Design and Development of a Secure Website for Asaba Real Estate Industry

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ABSTRACT

This research work borders on development of a secure functional website for Asaba real estate industry where potential buyers can visit and make their choice. Survey carried out using web research, study of documents and oral interview showed that all is not well with the way and manner real estate transaction is carried out in Asaba. The main objectives of this research work are to develop interactive website that can bring estate owners and customers together in real time without the stress of travelling to locate the property, thus saving time and cost and provide real time information on availability of property through proper advertisement. The methodology adopted for this research is Structural Systems Analysis and Design Methodology (SSADM). The system was also implemented using Object Oriented PHP and MYSQL. The new system developed brought effectiveness and efficiency to the process of selling, buying and renting houses in Asaba. This further increased transparency, accountability, customer satisfaction and effective data collection from Asaba real estate industry.

Keywords: Website, Real Estate, Transparency, Methodology and Encryption.

INTRODUCTION

Real estate, sometimes legally called real property, consists of the land, the improvements and fixtures attached to the land; and all rights incidental or belonging to the property [1]. [2], observed that as your real estate business grows, you may find yourself needing an extra hand to manage the laundry list of tasks associated with being a landlord. You could hire an on-site property manager for yourself or potentially have a tenant oversee the running of the property, but both can have complications. Hiring a third-party real estate management company can reduce your overhead and will typically be a stress-free approach to passive income from your investment, but it does come at a cost. In all sectors of the economy in the world, the zeal to improve on the efficiency and effectiveness of service delivery and customer satisfaction is eminent as this greatly contributes to the achievement of all business organization's goals and objectives. [3] observed the fact that today we are in a new world of globalization, where modern life is dominated by intellectual capital and technology. Therefore, a new method of information processing, storage and dissemination is required to meet the current needs of the present time. He contended that in our today's world, technology has given rise to cyber culture, which has influenced the way we do things [4]. The advent of modern communication technology has lessened barriers to human interaction and has widened the horizon for human progress. The ability of human as well as other animal species to control and adapt to their natural environments is the result of technology [4] defined website as a group of World Wide Web pages usually containing hyperlinks to each other and made available online by an individual, company, educational institution, government, or organization. [5] Contended that having a website has become crucial in this digital age. A business with no website loses multiple opportunities that could come online. Apart from these benefits, a website has many other advantages to offer your business in numerous other ways. For example, a website can provide a map or directions to their business locations or offices. If someone wants to know about a business at their convenient hour, a website can help them since it is accessible at any time. A well-designed and engaging website can strengthen the brand image. Therefore, to make your business successful, it is crucial to have a professional website. A website is a collection of web pages related to one another within the scope of the same domain, containing various information that users can access quickly and easily as long as they are connected to the internet [6]. A web page is a document, commonly written in Hypertext Mark-up Language (HTML) that is viewed in an Internet browser. When you enter a URL address into a web a browser's address bar, it takes you to a web page. A page consists of various components made up of images, text, sound, video, animation, and illustrations based on the purpose of the website. Currently, in Asaba real estate industry, individuals looking for houses

to rent or buy approaches real estate agents, register with them and they are only contacted when there is availability of the request. Such customers are contacted by the agents and they are taken to the location of the property either for rent/lease or outright purchase. If the customer is satisfied, payment is made and all the necessary documents are given to the customer. There is a great challenge with this arrangement because the customer must physically visit the property before making decision. This is really time wasting and demanding especially if the customer did not eventually like the property after the visit. In view of this, Information Technology (IT) provides great opportunity and useful tools in achieving the objective of an efficient real estate industry. [7], noted that real estate and property management in Nigeria is exposed to the challenge of manual means of client registration, absence of electronic virtual tour mechanism to view real estate property before bargain is initiated, and inadequate advertisement platform for clients. These constraints tend to interfere with the ideal professional management in the domain of real estate management. As economic conditions improve and the pace of development accelerates, forward-thinking real estate leaders must position their firms to seize new growth opportunities and maximize asset values [7]. With the Real Estate Management Program, you'll discover ways to lead your real estate organization through periods of market and industry change, examine land valuation and market demand, and manage projects across vendors, suppliers, and capital sources. The Real Estate Management Program brings industry leaders and real estate practitioners together to explore real-world scenarios, best managements, and effective management techniques for competing successfully in today's dynamic global markets [8]. Real Estate Management provides comprehensive tools for planning, tracking, and managing your real estate portfolio [9].

