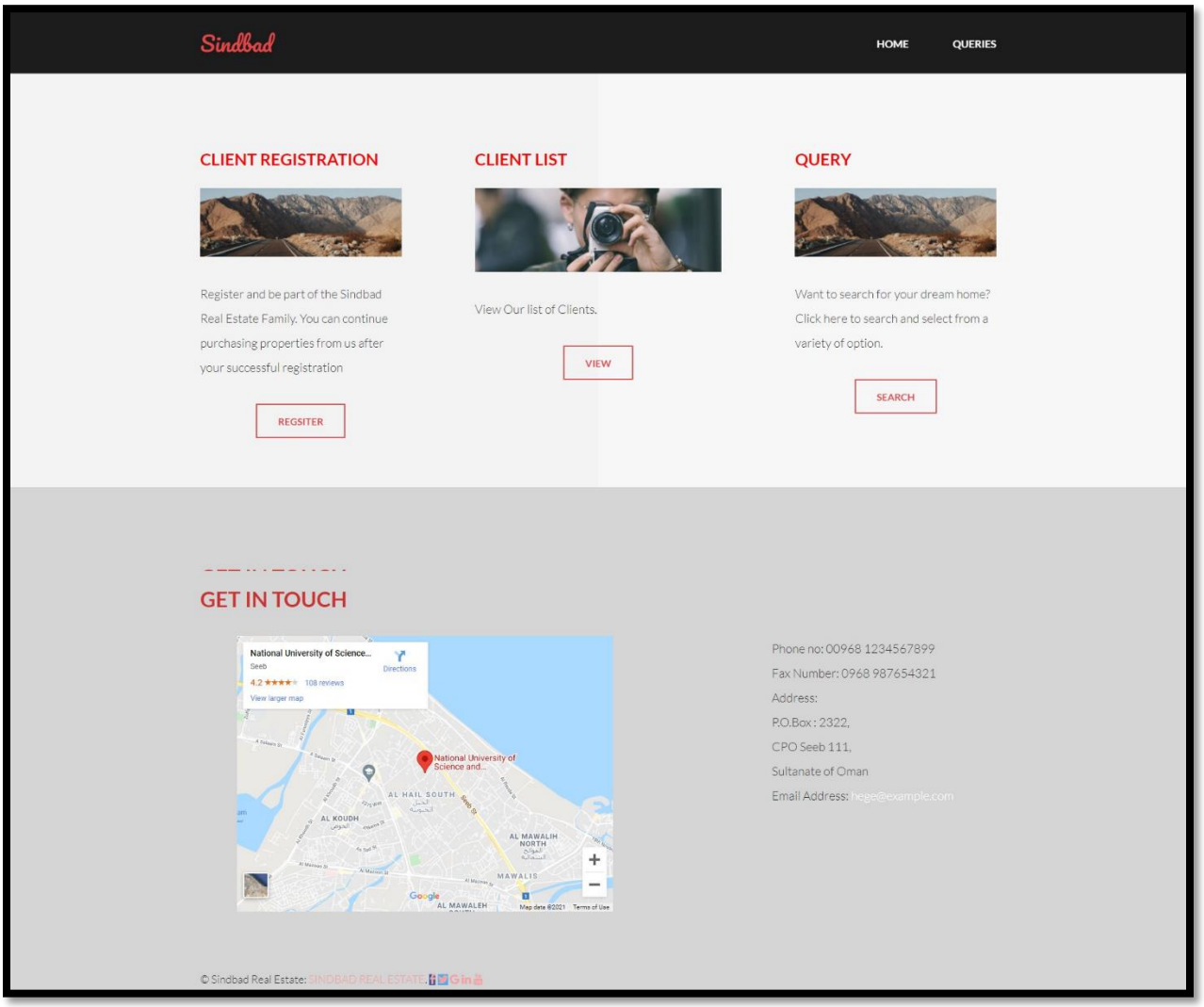


Fig 8.9. Query page

8.8. REGISTER PAGE: The register page is also takes in the details and alerts if any invalid details are shown.If the user successfully registered then message will be shown and added to the database. If the email address is already taken then another message will be shown stating the registration and the details will not be added to the database.

