Management Information System for Real Estate and Property Management

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Abstract

This project studied the effectiveness of the application of the Management Information System (MIS) to Real estate and property management in order to research and develop the real estate management information system and clients purchase properties. Management Information System (MIS) provides information for the managerial activities in an organization. The main purpose of this research was to ensure that the estates provide accurate and timely information necessary to facilitate the decision-making process and enable the organizations planning, control, and operational functions to be carried out effectively. The methodology applied in this project was the crystal methodology which gave room to team work of workers in the Estate. JavaDB was the database management system that was employed for the development of the proposed system. The project provided MIS framework administering and managing the estate properties, it makes it flexible. The features of the system includes property mapping data, file scanned images and other data on the same database platform, which is capable of conducting a number of housing management using the java programming language.

Keywords: *Computer, Data, Information, Computer-Based, System.*

1. INTRODUCTION

Management information systems (MIS) is the study of people, technology, organizations, and the relationships among them. MIS professionals help firms realize maximum benefit from investment in personnel, equipment, and business processes. MIS are people-oriented field with an emphasis on service through technology. Management information systems are typically computer systems used for data managing to make searching, analyzing data, and spring information easier. Management information systems are distinct from other information systems in that they are used to analyze and facilitate strategic and operational activities. Academically, the term is commonly used to refer to the study of how individuals, groups, and organizations evaluate, design, implement, manage, and utilize systems to generate information to improve efficiency and effectiveness of decision making, including systems termed decision support systems, expert systems, and executive information systems. Management Information Systems are typically organized around the functional areas of an organization. MIS have diverse applications such as financial MIS, Marketing, Manufacturing MIS, Human Resources, Service Sector, etc. This concept has also been applied to real estate and property management managements.

Coming by this viewpoint, many Estate and property Management companies in Nigeria have not fully utilized the full potentials of MIS. The growth and development of such companies have been dwindled because the non-application of MIS have made them to be in the dark. Many real estate companies are still using the manual filing system to hold all external and

internal correspondence relating to clients and staff. A number of files concerning different transactions and information are labeled and stored in cabinets at a branch. For security purposes, the cabinets have locks. Whenever reference is to be made in the files, one has to go through the filing system, starting from the first entry until he or she finds what they want. This system used to work well when the company's business transactions and the number of staff were still small. However, with the increase in the number of transactions, the filing system is breaking down since different transactions have to be cross-referenced and processed. Clients, staff and the manager of a branch nowadays want more and more information for decision-making. A need has also arisen to produce detailed monthly, quarterly and annual reports concerning the company's transactions, expenses and turnover. Due to the isolation of data in different files, it's difficult to access data that should be available for management to take decisions and to easily answer client's enquiries. Such data cannot be easily statistically analyzed to make inferences about the data items handled by a company for proper management.

Private Property will give your listing great exposure through virtual tours, quality images and a world-first listing ranking. You'll get email and SMS alerts sent to interested browsers to make sure no one misses your sweetheart deal and you will also be kept up to date with the number of views and leads your listing has generated, so your finger is always on the pulse.
But one thing is certain: as the citizens of Nigeria, we all desire to see our nation outgrowing these societal defects as soon as possible. Thus, in this project, a novel concept of Information management will be examined. Yet as remarked above, the mere advancement of brilliant reasons for implementing computerized real estate and property management is not still considered sacrosanct in the Nigeria real estate and property managers dream. Hence, this project is on a view to examining computerized real estate and property management. This is a step taken to make it crystal clear in order to employ management information system for real estate and property managers as against the foregoing background currently invoked in the nooks and crannies of the Nigerian societies. Thus, this research byte when fully completed will be a learning paradigm for any real estate and property manager, because it is set out to advance novel reconceptualization of real estate and property management sector.

Statement of the Problem

Real Estate management in Nigeria is majorly land holdings, diverse commercial buildings and residential housing. In real estate property management, the property manager has four areas of responsibility namely; Marketing and Financial, Tenancy and Occupancy, Facility, Administration and Risk.
Real Estate and property Management 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. This project work is designed to provide platform for addressing these short comings in the present management. The management information system development tool will be employed in developing a virtual real Estate platform for effective and efficient real estate management.

Specific Objectives of the Study

The aim of this study is to develop a management information system for real estate and property management. In order to achieve this aim, the following objectives were drawn.
➢ To investigate the principles and management of real estate and property

management.
➢ To investigate conventional methods in real estate and property management
➢ To design the computer-based model for real estate and property management.
➢ To simulate the computer-based model for real estate and property management.

2. LITERATURE REVIEW
2.1 Theoretical Framework
2.1.1 Information System

An information system (IS) is a system composed of people and computers that processes or interprets information. The term is also sometimes used in more restricted senses to refer to only the software used to run a computerized database or to refer to only a computer system (Artenstein, 2008). An information system is an academic study of the complementary networks of hardware and software that people and organizations use to collect, filters, and process, create and also distribute data. Any specific information system aims to support operations, management and decision making. An information system is the information and communication technology (ICT) that an organization uses, and also the way in which people interact with this technology in support of business processes (*Samuel, 2013)*. Some authors make a clear distinction between information systems, computer systems, and business processes. Information systems typically include an ICT component but are not purely concerned with ICT, focusing instead on the end use of information technology. Information systems are also different from business processes. Information systems help to control the performance of business processes.

2.1.2 Management Information

(Applebee, Langer, & Mullis, 2009) Put simply, MI is data or statistics which is collected and used to measure performance in given areas of a business - and drive change for improvement where needed.

▸ Useful information for management decisions
▸ Comprises processed data (information), necessary for making management decisions and generally gives output in the form of tables, matrix, reports, dashboards, graphs, trends, etc. for logical and analytical comparisons.
▸ Viz. Market trend reports, sales report, IT application usage reports, Management dashboards, business information reports, research reports, etc.

2.1.3 Management Information System

Management information systems (MIS) is the study of people, technology, organizations, and the relationships among them. This definition, given by Mays Business School, relates specifically to MIS as a course of study (Dakolo, 2009). In other words, MIS is commonly used in business schools to refer to the study of how individuals, groups, and organizations evaluate, design, implement, manage, and utilize systems to generate information to improve efficiency and effectiveness of decision making, including systems termed decision support systems, expert systems, and executive information (Gupta, 2007). Many business schools (or colleges of business administration within universities) have an MIS department, alongside departments of accounting, finance, management, marketing, and may award degrees (at undergraduate, master, and doctoral levels) in MIS.

2.1.4 Application of Management Information System

Management Information Systems are typically organized around the functional areas of an organization. Learn about some of the most common applications of Management Information Systems (Applebee, Langer, & Mullis, 2009). Many organizations are structured

based on functional areas. This is often reflected in an organizational chart. Typically, functional areas include finances, human resources, marketing, etc. Many of these functional areas have their own Management Information System, or MIS.

Financial MIS
A financial MIS provides financial information for managers to make daily decisions on operations within the organization. Most systems provide these functions:
- Integrate financial information from multiple sources
- Provide easy access to financial information in summarized form
- Enable financial analysis using easy-to-use tools
- Compare historic and current financial activity

A financial MIS often has a number of subsystems, depending on the type of organization. These include systems to analyze revenues, costs and profits, auditing systems for both internal and external purposes and systems to manage funds. A financial MIS can also be used to prepare reports for third parties, such as external auditors or shareholders (Dakolo, 2009).