In this paper we shall demonstrate the simpler, easy and convenient way of checking online availability of property for rent/lease and sale from any location. It gives customer clear picture of available property, nature of the property, its condition and location. With the creation of Delta State and Asaba as a state capital; there has been continuous influx of people coming into Asaba and sometimes locating a property for rent/lease is always a great challenge because of poor information availability and location of agents and validity of some agents. Going online will enhance effectiveness and reliability of the real estate business in Asaba. Going online entails design and development of a secure website. A website is a collection of web pages related to one another within the scope of the same domain, containing various information that users can access quickly and easily as long as they are connected to the internet [6]. A web page is a document, commonly written in Hypertext Mark-up Language (HTML) that is viewed in an Internet browser. When you enter a URL address into a web a browser's address bar, it takes you to a web page. A page consists of various components made up of images, text, sound, video, animation, and illustrations based on the purpose of the website. There is no gainsaying the fact that the security of website is crucial to guarding your data as well as sensitive information to customers. [10], Highlighted the need for provision of security to websites and outlined seven ways to secure a website in 2023. Adequate security of website is essential in view of the present cyber security crisis in the cyberspace. This may involve the use of firewall, encryption and application of other cyber security measures such as penetration testing, intrusion detection and prevention etc observed that the firewalls are an essential component of the organizations' network [11-13]. They not only protect the organization against the virus and other malicious code but also prevent the hackers from using your network infrastructure to lunch DOS attacks.

Statement of the Problem

Since the creation of Delta-State and making Asaba its capital, there has been influx of people who are interested in one property or the other. In view of the above, real estate industries in Asaba experience onerous task of rendering services to their customers. Unfortunately, these services were rendered manually, which has resulted to the following problems:

 i.   Knowledge about availability of property is restricted.
 ii.   Spending time and money visiting location of the property.
 iii.   Lack of real time services to customers.
 iv.   Fee charged by the property agents

It is against this background that the researchers decided to apply Information Technology (IT) solution to the problems stated above.

Materials and Methods

The researchers made use of the internationally accepted software engineering model, which is Structured System Analysis and Design Methodology (SSADM). Structured System Analysis and Design Methodology (SSADM) is a set of standards for systems application design (. Systems analysis and design is a process used by many organizations (Companies) to evaluate business situations and develop ways to improve them through more optimal methods. A thorough investigation of the current system was made in order to obtain detailed fact about the application area to be re-designed. Investigation also covered looking at the functional requirement of the present system and finding out whether the requirements and objective of the present system are being achieved. In the investigation proper, several methods of data collection were employed which includes interviewing of office representatives, evaluation/inspection of forms and direct observation. These methods were adopted to ensure the validity of data collected and relevance of the result after data processing. The system was implemented by using Object-Oriented PHP and MySQL as the database for the proposed system. Data in the database were secured by encryption. The website was also secured by the use of firewall.

Analysis of the Proposed System

Systems design is simply concerned with how to provide an efficient (economical) and effective (relevant and useful) system. It is an integral part of software development which is embarked upon after a detail analysis of the system has been done, and the project feasibility study undertaken.

In the proposed system, there are three basic components:

    i. The user: who is the customer that is looking for property to lease/rent or buy.
    ii. The agent: who updates the sites with available properties for rent/lease or sale and lastly,
    iii. The property database which accommodates the data of the properties available and provides feedback to the agent about property that users (customers) have shown interest.