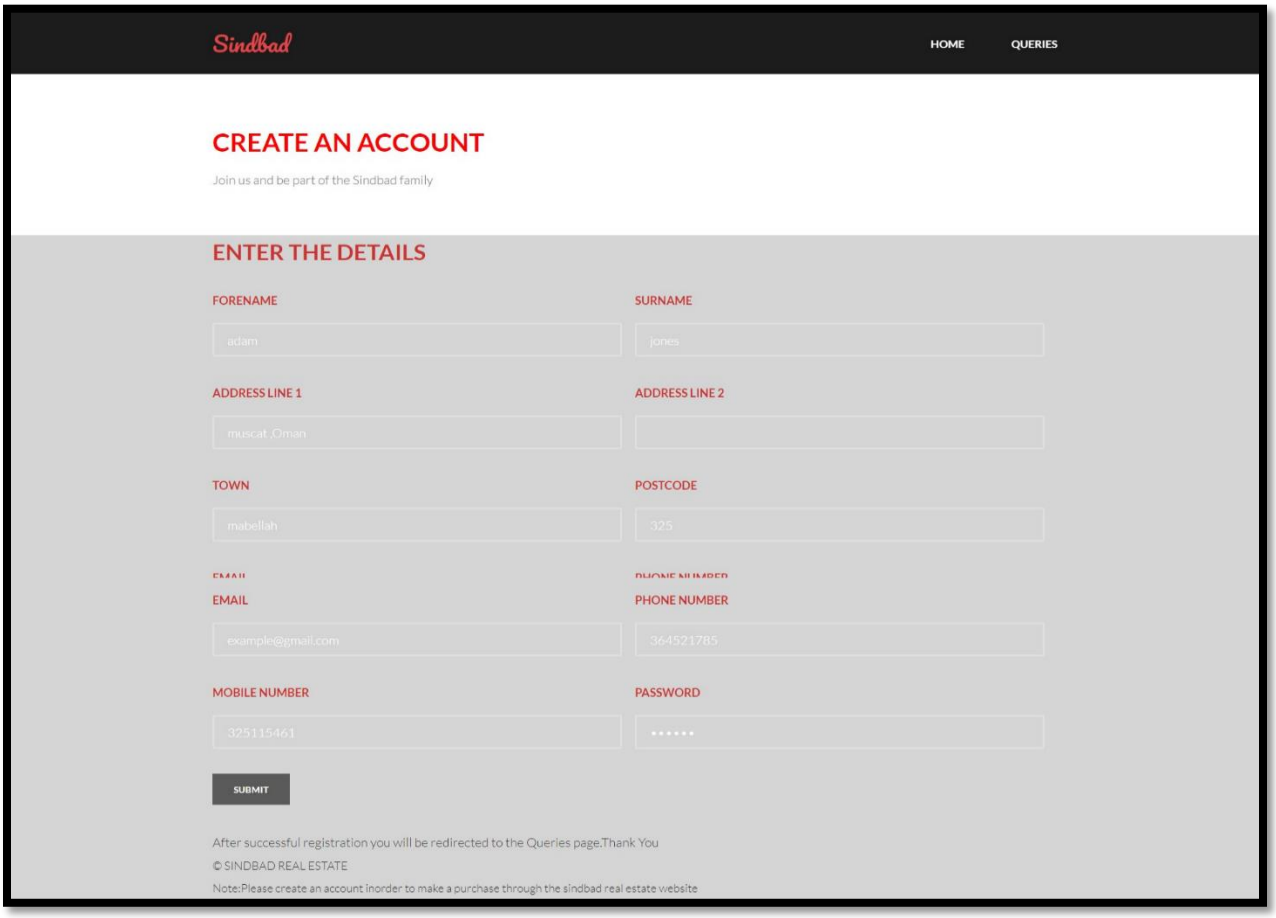
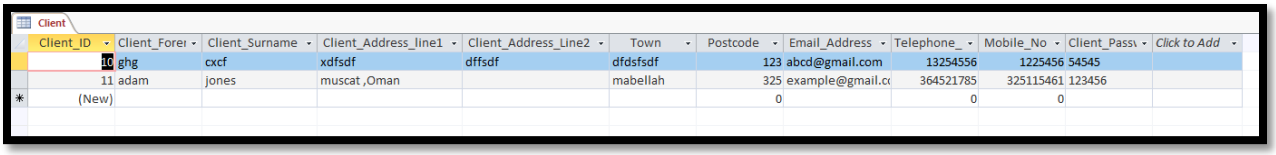


