

A Safe and Versatile Online Client Management System (SVOCMS)

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ABSTRACT

Client Management System (CMS) provides a single point of collection and management for the information required at the individual client and organizational level. It efficiently manages the provision of services to clients in the organizational community by assigned lead/staff in accordance with the resources available. It provides timely and accurate information to support the continuum of care and avoids duplicating service delivery. Based on this, it requires powerful and flexible reporting services to assist with financial planning and cost recovery for the provision of services. CMS is technologically oriented such that it is a complex combination of business and technological determinants. The aim of this paper is to develop a Web-based Client Management System (SVOCMS) that will provides Client Solution, Project Management, Quotations (Billing), Suggestion, On line tracking for particular project, Reports by daily E-mails/SMS with status, Query solve, Interact with the company's developers and marketing manager. The system will be developed using PHP as the Front-end (Programming Language) and MYSQL as the back-end (Database) running under WAMP (Window, Apache, PHP and MYSQL) Platform. The system provides a secured client and management services with the resources available which secure and will totally do away with paper work in any organization.

Keyword: Client management system, Technological, Project management, Billing, Database

African Journal of Computing & ICT Reference Format:

O. F. Idepefo, J. B. Awotunde, O. A. Umar & A. R. Tomori (2015 A Safe and Versatile Online Client Management System (SVOCMS). Afr J. of Comp & ICTs. Vol 8, No. 3. Pp 89-100.

1. INTRODUCTION

Client Management System (CMS) provides timely and accurate information to support the continuum of care and avoids duplicating service delivery. A broader definition of CMS considers it a holistic process of acquiring, retaining and growing consumers yet defined CMS as a comprehensive strategy and the process of acquiring, retaining and partnering with selective consumers to create superior value for the company and the consumer. For the purpose of this paper, CMS is characteristically centered to the customer and not to the product. Relationship is more important as the characteristics of product or service, offer is made regarding to the demands of relationship (and not regarding to what the organization can produce), and competences important for the successful CMS process are emphasized. Following this definition, we charted a short overview of different approaches in defining the CMS concept. [1] defined CMS as "the strategic use of information, processes, technology, and people to manage the customer's project task and relationship with your company across the whole project lifecycle of a customer". [2] suggest that CMS is an information industry term for methodologies, software, and usually internet capabilities that help an enterprise manage customer project and interactive relationships in an organized way.

It focuses on leveraging and exploiting interactions with the customer especially during a project to maximize customer satisfaction, ensure return business, and ultimately enhance customer profitability. But in practice, managers often perceive CMS from different standpoint, for example, CMS is a part of marketing efforts, customer service, particular software and technology, or even a process and strategy for handling tasks at different stages of a customer's project. Base on all of the above, CMS is a combination of people, processes and technology that seeks to understand a company's customers and it is an integrated approach to managing interaction by focusing on customer retention especially during the phase of a project.

This paper focuses on the implementation of a Client Management System (CMS) at organization level, providing an outline of the approach taken and an overview of its successes and impacts. In order to deal with the complex issues of client identification and implementation of the appropriate handling of project task for an organization (client).

2. METHODOLOGY

Several journal articles, paper presentations and relevant past tactics work were consulted in order to have a direction for this research work. The focus is to develop a web-based Client Management System that will provide client solution and project management in an organization. The software methodology adopted in this paper is the Waterfall Model; the system will be developed using PHP as the Front-end (Programming Language) and MYSQL as the back-end (Database) running under WAMP (Window, Apache, PHP and MYSQL) Platform. The overall goal of (SVOCMS) is to win new clients, nature and retain them, entice former clients back into the fold, and reduces costs of marketing and client services.

3. LITERATURE REVIEW

Client Management System (CMS), also known as relationship marketing, has recently emerged as an integral marketing concept in the business world. In an attempt to reach and connect with customers in an environment highly saturated with products, advertisements, and promotions, businesses are implementing a customer relationship management component in their marketing schemes. CMS practices enable marketers to build long lasting relationships with consumers at the individual level through the use and management of a number of different programs and key components.