The interaction of these three components is depicted in figure 1
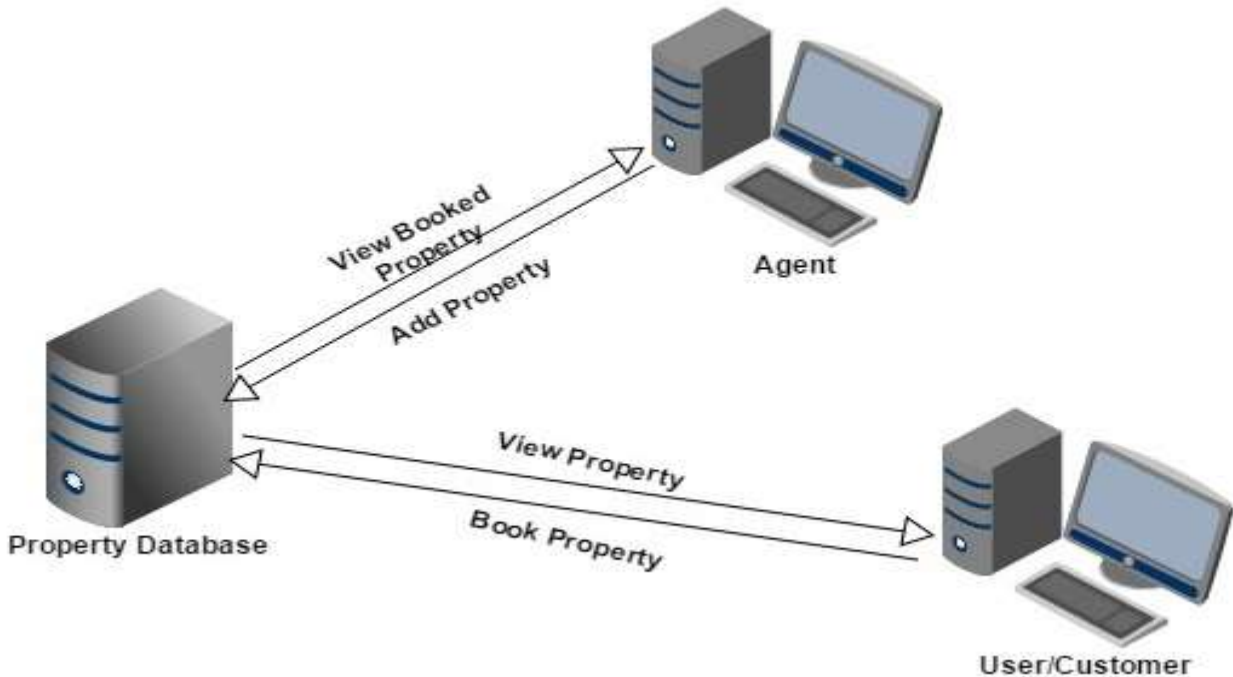
Fig 1: Architectural Design of the proposed system

Unified Modelling Language (UML) of the Proposed System

Class diagram are the commonly used diagrams in UML. They are used for specifying the structure (attributes and operations), interfaces and relationship between the classes that formed the foundations of the system architecture. Use case model is a view of a system that emphasizes on the behaviour as it appears to outside users.
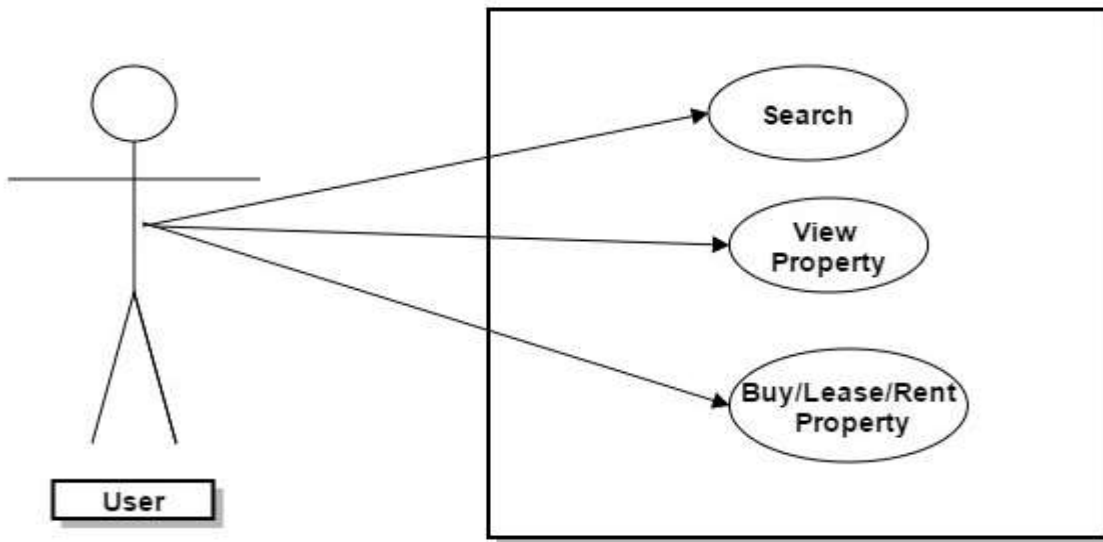
Fig 2: Use Case Diagram for Buyer in the proposed System.
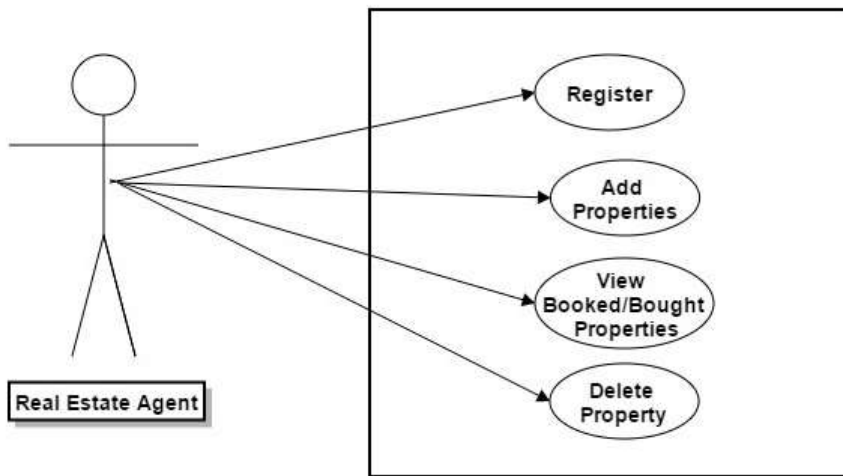Source: Researchers