Fig 8.10. register page



Client

Client_ID	Client_Forer	Client_Surname	Client_Address_line1	Client_Address_Line2	Town	Postcode	Email_Address	Telephone_	Mobile_No	Client_Pass	Click to Add
10	ghg	cxcf	xdfsdf	dffsdf	dfdsfsdf	123	abcd@gmail.com	13254556	1225456	54545	
11	adam	jones	muscat ,Oman		mabellah	325	example@gmail.c	364521785	325115461	123456	
(New)						0		0	0		

8.11. Register database

8.12. Error message

8.9. SEARCH QUERY PAGE: The search query page also successfully showed the options to the user where the details about the available properties were shown and the button will direct the user to the property page of the selected property

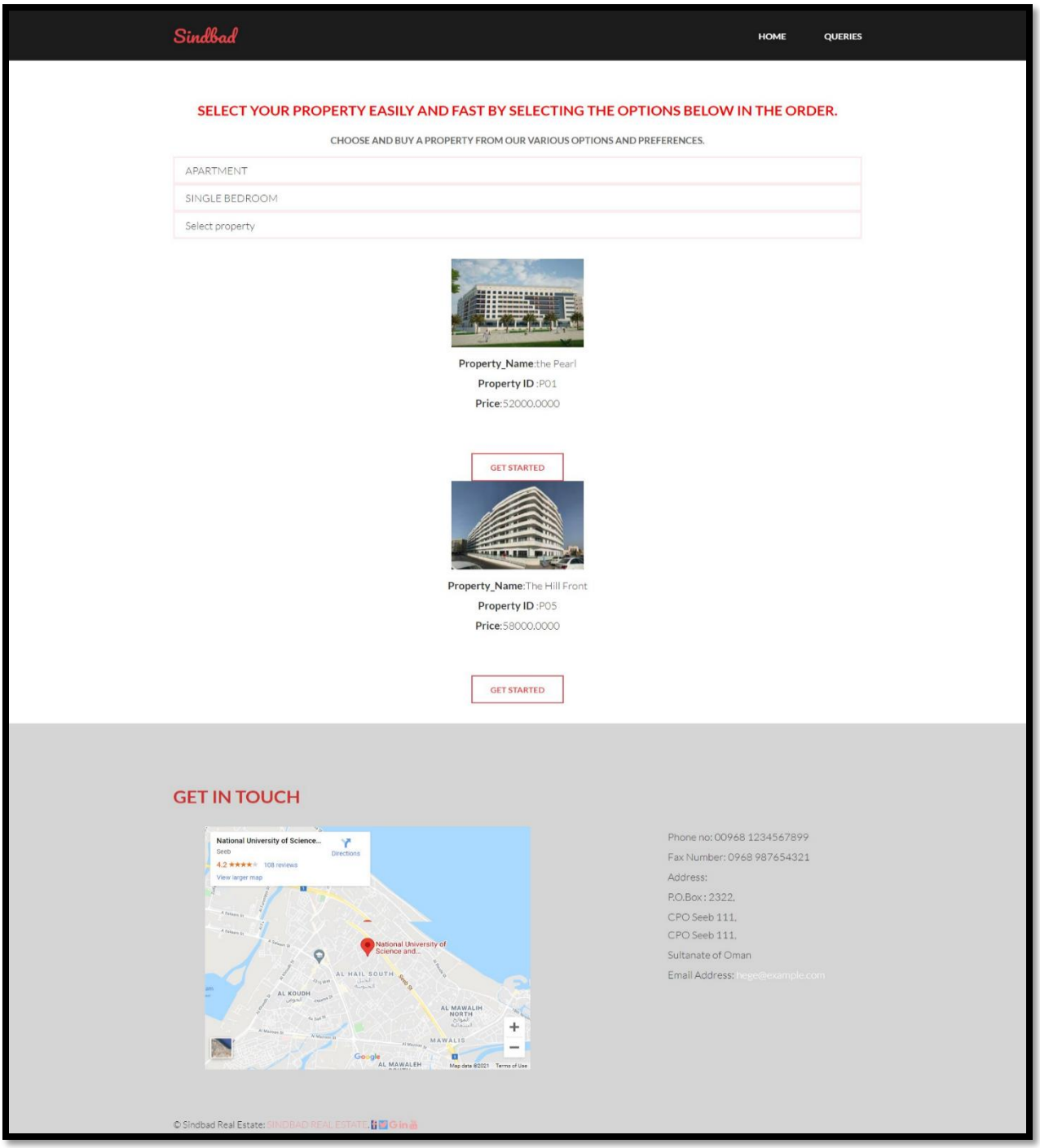


Fig 8.13. Search query page

9 . REFERENCES

Adobe (2021). *About Adobe ColdFusion*. [online] ColdFusion. Available at: https://helpx.adobe.com/coldfusion/user-guide.html/coldfusion/using/about-coldfusion.ug.html.

altiussolution (2020). *What is the Impact of eCommerce on Real Estate Industry?* [online] Altius solution. Available at: https://www.altiussolution.com/blog/ecommerce/what-is-the-impact-of-ecommerce-on-real-estate-industry/.

FREEPIK COMPANY (2017). *How Does Red Color in Web Design Attract Your Visitors*. [online] Freepik Blog. Available at: https://www.freepik.com/blog/red-color-web-design-attract-visitors/#:~:text=Red%20is%20the%20brightest%20and.