As a relatively new practice, the definition of Client Management System (CMS) has been debated by field experts and is ever evolving. In fact, the term has come to mean different things to different individuals and organizations. In its inception, Client Management System (CMS) was narrowly defined as promotional marketing based on a customer database [3]. Peppers and Rogers define Client Management System (CMS) to be a complex process that builds one-to-one relationships with customers in order to achieve long term growth (1993).

According to [4], relationship marketing extends past persuading customers to buy products; it is about fulfilling their expectations in the hope of transforming them into long term, loyal customers. Most experts can agree, however, that the central theme of CMS is carefully selecting the most valuable customers and maintaining and strengthening relationships with those customers for long term profit maximization. [12] define CMS as a “comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer”. It is a mutually beneficial relationship built upon a foundation of trust and loyalty through marketing, customer service, and relationship programs.

Client Management System (CMS) is a relatively new field, but its importance is becoming even more evident as time passes. The paradigm shift from focusing on attracting new customers to retaining current ones is at the backbone of CMS [6]. [7] studies revealed that small increases in customer retention rates greatly increased profits, proving that long term customers can be more valuable. More revenue on average is generated from repeat-purchase customers when compared to one time buyers [7]. With potential profit maximization in mind, businesses are turning to Client Management System (CMS) in order to better understand customers. Traditional marketing and mass advertising are proving to be ineffective in such a commoditized environment. With the number of similar products on the market increasing and competition among the firms escalating, companies must look toward capturing customers on some factor other than product quality, price, or convenience [8]. They must focus on building unique, one to one relationships with customers based on individual needs and wants; thus, implementing Client Management System (CMS) is critical to the growth and future success of firms.

A number of factors have contributed to the emergence of Client Management System (CMS) including technology, total quality management, growth in the service industry, and heightened customer expectations. Technology is at the heart of CMS development and is essential on multiple levels of the process. Some believe that technology can be credited with the wide acceptance of relationship marketing [9]. The customer database and software technology enable firms to track consumer purchase behavior, product preference, and personal contact information [10]. Technological advancements in database programs have allowed marketers to improve direct marketing tactics through individualization [5]. Once customer patterns are recorded in the database, the software can cater direct marketing efforts, such as emails or mailers with coupons and special offers, to each individual customer. This customer value can only be delivered by highly sophisticated databases that combine information from several external and internal sources regarding demographics, psychographics, survey results and purchase patterns [10].

Technology is also imperative in creating customer-friendly and easily accessible websites where customers can enter information, provide feedback, and explore product offerings. The practice of total quality management has also contributed to the development of Client Management System (CMS). Total quality management is the strategic management of cost and quality control. It integrates all divisions and levels of a firm with the goal of emphasizing employee teamwork, constant improvement, quality measurement, and efficient problem solving [11]. Total quality management results in closer relationships between firms, suppliers and customers in order to add value and ensure quality control all along the production chain [12]. The practice of maintaining and strengthening those relationships result in firms adopting Client Management System (CMS).

With every customer interaction that takes place within a firm, there is a possibility that customer expectations will not be met. The ending outcome can meet, exceed, or fall short of customer expectations. As competition increases among firms, however, there is a greater emphasis on customer satisfaction and in turn, customer expectations are increasing. Although some customers value price over all other characteristics, many customers are not willing to compromise when it comes to products and services; therefore, firms are adopting the practices of Client Management System (CMS) to ensure those expectations are met [12].

3.1 Components Of Client Management System (CMS)

Implementation of Client Management System (CMS) is a multi-step process that involves seven basic components. The first key component is the creation of a customer database which contains all pertinent information including descriptive information (such as psychographics and demographics), transaction history, and customer contact information [6]. Customer responses to marketing tactics such as redemption rates regarding coupons, mailers, or emails is also usually recorded in the database. The customer database can serve as a competitive advantage if it is maintained correctly since it is the beginning step in Client Management System (CMS) [13]. In order to build up the content of the database, companies acquire customer information from warranty cards, loyalty customer cards, company websites, and contests [14].