Marketing MIS
A marketing MIS supports activities throughout the many activities of marketing departments. Some of the typical subsystems of a marketing MIS are marketing research, product development and delivery, promotion and advertising, product pricing and sales analysis (Oyinkari, 2006).

One of the most common uses of a marketing MIS is to produce sales reports. These are typically produced on a regular schedule, such as by week, month and quarter. Reports can be organized by sales representative, product, customer or geographic area. Such reports allow managers to see which aspects of sales are doing well and which ones need attention (Applebee, Langer, & Mullis, 2009).

Perhaps one sales representative has suddenly experienced a drop in sales by losing one major customer and needs some support to develop some new leads. If there are only a handful of sales reps sharing one office, a manager might be able to pick up on this just by talking to everyone. However, what if a manager has to oversee more than 100 sales reps in 12 different offices around the nation? A specialized information system that provides regular updates in a meaningful format will make it a lot easier for the manager to make effective decisions (Oyinkari, 2006).

Manufacturing MIS
Manufacturing is one of the areas where information systems have made a major impact. A typical manufacturing MIS is used to monitor the flow of materials and products throughout the organization. In a manufacturing process, raw materials or parts are transformed to finished products, and a manufacturing MIS is used at every stage. Some of the common subsystems in a manufacturing MIS include: design and engineering, production scheduling, inventory control, process control and quality control (Oluwafemi, 2008; Akinyele, 1995). Consider the example of building an airplane. How many different parts do you think there are in an airplane? One of those commercial jets used by the major airlines easily has over 100,000 parts. Many of those parts come from suppliers and have to be ordered. Others are made at the manufacturing plant itself. Now think of the process that is needed to get all those parts at the right place at the right time. And all those parts have to be carefully inspected before they can be used in building the plane (Oyinkari, 2006).

2.1.5 Real Estate

Real estate is "property consisting of land and the buildings on it, along with its natural resources such as crops, minerals, or water; immovable property of this nature; an interest vested in this (also) an item of real property; (more generally) buildings or housing in general (Dakolo, 2009). Also: the business of real estate; the profession of buying, selling, or renting land, buildings or housing." However, the legal arrangement for the right to occupy a dwelling in some countries is known as the housing tenure. Types of housing tenure include owner occupancy, tenancy, housing cooperative, condominiums (individually parceled properties in a single building), public housing, squatting, and cohousing. The occupants of a residence constitute a household. Residences can be classified by, if, and how they are connected to neighboring residences and land. Different types of housing tenure can be used for the same physical type. For example, connected residents might be owned by a single entity and leased out, or owned separately with an agreement covering the relationship between units and common areas and concerns.

2.1.6 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 Amandeep et al (2011). 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. Retrieved from http://www.exed.hbs.edu/programs/rem/pages/default.aspx

2.1.7 Real Estate and Property Company

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 (*Samuel, 2013*).. Real Estate Management provides comprehensive tools for planning, tracking, and managing your real estate portfolio (Oluwafemi, 2008; Akinyele, 2005). Make strategic decisions effectively and accurately for leased and owned properties. Rules and compliance requirements are kept up to date for easy lease management Peremobowei (2011). Real Estate and Property Limited is an independent real estate company based in Nigeria focusing on property development, management, marketing and sale of real estate products and services with special skills in facility maintenance. It is synonymous with developing innovative and unparalleled luxury apartments, residences, homes and commercial outlets to serve our growing high-end clientele (Oyinkari, 2006). Real estate and property limited has established itself as Nigeria's leading Facilities Management Company i.e. managing properties occupied by some of the most discerning clients in Nigeria is evidence of our superior facilities management services. Real Estate and property Management is involved in:

- Comprehensive management and tracking of leased and owned properties across an entire real estate portfolio
- Support for landlord and tenant lease types to allow tracking of expenses and income separately
- Automated tracking of costs and expenses by department, space, or payees
- Create and track lease payments automatically and roll up information to each facility's cost worksheet or across your real estate portfolio
- Manage critical dates and allow Unifier to notify you of upcoming lease dates that require your attention
- Utilize flexible workflows to route, review, and approve common real estate

transactions such as site selection and acquisition, dispositions, new lease initiation, subleasing,

2.1.8 Importance of Developing MIS for Real Estate Property Management

Amandeep et al (2011) reviewed that MIS in the present context of high availability of voluminous data on electronic media at diverse locations and on diverse platforms, has become more pertinent to real estate and property management decision-making process, thanks to the availability of new tools of technology such as data warehousing, data mining (Thompson, 2009).

- Effectively manage the corporate real estate environment and control lease charges with a comprehensive view of lease administration and space management information.
- Optimize space utilization with streamlined space assigning, occupancy and vacancy tracking, and monitoring capabilities for each defined space utilize a unique, real-time graphical representation of space attributes, utilization, and occupancy for enhanced management capability.
- Ensure accounting and FAS 13/IAS 17compliance with a system-wide audit trail that tracks payments from the lease to the vouchering and check cutting and from billings to invoice and payment (Barnett, Ziegler & Byleen, 2000).

2.1.9 Application Programs for Real Estate and Property

Property Matrix Property Matrix is a web-based system that is best suited for apartment complexes and multi-family unit properties. Besides basic property management features, the system has robust maintenance and accounting packages (Gupta, 2006).

TOPS Software TOPS software has been a well-known property management solution for more than 25 years. It's a Web-based system specializing in HOA and condo management, and offers accounting and portfolio management (Gupta, 2006).

Condo Manager Available in a software-as-a-service module, Condo Manager delivers a full suite of accounting, management and database features with data import and backup.

Budgetary Real Estate Development and Property Management Accounting Established in 1989, Budgetary is an on-premise or web-based Property Management solution for small to mid-size developers, fee managers, and property owners. It offers robust standal one Property accounting functionality (Gupta, 2006).

MRI Commercial Management Offering automated calculations and billing, MRI Commercial Management removes human errors from recovery calculations and square footage adjustments. This solution offers depth of functionality while being heavily customizable (Barnett, Ziegler & Byleen, 2000).

2.2 Related Literature
2.2.1 Real Estate Construction Projects

Thompson (2012) investigated real estate construction projects. The methodology utilized in the study was a survey approach. The journal reviewed an excellent working knowledge of the commercial property market, including its relevance to national and international financial and investment markets. Based on the analysis, the principles of implementing real estate projects were discussed. Providing real estate development and construction companies with information management supporting tools.

The result was found that Real Estate investment and construction projects have the characteristics of large-scale, long life cycle, technical complexity, multi-units involvement, difficult to organize and implement, and the projects are usually located in wide range.

A deep look and mirroring of the journal in my heart, I discovered that the author failed to

come up with the idea of developing an efficient and effective information management that will be used to teach people how to construct real estate construction project. The reason why it is that, it's necessary to construct the corresponding project management information system to manage the real estate project timely and accurately, to provide managers sufficient information and decision supports.

2.2.2   Read Estate and Property Management Software

Alexander (2013) investigated on real estate and property management software. The methodology invoked was agile methodology where every laid down phase in the agile methodology was strictly followed in such a way that appropriate and found useful for the study. The study adopted the descriptive method of percentages, mean and proportion method for analysis.