Fig 3: Use Case Diagram for Real Estate Management Agent in the proposed system.

Input Design

This section demonstrates the various input designs of the proposed system. The input specification supplies data needed for the registration of property for sale/lease. It is the program that tells the computer how and what to do with the data. The basic input sections of the system are-

    a. **Main form section-** This form consists of menu which allow you to select any operation you want to perform.
    b. **Registration form-** This is a form that allows data entries to be entered into the program.
    c. **View form-** This form allows the user to view information that has been store in the program.

The flowchart below shows the interaction of a client with the proposed system
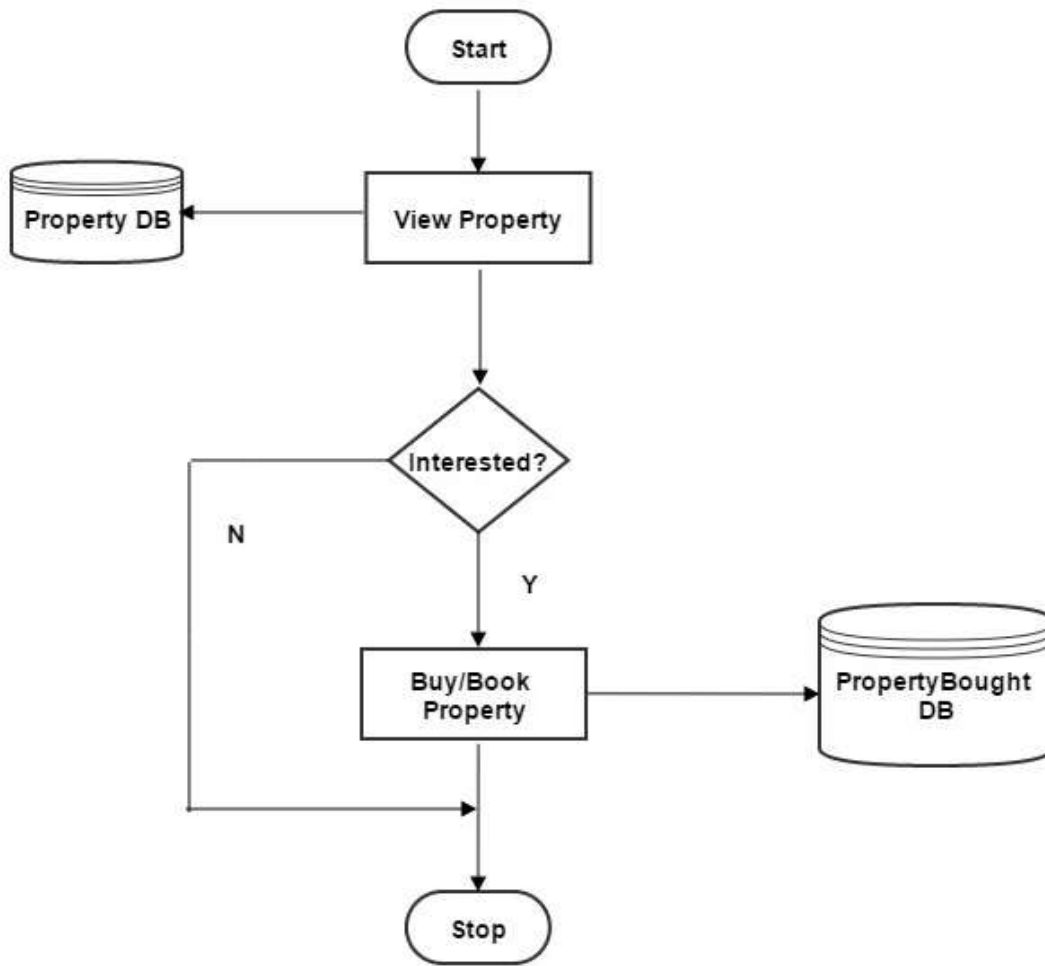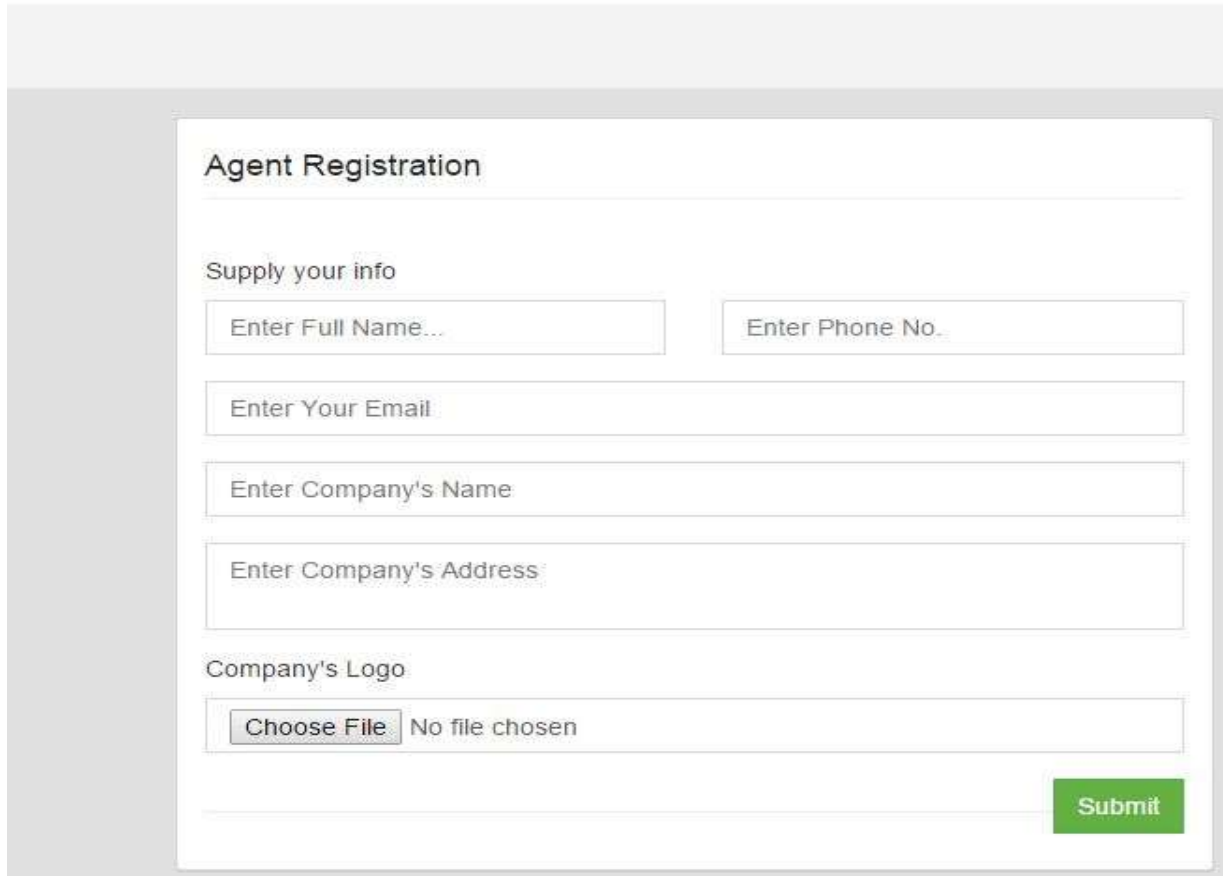
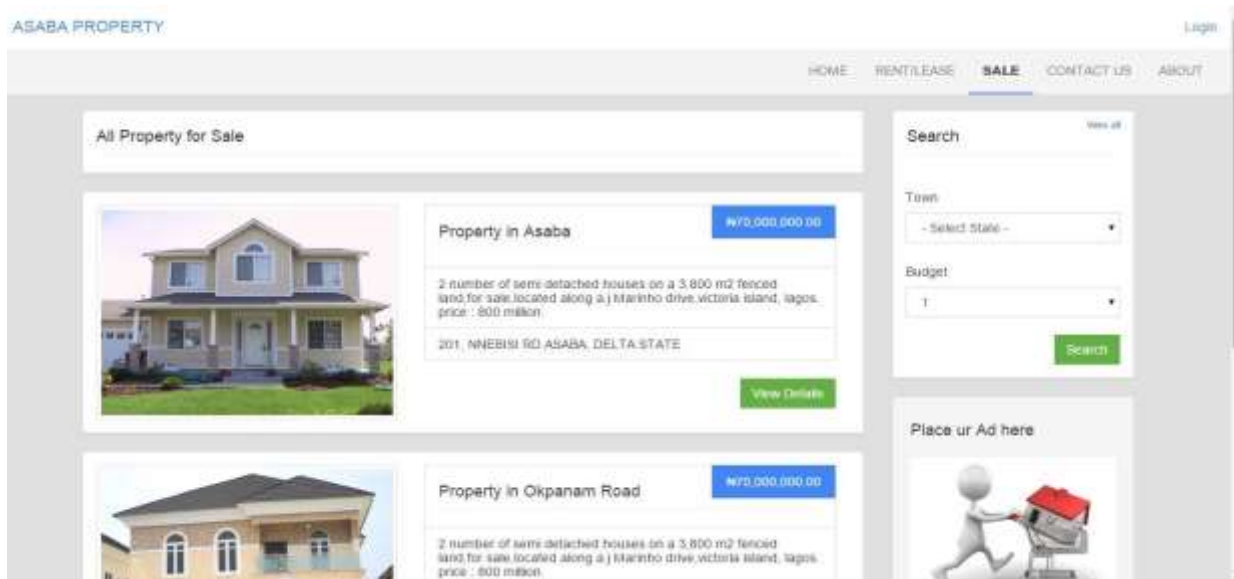**Fig 4:** System flowchart for the proposed system.