Jones, M. (2019). *Introduction to HCI*. [online] Bham.ac.uk. Available at: https://www.cs.bham.ac.uk/~rxb/Teaching/HCI%20II/intro.html.

SCHÄFERHOFF, N. (2019). *Simple Dreamweaver Tutorial: How to Make a Webpage (Step By Step)*. [online] WebsiteSetup.org. Available at: https://websitesetup.org/dreamweaver-tutorial/.

Techopedia.com. (2019). *What is Human-Computer Interaction (HCI)? - Definition from Techopedia*. [online] Available at: https://www.techopedia.com/definition/3639/human-computer-interaction-hci.

Tutorialspoint.com. (2013). *MS Access - Overview - Tutorialspoint*. [online] Available at: https://www.tutorialspoint.com/ms_access/ms_access_overview.htm.

Tutorialspoint.com. (2019). *Acceptance Testing - Tutorialspoint*. [online] Available at: https://www.tutorialspoint.com/software_testing_dictionary/acceptance_testing.htm.

www.guru99.com. (n.d.). *What is Functional Testing? Types & Examples (Complete Tutorial)*. [online] Available at: https://www.guru99.com/functional-testing.html.

www.mordorintelligence.com. (n.d.). *Oman E-Commerce Market - Growth, Trends, and Forecasts (2021 - 2026)*. [online] Available at: https://www.mordorintelligence.com/industry-reports/oman-ecommerce-market .