The study found that in rank order, the skill requirements for CREM were financial performance skill, investment in corporate strategy, productivity skill, space efficiency management skill and customers and employee's management skill. The mean figures for the five factors are 5.0, 4.8, 4.8, 4.73 and 4.67 respectively. The results of the analysis also showed further that the portfolio efficiency skill had a mean value of 3.58 and was rated by the respondents as the least skill required for corporate real estate management. The study has major implications on real estate education and management in Nigeria. There is an urgent need to overhead the University/Polytechnic curriculum to incorporate business and accounting knowledge to prepare real estate graduates for efficient management and the continuous re-training of practitioners to prevent future declining real estate profession.

The author failed to discuss the process of carrying out corporate real estate management in Nigeria. This point is important because an effective work is said to be done if it can be achieved and be made useable by the designed persons that it was designed for. It was very necessary for the author to have included the process of carrying out the task because people will not only be aware of the necessary skill requirements, but also be conversant with the process of achieving the entire task.

3.   METHODOLOGY

The methodology explored in this study was the rapid application development approach. This method synchronized all the units of the system designs so that they can play the roles and fulfill the demands of the system. No unit is overlapped neither was any unit under managed.

🞣 Input Analysis of the Proposed System

The input analysis of this software includes;

- **Customer Registration Page:** To avail the full potentials of the software. Any user can register with the real estate company's software through the registration page. The Administrator is provided with username and password in order to be able to manage the information in the database. He also has the right to add or modify the given username and password of the clients. This is done to ensure adequate security of the website.

- **Login Page:** login Page is going to be implemented in such a way that it will have user name and password where the form-based authentication and role based authorization was utilized to ensure maximum level of security. This is such that if and only if the correct username and corresponding password combination are provided, that is when it can grant the user access to the integral part of the web application.
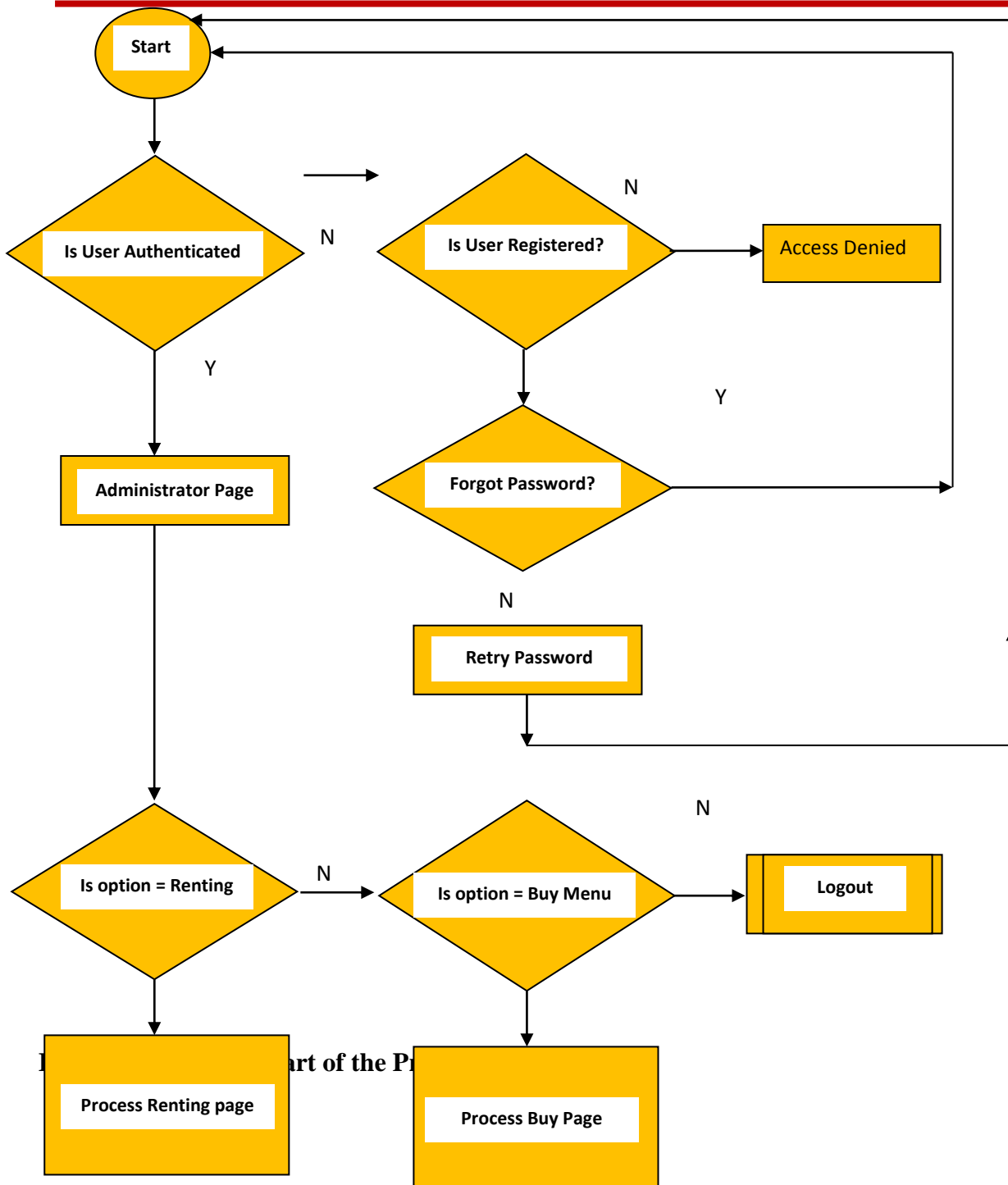
🞢 **Process Analysis of the Proposed System**

Once the inputs are collected, the obtained data are processed properly for effective use. The data/information processed is stored in the computer for subsequent use. The process analysis of this software includes;

- **Buying Page:** The Buying Page keeps complete information about customers that intend to buy a real estate property. Before any buy can take place the customer has to be first of all authenticated correctly before he or she can be able to click on Buy on the Navigation Menu. The details captured in this page includes; Name of Customer, property type, locality, Address, Bedrooms, city, state, Budget Maximum, Date, and other constraints that enable saving and clearing of the buying page.

- **Renting Page:** The Renting Page keeps complete information about customers that intend to rent a real estate property. Before any renting can take place the customer has to be first of all authenticated correctly before he or she can be able to click on Rent on the Navigation Menu. The details captured in this page includes; Name of Customer, property type, city, locality, Address, Bedrooms, rent status, Date, and other constraints that enable saving and clearing of the renting page.

- **Logout:** This module allows the user to Logout the application. Further operations cannot be performed after user exits. Once the user logs out he or she cannot be able to access the integral part of the website because the session has expired.

- **Forgot Password**: if a user forgets his/her password, he/she is required to enter his/her username and clicks on the submit button.

- **Home Page:** The home page module is the nucleus of the entire software for a user of the Website. All other web pages such as Login, Sign Up, News Page, About Us are all linked to it.

- **Administrator's Home Page:** Only admin can use this module for performing any type of operations or using other modules. He is provided with security login details. Here, all the pages and other miscellaneous actions are being kept for easy navigation. This is the main module for adding, deleting, updating of records found in the database.

🞢 **Output Analysis of the Proposed System**

- **View Customer Info Page:** The view customer info Page display information about customers who have registered. Only an administrator that has the correct login credentials will be able to view the details of the registered customers in the system.

- **View Buying Page:** The view Buying Page keeps track of the information about the real estates or property purchased by the customers, a full description consisting of all the features of the property in question. The only person authorized to view this page is the Administrator.

- **View Renting Page:** The view Renting Page comprises of complete information about customers that rented a real estate property. The duration of the rent is also stated on this page. The only person authorized to view this page is the Administrator.