The ultimate goal is to collect customer information with every customer interaction [6]. Internet transactions allow for prime tracking and cross-referencing since information inputted by the customer is generally very useful and applicable to building a potential relationship with that customer [13]. Although it is easy for some companies to collect data, it is extremely difficult for others. [6] created a framework regarding data collection and the potential problems that might ensue based on customer interaction and interaction frequency. The ideal situation for a company involves direct interaction at a high frequency; data collection is relatively easy for these firms. Firms that have indirect customer interaction have the most difficult time collecting data and must work harder to develop ways in which to retrieve customer information.

Since technology has enabled customer databases to collect and store a large amount of information, the next vital step in the CMS process is the analysis of this information. Historically, the data was used to separate the customers into different segments based on descriptive information and comparable purchase behaviors in order to develop marketing tactics specifically for them [8], [6]. This traditional segmenting failed to account for the times when customers could fall into a number of categories [13]. With a greater understanding and the technological capability, the customer database can be analyzed in smaller, more specific categories; each customer can also fall into more than one category [15].

Instead of developing marketing schemes for entire segments, each customer can be analyzed in order to understand future purchases and individual profit potential for the firm [6]. This innovative “one to one” marketing concept encourages firms to address individual customer needs and to analyze lifetime customer value. When determining lifetime customer value, several factors are considered, including customer purchase history, the contribution margin, and variable marketing costs [16]. Each customer’s past profit is calculated by adding up past profit margins of all purchases and then subtracting the variable costs associated with obtaining that customer.

3.2 Overview of an Organization Client Management System

Self Service: Empower customers by creating client access in the program so as for them to find the answers they need quickly and easily by creating support tickets base on their requirement in getting response in as soon as needed.

Social Customer Service: Support and engage customers on Facebook and major social media channels through the program platform.

Support: The program as a service Provides 24/7 support to clients, organization, individuals through online interaction or feedbacks.

Mobile: Provide fast, convenient support via all major mobile and tablet devices such that a client can get in touch by just creating ticket in the application platform anywhere anytime while the lead responds to it in no time.

Reporting: Getting real-time centralized to make informed business decisions has never been easy with this system, the customer service reporting tools (invoice statements, Tickets etc provide real-time intelligence that allows the organization to make informed business decisions and proactively adjust to trends. Track customer service requests, response times, the effectiveness of its customer service channels, information downloads and more with custom report creation tools and easy data export to Excel.

Customer Retention: Through the program software as a service, the organization technologies gain valuable customer feedback to ensure customer satisfaction and retention.

Integration: Integrating the CMS as a Customer Service Software with other critical systems opens up a whole new level of visibility, intelligence and efficiency for client organization, leading to greater customer satisfaction and support efforts.

4. SYSTEM DESIGN AND IMPLEMENTATION

4.1 Overview Of Online Client Management System

To build a system that will capture clients details, the system will be simple and easy to use. Client Management System (CMS) is a system that will provides organization ability to store their customer information such as names, address, and telephone numbers and also the services to render. The system will have the following features which the users on the system will use in operating the system:

4.1.2 Account and Contact Management

Manage an unlimited number of contacts, find the information you need faster with the ability to create column setups, favorite lists, and saved searches. It also create customized fields specific to your business.

Contact Pagination: This is a process of dividing contacts on the system into discrete pages. There will be pagination on both client and server side of the system

Images: The system will provide a menu to add client's picture in order to identify the contact when viewing on the system. The idea on photo is to allow is recognition of the clients.

Multiple user accounts: There will be more than one user on the system, meaning the multiple users can be registered on the systems. Only one principal user will be available and other users will be sub users. E-mails address will be used as username this is used to enables users remember their users name because email can be remembered easily and this is one of the reasons why the system is simple.