Agent Registration Interface

Fig 5: Agent registration

Fig 6: Properties for sale

TEST PLAN

Software testing is the process of evaluating a software item to detect differences between given input and expected output. Testing assesses the quality of the product. Software testing is a process that should be done during the development process. In other words, software testing is a verification and validation process.

Unit Testing

Unit testing is the testing of an individual unit (module) or group of related units. It falls under the class of white box testing. It is often done by the programmer to test that the unit he/she has implemented is producing expected output against given input. The test activities were carried out in stages. Each module was tested after and during design using Adobe Dreamweaver CS6 and WAMP server.

Interface Testing

Each of these modules was tested with some test data. After each debugging stage, the module was integrated into the main system.

System Testing

System testing is a type of test that is conducted on a complete interconnected module to evaluate the system's compliance with specified requirements. It is a form of testing that falls within the scope of black box testing and as such require no knowledge of inner design of the code or logic.

Summary of Achievements

Earlier we stated that in all sectors of the economy in the world, the zeal to improve the efficiency and effectiveness of service delivery and customer satisfaction is essential as this contributes to the achievement of every business organizations goals and objectives. It is against this background that the Design and Implementation of Website for Asaba real estate industry is desirable. The objectives stated earlier in this work have been achieved. We have therefore, successfully developed a website for Asaba real estate industry that achieved the following:

- Created a platform that provides information on availability of property thorugh proper advertisement.
- Created platform that provides real time information on property, thus saving cost and time of the customers.
- Provided a user-friendly medium for customers to make detailed enquiry about availability of property for rent/lease and sale.
- Increased sales of property because of easy access to information.
- Provided high customers satisfaction as they will be able to check properties online and indicate interest.
- Developed the software that enables the customer to navigate through the property virtually.

CONCLUSION

The major shortcomings of the current system is the delay in rendering of real time services . This has adversely affected the real estate transaction. The new system devloped has eliminated the barrier presented by the current system, such as difficulty in locating a property for rent/lease, agents commission and fraud.With the new system designed and implemented, one can now do real estate transaction right inside one's bedroom and office. With the new system in place, customers can now access real time and up to date information on existing properties.

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