- **View Seller Page:** The view seller page keeps a comprehensive account of the customers that have patronized the company, the amount of properties sold, the dates in which those properties where sold and their location including all the necessary information that needs to be documented as regards the selling of the real estate and property. The administrator is the only authorized person to view this page.

```
                                    Start
                                      │
                                      ▼
   ┌────────────────┐        ┌──────────────────┐            ┌──────────────┐
   │ Is User         │   N    │ Is User           │    N       │ Access       │
   │ Authenticated   │───────▶│ Registered?       │──────────▶ │ Denied       │
   └────────────────┘        └──────────────────┘            └──────────────┘
          │ Y                        │
          ▼                          ▼
   ┌────────────────┐        ┌──────────────────┐
   │ Administrator   │        │ Forgot Password?  │──── Y
   │ Page            │        └──────────────────┘
   └────────────────┘                │ N
          │                          ▼
          │                  ┌──────────────────┐
          │                  │ Retry Password    │
          │                  └──────────────────┘
          ▼
   ┌────────────────┐   N    ┌──────────────────┐    N       ┌──────────────┐
   │ Is option =     │───────▶│ Is option =       │──────────▶ │ Logout       │
   │ Renting         │        │ Buy Menu          │            └──────────────┘
   └────────────────┘        └──────────────────┘
          │                          │
          ▼                          ▼
   ┌────────────────┐        ┌──────────────────┐
   │ Process Renting │        │ Process Buy Page  │
   │ page            │        └──────────────────┘
   └────────────────┘
```

Flow Chart of the Pr...

MIS for Real Estate Property Practice
We are proud to be your partners

| Home | Registe | Login | About | Properrie | Real Estates | |

CAROUSEL IMAGES

| Welcome Address | Mission |

Foot Note Message

Fig. 2: Architecture of the proposed system

INPUT DESIGN: The input design consists of forms where users of the system enter data into required fields. The data is processed and the results are displayed to the user telling him/her of the next action to take.

CUSTOMER LOGIN PAGE

Username:

Password:

LOGIN   **Forgot Password?**

Fig. 3: Login Form

ACCOUNT CREATING FORM

Username:

Password

Conf. Password

First name:

Last name:

Gender

Postal Code

Address

City

State

Phone No.

Date

Photo

REGISTER

Fig.4: Customer Registration Form

Fig .5: Change Password Form

Output Design: The output design consists of forms where users of the system enter data into required fields. The data is processed and the results are displayed to the user telling him/her of the next action to take.

The use case diagram consists of the roles of the users in the proposed system. Hence, in this proposed system there are two use-case diagrams that will clearly describe their functionalities.

Fig. 6: Admin Use case

REAL ESTATE MANAGEMENT SYSTEM

- Search Property
- Booking Property
- Cancellation Property
- Manage/List Property
- Post Requirement
- Enquiry Property
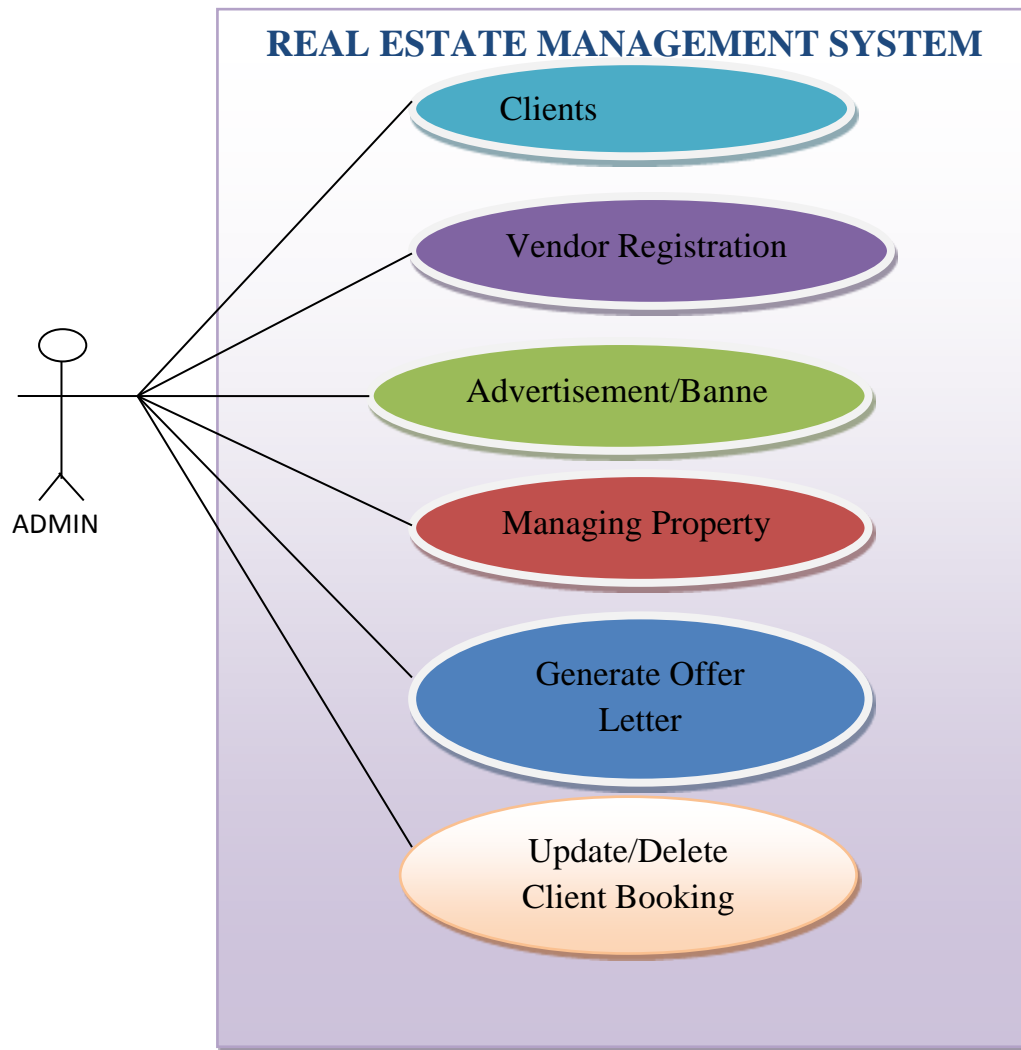
ADMIN
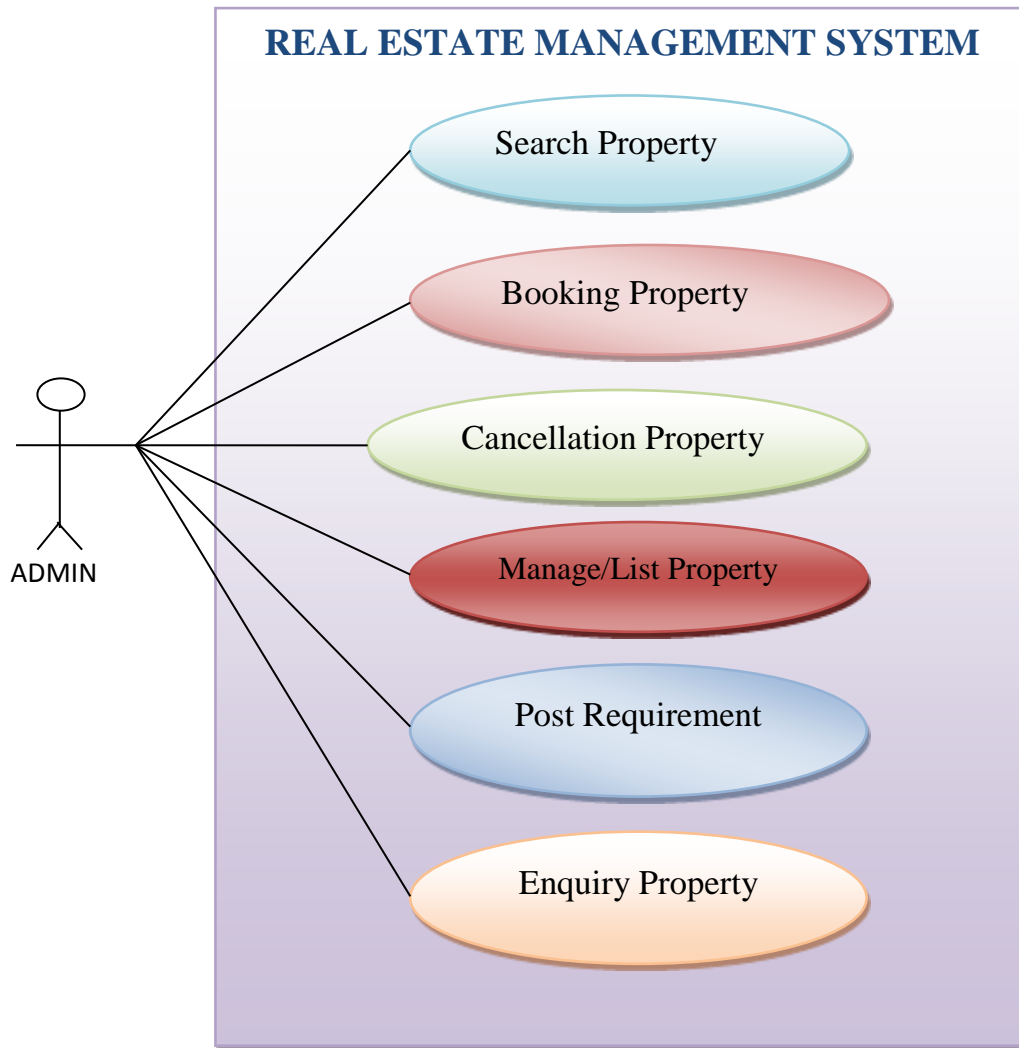
Fig. 7: User Use-Case