Dashboard: This is available on the administration page. It is at the front of the control panel of the client management system.

Configuration: This will enable the admin or supper user to create privileges for other users

4.1.3 Administration and Security

The system will ensure that contact information and corporate assets are kept secure and apply access rights based on users on the system.

The system protects customer information by enabling distinct right of transferring, importing and exporting data. The system will provide a text-area in which notes of activities of the clients will store. The note can be a brief description about the clients also a form is available to allow values input data and send to the database.

4.1.4 Microsoft of Integration

It will enhance reporting and seamless integration with Microsoft application including Excel.

The system will allow Export/Import contact on the clients by exported to an excel file and contacts can also be exported to the system. Contacts can be exported from a csv(commma-separated values). No restriction on the numbers of contacts that can be exported to the systems. The column of the csv files must match the database column for contacts to be exported. It can also instantly export data to Excel with one-click for further analysis.

4.1.5 MYSQL Server Database Integration

The systems uses MySQL database engine to store all the records. There are several tables with each table having a primary key that will identify a unique column of data separately.

4.2 Use Case Diagram For The Proposed System

A use case diagram (Figure 4.1, 4.2 and 4.3) at its simplest is a representation of a user's interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system. This type of diagram is typically used in conjunction with the textual use case and will often be accompanied by other types of diagrams as well.