Entity Relationship Diagram of a Proposed System

An entity-relationship diagram (ERD) is a graphical representation of an information system that shows the relationship between people, objects, places, concepts or events within that system. An ERD is a data modeling technique that can help define business processes and can be used as the foundation for a relational database. The software has different departments and how they relate to each other. The Administrator is in charge of creating and managing sales in the estate. He also manages the properties that customers rent and buy in the estate. When the sales and rent have been made, the information is entered into the database and the administrator takes charge in managing that database.
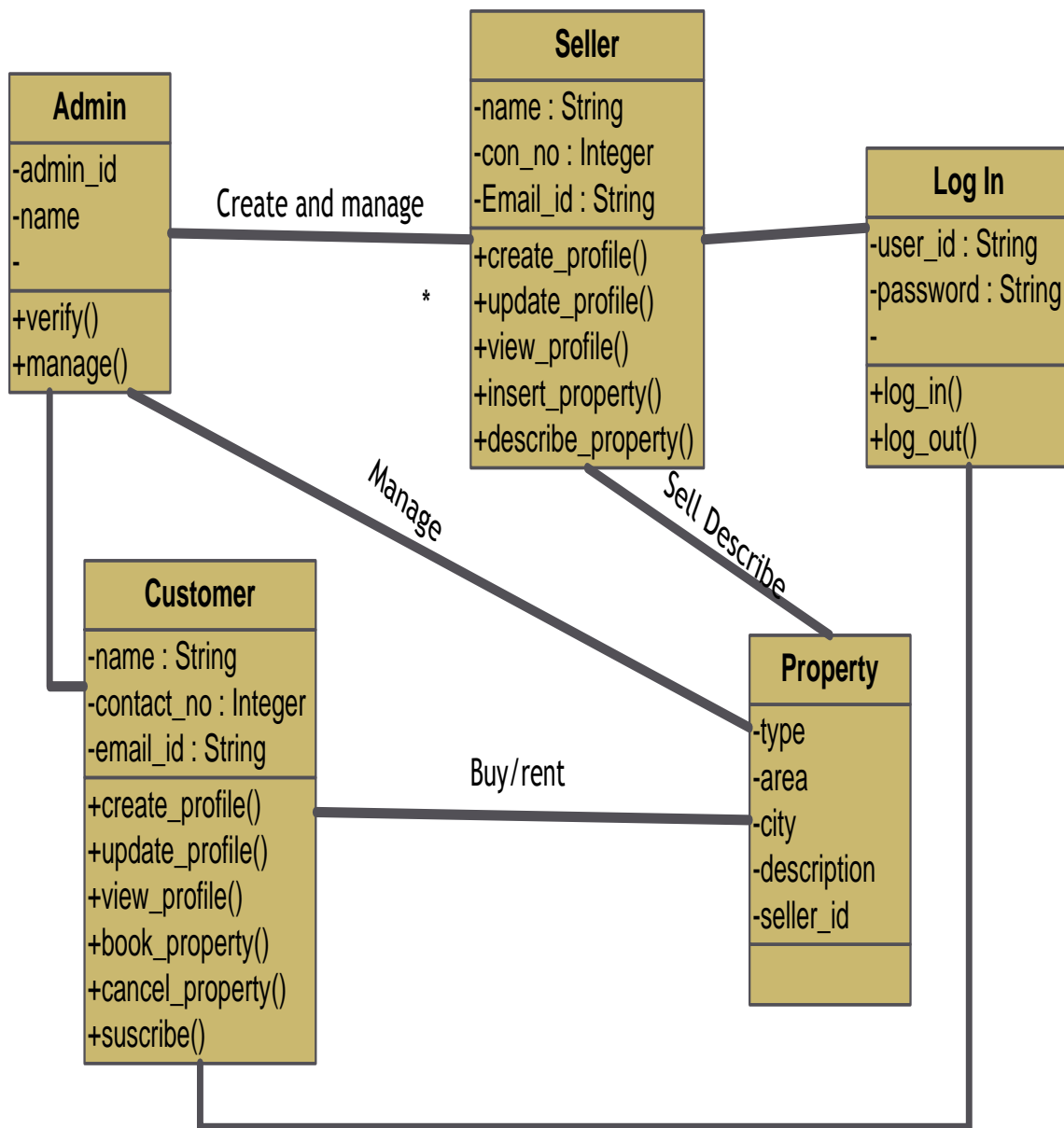
Fig. 8: Entity Relationship Diagram

♣ Database Design of the Proposed System

The logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. The Java DB database is Sun's supported distribution of Apache Derby. Java DB is a fully transactional, secure, standards-based database server, written entirely in Java, and fully supports SQL, JDBC API, and Java EE technology. The Java DB database is packaged with the Glass Fish application server, and is included in JDK 6 as well.

4. DISCUSSION OF RESULTS

✦ User Authentication module

The software uses form based authentication with role based authorization. This module has two basic access levels for users such as administrator and normal users of the system. Both users can login and logout. After signing out session has expired for active user.

✦ Registration Module

This module takes record of customer information. It also takes care of buyers' information. User provides the details needed for the registration pages. Admin can view details of registered customer. Admin can delete record of registered members.

✦ Sales Module

This module takes care of any income that will come to the real estate company. It consists of sales made on real estate and renting of real estate property.

5. SUMMARY AND CONCLUSION

✦ Summary

The system was developed to meet the needs of the Real estate and property management. All the manual difficulties in managing information of real estate and property companies have been attended to in the designs of the study. The designs of the study included the Login page which gave users and the administrator's access into the software in order to begin a transaction and to manage the software respectively. Another key design that was introduced to this project work was the registration page, this page contains fields used to accept customer's personal details for record keeping and they are stored in the database management system of the company. The Estate page is a unique design that was implemented to provide a platform where buying and renting of properties can be done with just a single click. The price of each estate is included there and the mode of payment also.

✦ Conclusion

The Management information system software of this study shall prove to be a powerful package in satisfying all the requirements needed by the company in carrying out their activities. Therefore, the system is ready to be used for effective and efficient functioning of real estate and property management only. The outlined objectives were particularly achieved; the solution statement has led to the clear and unambiguous completion of this software project. The speedy rate and flexible way estate investor acquire real estate and a property in the new system when compared to the regular system is far more functional and effective than the existing system. Thus, the proposed system should be preferred.

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Appendix A
SOURCE CODES

```
<!DOCTYPE html>
<html>
  <head>
     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
     <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link href="Content/StyleSheet1.css" rel="stylesheet" type="text/css"/>
    <link rel="shortcut icon" type="image/ico" href="../Images/icon.ico"/>
    <script src="jquery-ui-1.11.1/jquery-ui.min.js" type="text/javascript"></script>
    <link href="jquery-ui-1.11.1/jquery-ui.theme.css" rel="stylesheet" type="text/css"/>
    <link href="jquery-ui-1.11.1/jquery-ui.css" rel="stylesheet" type="text/css"/>


     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
     <title>Change Password</title>


  </head>
  <body>




<<!DOCTYPE html>
<html lang="en">
<head>

  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
     <meta name="viewport" content="width=device-width, initial-scale=1.0">
     <link rel="shortcut icon" type="image/ico" href="Images/icon.ico"/>
     <link href="Content/StyleSheet1.css" rel="stylesheet" type="text/css"/>
     <link rel="stylesheet" href="//maxcdn.bootstrapcdn.com/font-awesome/4.3.0/css/font-
awesome.min.css"/>
     <script src="jquery-ui-1.11.1/jquery-ui.js" type="text/javascript"></script>
     <link href="jquery-ui-1.11.1/jquery-ui.min.css" rel="stylesheet" type="text/css"/>
</head>
<body>

<nav class="navbar navbar-default navbar-fixed-top" role="navigation">
        <div class="container">
           <div class="navbar-header">
              <button type="button" class="navbar-toggle" data-toggle="collapse" data-
target=".upper-navbar">
                 <span class="sr-only">Toggle navigation</span>
                 <span class="icon-bar"></span>
                 <span class="icon-bar"></span>
                 <span class="icon-bar"></span>
              </button>

              <a class="navbar-brand" href="http://localhost:8080/test/" title="My Project"
```

rel="home">My Project


```
<form    class="navbar-form    pull-left"    role="search"    method="post"
id="searchform" action="newjsp.jsp">
    <div class="input-group">
      <div class="input-group-btn">
        <button type="button" id="searchcategory" value="BLOG" class="btn
btn-default dropdown-toggle" data-toggle="dropdown" aria-expanded="false">BLOG <span
class="caret"></span></button>

        <ul id="searchdropdown" class="dropdown-menu" role="menu">
          <li><a href="javascript:void(0)">BLOG</a></li>
          <li><a href="javascript:void(0)">FORUM</a></li>
          <li><a href="javascript:void(0)">DOCS</a></li>
          <li class="divider"></li>
          <li><a href="javascript:void(0)">ANY</a></li>
        </ul>
      </div>
      <input          type="text"          class="form-control"          value=""
placeholder="Search..." name="s" id="s">
      <div class="input-group-btn">
        <button type="submit" id="searchsubmit"  value="Search" class="btn
btn-success"><span class="glyphicon glyphicon-search"></span></button>
      </div>
    </div>
  </form>
</div><!-- /.navbar-header -->
<div class="collapse navbar-collapse upper-navbar">

  <ul class="nav navbar-nav navbar-right">
    <li><a    href="#"  data-toggle="modal"  data-target="#myModal"><span
class="glyphicon  glyphicon-user"></span> Welcome!</a></li>
    <li><a    href="#"  data-toggle="modal"  data-target="#myModal"><span
class="glyphicon glyphicon-log-in"></span> Logout</a></li>
  </ul>
  <ul id="menu-topmenu" class="nav navbar-nav navbar-left">
    <li id="menu-item-1"><a href="#one">Home</a></li>
    <li    id="menu-item-2"><a    href="ChangePassword.jsp">Change
Password</a></li>
    <li id="menu-item-3"><a href="SearchList.jsp">Rent</a></li>
    <li id="menu-item-3"><a href="SearchList.jsp">Real Estate</a></li>
    <li id="menu-item-3"><a href="#three">About</a></li>
  </ul>
</div><!-- /.navbar-collapse -->
      </div>
    </nav>


</body>
</html>
```

```
<br><br><br>
<br>
<form role="form" action="ChangePassword.jsp" class="container">
    <div class="row">
        <div class="col-md-4"></div>
        <div class="col-md-4">
    <div class="form-group">
        <table       width="200"><marquee       speed="2"       behavior="alternate"
onmouseover="stop();" onmouseout="start();">
                <b>Change Password Form</b></marquee></table>

    </div>
        <div class="form-group">
            <label for="uname">Email address or Username</label>
            <input type="email" class="form-control" id="email">
        </div>
        <div class="form-group">
            <label for="pwd">Current Password:</label>
            <input type="password" class="form-control" name="oldpwd">
        </div>
        <div class="form-group">
            <label for="pwd"> New Password:</label>
            <input type="password" class="form-control" name="pwd">
        </div>
        <div class="form-group">
            <label for="pwd">Confirm New Password:</label>
            <input type="con_password" class="form-control" name="conpwd">
        </div>

        <button type="submit" class="btn btn-default">Change</button>
    </div>
        <div class="col-md-4"></div>
        </div>

    </form>
    <br><br>
    <br/><br/>




    <footer class=" row"  style= "background-color:rgb(4,71,137);">
    <div class="col-md-1"></div>
            <div class="col-md-1"></div>
                <div   class="col-md-3" style="text-align: justify; margin-top: 1%;">
                    <p style="text-align:justify; font-family: Andalus Geneva; font-size: 30px;
color: orange; margin-top: 3% 0%">Follow Us On</p>
                    <button   style="width:71%"    type="button"   class="btn  btn-primary  btn-
sm"><i           class="fa           fa-facebook                           fa-
xs"></i>          &n
```

bsp; Facebook   205,284</button>
   <button style="width:71%" type="button" class="btn btn-success btn-sm "><i class="fa fa-twitter fa-xs"></i>   Twitter   25,284</button>
   <button style="width:71%" type="button" class="btn btn-warning btn-sm"><i class="fa fa-linkedin fa-xs "></i>   LinkedIn   402</button>
   <button style="width:71%" type="button" class="btn btn-danger btn-sm"><i class="fa fa-google-plus fa-xs "></i>   google+   742</button>
</div>

<div class="col-md-2">
<div class="row-fluid" style="text-align: justify; margin: 0px 10% auto" >
<h3 style="color: orange; font-family: Andalus Geneva; font-size: 30px;">Services</h3>
<li style="color: white; list-style-type: square ">Web Hosting
<li style="color: white; list-style-type: square ">Web Designing
<li style="color: white; list-style-type: square ">Corporate Training
</div>

</div>

<div class="col-md-2" style="text-align: center">
<div class="row-fluid" style="text-align: justify; margin: 0px 10% auto" >
<h3 style="color: orange; font-family: Andalus Geneva; font-size: 30px;">About</h3>
<li style="color: white; list-style-type: square ">Contact Us
<li style="color: white; list-style-type: square ">About Us
<li style="color: white; list-style-type: square ">Job Recruitment
<li style="color: white; list-style-type: square ">Our Vision
<li style="color: white; list-style-type: square ">Our Mission

</div>
</div>
<div class="col-md-2">

</div>

</footer>

```
      </body>
</html>


   </body>
</html>




<!DOCTYPE html>
<html>
   <head>
       <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
       <meta name="viewport" content="width=device-width, initial-scale=1.0">
       <link href="../Content/StyleSheet1.css" rel="stylesheet" type="text/css"/>
     <link rel="shortcut icon" type="image/ico" href="../Images/icon.ico"/>
       <link  rel="stylesheet"  href="//maxcdn.bootstrapcdn.com/font-awesome/4.3.0/css/font-
awesome.min.css"/>
       <title>Login Home</title>
   </head>
   <body>




<<!DOCTYPE html>
<html lang="en">
<head>

  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
     <meta name="viewport" content="width=device-width, initial-scale=1.0">
     <link rel="shortcut icon" type="image/ico" href="../Images/icon.ico"/>
     <link href="../Content/StyleSheet1.css" rel="stylesheet" type="text/css"/>
      <link  rel="stylesheet"  href="//maxcdn.bootstrapcdn.com/font-awesome/4.3.0/css/font-
awesome.min.css"/>
       <script src="../jquery-ui-1.11.1/jquery-ui.js" type="text/javascript"></script>
       <link href="../jquery-ui-1.11.1/jquery-ui.min.css" rel="stylesheet" type="text/css"/>
</head>
<body>

<nav class="navbar navbar-default navbar-fixed-top" role="navigation">
        <div class="container">
           <div class="navbar-header">
              <button type="button" class="navbar-toggle" data-toggle="collapse" data-
target=".upper-navbar">
                   <span class="sr-only">Toggle navigation</span>
                   <span class="icon-bar"></span>
                   <span class="icon-bar"></span>
                   <span class="icon-bar"></span>
                </button>
```

```
                    <a class="navbar-brand" href="http://localhost:8080/test/" title="My Project"
rel="home">My Project</a>

                    <form      class="navbar-form     pull-left"    role="search"     method="post"
id="searchform" action="newjsp.jsp">
                        <div class="input-group">
                          <div class="input-group-btn">
                            <button type="button" id="searchcategory" value="BLOG" class="btn
btn-default dropdown-toggle" data-toggle="dropdown" aria-expanded="false">BLOG <span
class="caret"></span></button>

                            <ul id="searchdropdown" class="dropdown-menu" role="menu">
                              <li><a href="javascript:void(0)">BLOG</a></li>
                              <li><a href="javascript:void(0)">FORUM</a></li>
                              <li><a href="javascript:void(0)">DOCS</a></li>
                              <li class="divider"></li>
                              <li><a href="javascript:void(0)">ANY</a></li>
                            </ul>
                          </div>
                          <input         type="text"        class="form-control"         value=""
placeholder="Search..." name="s" id="s">
                          <div class="input-group-btn">
                            <button type="submit" id="searchsubmit"  value="Search" class="btn
btn-success"><span class="glyphicon glyphicon-search"></span></button>
                          </div>
                        </div>
                    </form>
                </div><!-- /.navbar-header -->
                <div class="collapse navbar-collapse upper-navbar">

                    <ul class="nav navbar-nav navbar-right">
                      <li><a     href="#"   data-toggle="modal"   data-target="#myModal"><span
class="glyphicon  glyphicon-user"></span> Welcome!</a></li>
                      <li><a     href="#"   data-toggle="modal"   data-target="#myModal"><span
class="glyphicon glyphicon-log-in"></span> Logout</a></li>
                    </ul>
                    <ul id="menu-topmenu" class="nav navbar-nav navbar-left">
                      <li id="menu-item-1"><a href="../index.html">Home</a></li>
                      <li      id="menu-item-2"><a      href="../ChangePassword.jsp">Change
Password</a></li>
                      <li id="menu-item-3"><a href="../SearchList.jsp">Rent</a></li>
                      <li id="menu-item-3"><a href="../SearchList.jsp">Real Estate</a></li>
                      <li id="menu-item-3"><a href="about.html">About</a></li>
                    </ul>
                </div><!-- /.navbar-collapse -->
              </div>
          </nav>

</body>
</html>
```

```
<div class="container"  style="margin-top: 35px;">
  <div class="row">
    <div class="col-md-4">


        <div class="row">
          <div class="panel panel-danger">
          <!-- Default panel contents -->
          <div class="panel-heading">News</div>
          <div class="panel-body">
          <div id="accordion" class="panel-group">

            <div class="panel panel-default">

              <div class="panel-heading">

                <h4 class="panel-title">

                  <a         data-toggle="collapse"        data-parent="#accordion"
href="#collapseOne" style="color: red">Life in the Estate</a>

                </h4>

              </div>

              <div id="collapseOne" class="panel-collapse collapse">

                <div class="panel-body">

                  <p>HTML stands for HyperText Markup Language. HTML is the
main    markup    language    for    describing    the    structure    of    Web    pages.    <a
href="http://www.tutorialrepublic.com/html-tutorial/" target="_blank">Learn more.</a></p>

                </div>

              </div>

            </div>

            <div class="panel panel-default">

              <div class="panel-heading">

                <h4 class="panel-title">

                  <a         data-toggle="collapse"        data-parent="#accordion"
href="#collapseTwo"        style="color:        red"><marquee        behacior="alternate"
```

onmouseover="stop();" onmouseout="start();" scrollamount="1" direction="right">Available Properties in the Real Estate</marquee>

</h4>

</div>

<div id="collapseTwo" class="panel-collapse collapse in">

<div class="panel-body">

<p>Bootstrap is a powerful front-end framework for faster and easier web development. It is a collection of CSS and HTML conventions. Plots of Land Available</p>

</div>

</div>

</div>

<div class="panel panel-default">

<div class="panel-heading">

<h4 class="panel-title">

<a data-toggle="collapse" data-parent="#accordion" href="#collapseThree" style="color: red"><marquee behacior="alternate" onmouseover="stop();" onmouseout="start();" scrollamount="1">Latest News</marquee>

</h4>

</div>

<div id="collapseThree" class="panel-collapse collapse">

<div class="panel-body">

<p>CSS stands for Cascading Style Sheet. CSS allows you to specify various style properties for a given HTML element such as colors, backgrounds, fonts etc. Learn more.</p>

</div>

</div>

```
                </div>

              </div>
              </div>
               </div>
            </div>
        </div>
        <div class="col-md-8">
           <div class="row-fluid">
             <div class="panel panel-primary">
               <!-- Default panel contents -->
               <div    class="panel-heading">MIS    FOR    REAL    ESTATE    AND
PROPERTY MANAGEMENT PRACTICES</div>
                  <div class="panel-body">

                    <div class="thumbnail">
                      <div  id="carousel-example-generic"  class="carousel  slide"  data-
ride="carousel">

                        <!-- Indicators -->

                        <ol class="carousel-indicators">
                          <li  data-target="#carousel-example-generic"  data-slide-to="0"
class="active"></li>
                          <li       data-target="#carousel-example-generic"       data-slide-
to="1"></li>
                          <li       data-target="#carousel-example-generic"       data-slide-
to="2"></li>
                        </ol>

                        <!-- Wrapper for slides -->
                        <div class="carousel-inner" role="listbox">
                          <div class="item active">
                            <img src="../Images/home.jpg" alt="" class="img-responsive
img-rounded"/>

                            <div class="carousel-caption">
                              RENT REAL ESTATE PROPERTY
                            </div>
                          </div>
                          <div class="item">
                            <img src="../Images/edited.jpg" alt="" class="img-responsive
img-rounded"/>

                            <div class="carousel-caption">
                              BUY REAL ESTATE
                            </div>
                          </div>
                          <div class="item">
                            <img     src="../Images/banner.jpg"     alt=""     class="img-
responsive img-rounded"/>
                            <div class="carousel-caption">
                              WE ARE YOUR FRIENDS
```

```
                    </div>

                  </div>

                </div>

                <!-- Controls -->
                <a class="left carousel-control" href="#carousel-example-generic"
role="button" data-slide="prev">
                    <span    class="glyphicon    glyphicon-chevron-left"    aria-
hidden="true"></span>
                    <span class="sr-only">Previous</span>
                </a>
                <a    class="right    carousel-control"    href="#carousel-example-
generic" role="button" data-slide="next">
                    <span    class="glyphicon    glyphicon-chevron-right"    aria-
hidden="true"></span>
                    <span class="sr-only">Next</span>
                </a>
              </div>
              <div class="caption">
                <h3>REAL ESTATE PROPERTY MANAGEMENT</h3>
                <p>The  proposed  system  is  titled  Management  Information
System for real estate and
                    property  management  practice.  This  system  is  envisioned  to
developing software
                    that has the ability to solving the following basic problems.The
proposed system is titled Management Information System for real estate and
                    property  management  practice.  This  system  is  envisioned  to
developing software
                    that has the ability to solving the following basic problems.
                <ul>
                <li>Manual means of registering clients</li>
                <li>Absence  of  electronic  virtual  tour  in  order  to  view  real
estate property before making a registration or order.</li>
                <li>Inadequate advertisement medium for clients  </li>
                </ul>

<p><a class="btn btn-danger btn-sm" role="button">
                        Read <span class="glyphicon glyphicon-hand-right"></span>
                </a> </p>
              </div>
            </div>

          </div></div>
        </div>
      </div>
    </div>
  </div>
 <footer class="row"  style= "background-color:rgb(4,71,137);">
```
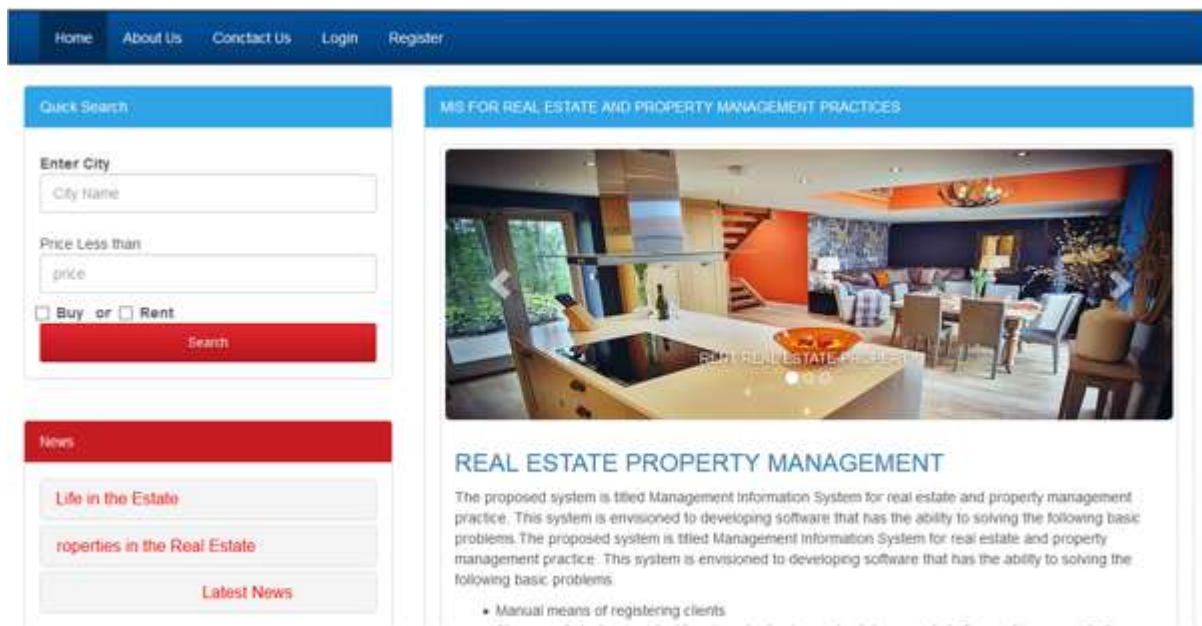
```
<div class="col-md-2"></div>

    <div  class="col-md-2" style="text-align: center; margin-top: 2%;">
      <button    type="button" class="btn btn-primary btn-xs"><i class="fa fa-
facebook                                                                  fa-
xs"></i>           &n
bsp;  Facebook               <span
class="badge" >205,284</span></button>
            <button  type="button" class="btn btn-success btn-xs "><i class="fa fa-
twitter                                                                   fa-
xs"></i>           &n
bsp;   Twitter        
      <span class="badge" >25,284</span></button>
            <button type="button" class="btn btn-warning btn-xs"><i class="fa fa-
linkedin                                                                  fa-xs
"></i>           &nbs
p;   LinkedIn        
       <span class="badge">402</span></button>
            <button  type="button" class="btn btn-danger btn-xs"><i class="fa fa-
google-plus                                                               fa-xs
"></i>          &nbs
p;   google+        &
nbsp;      <span class="badge">742</span></button>
        </div>

        <div class="col-md-1"></div>
        <div  class="col-md-2">
          <div class="row-fluid" >
            <h3  style="color: graytext; ">Services</h3>
            <li  style="color: white; list-style-type: square ">Web Hosting</li>
            <li  style="color: white; list-style-type: square ">Web Designing</li>
            <li  style="color: white; list-style-type: square ">Corporate Training</li>
          </div>

        </div>
        <div class="col-md-3" style="color: white; text-align: center">
          <div class="row-fluid">
            <h3 style="color: graytext;">About</h3>
            <p  style="color: white;">Contact Us</p>
            <p  style="color: white;">Contact Us</p>

          </div>
        </div>
        <div class="col-md-2">

        </div>
```

```
    </footer>

  </body>
</html>
```

Appendix B

LOGIN PAGE

HOME PAGE

REGISTRATION PAGE

ESTATE PAGE