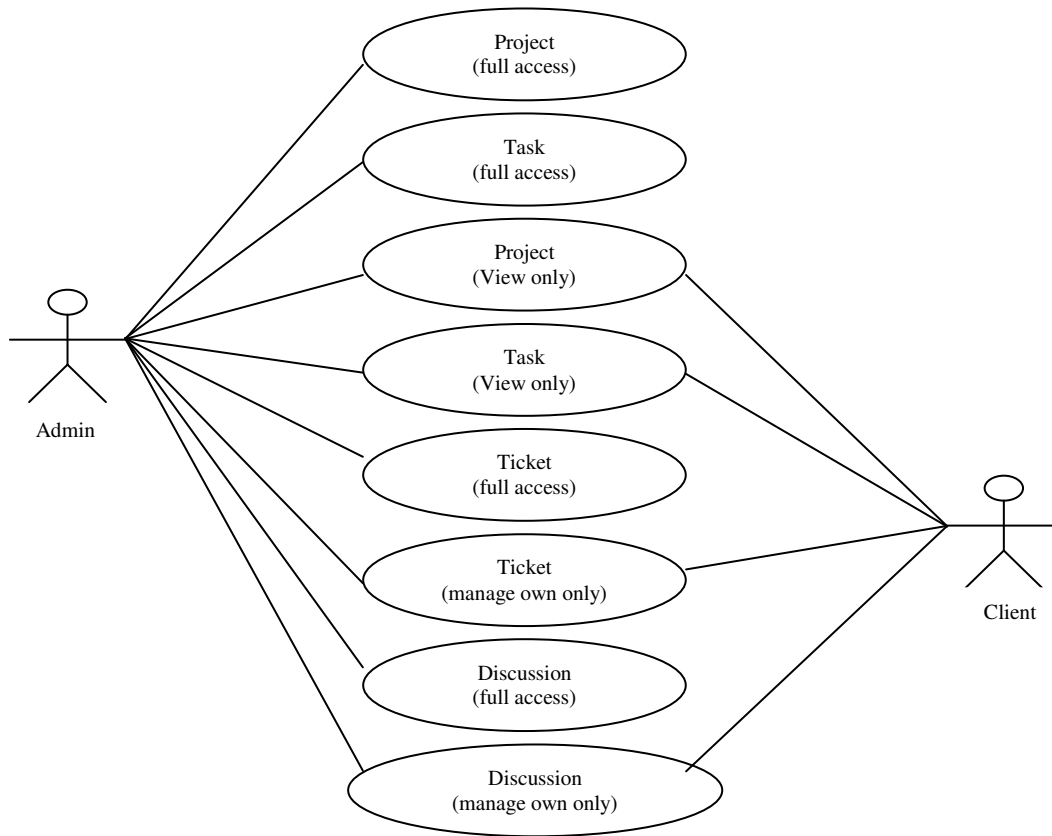


Figure 4.1 Use Case Diagram for Global Management

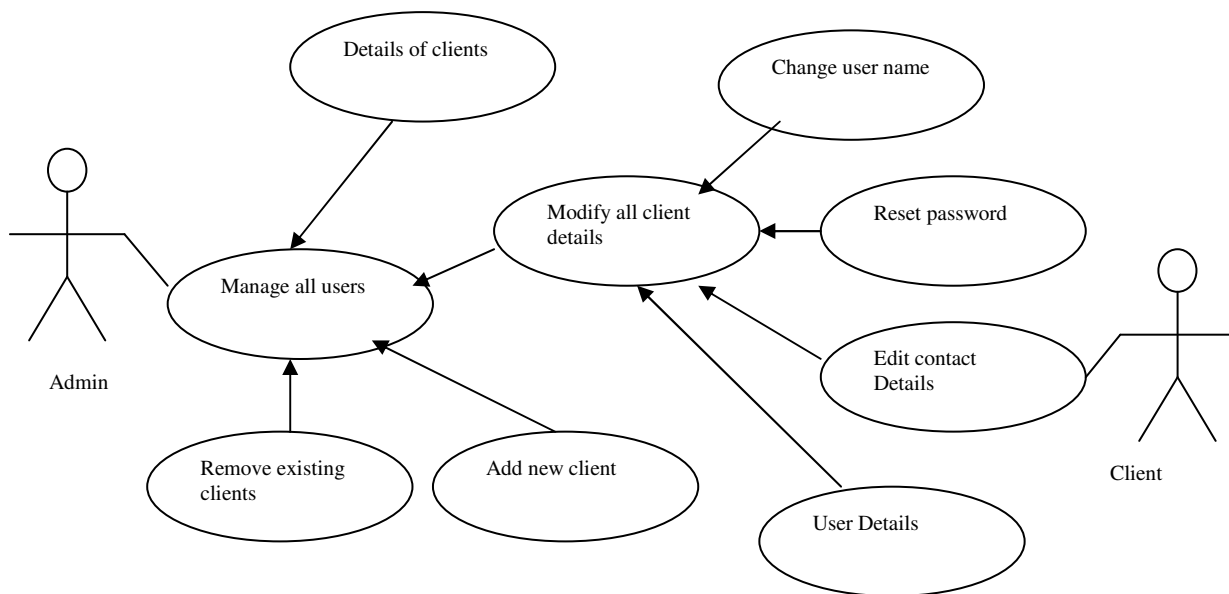


Figure 4.1 Use Case Diagram for User Management

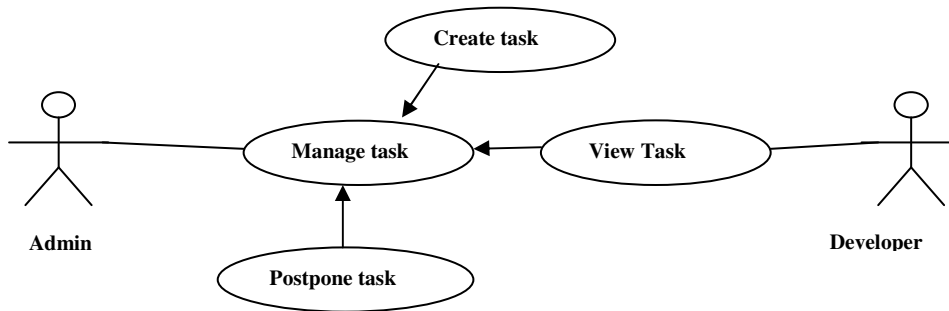


Figure 4.1 Use Case Diagram for Task Management

4.3 Activity Flow Diagrams for the Proposed System

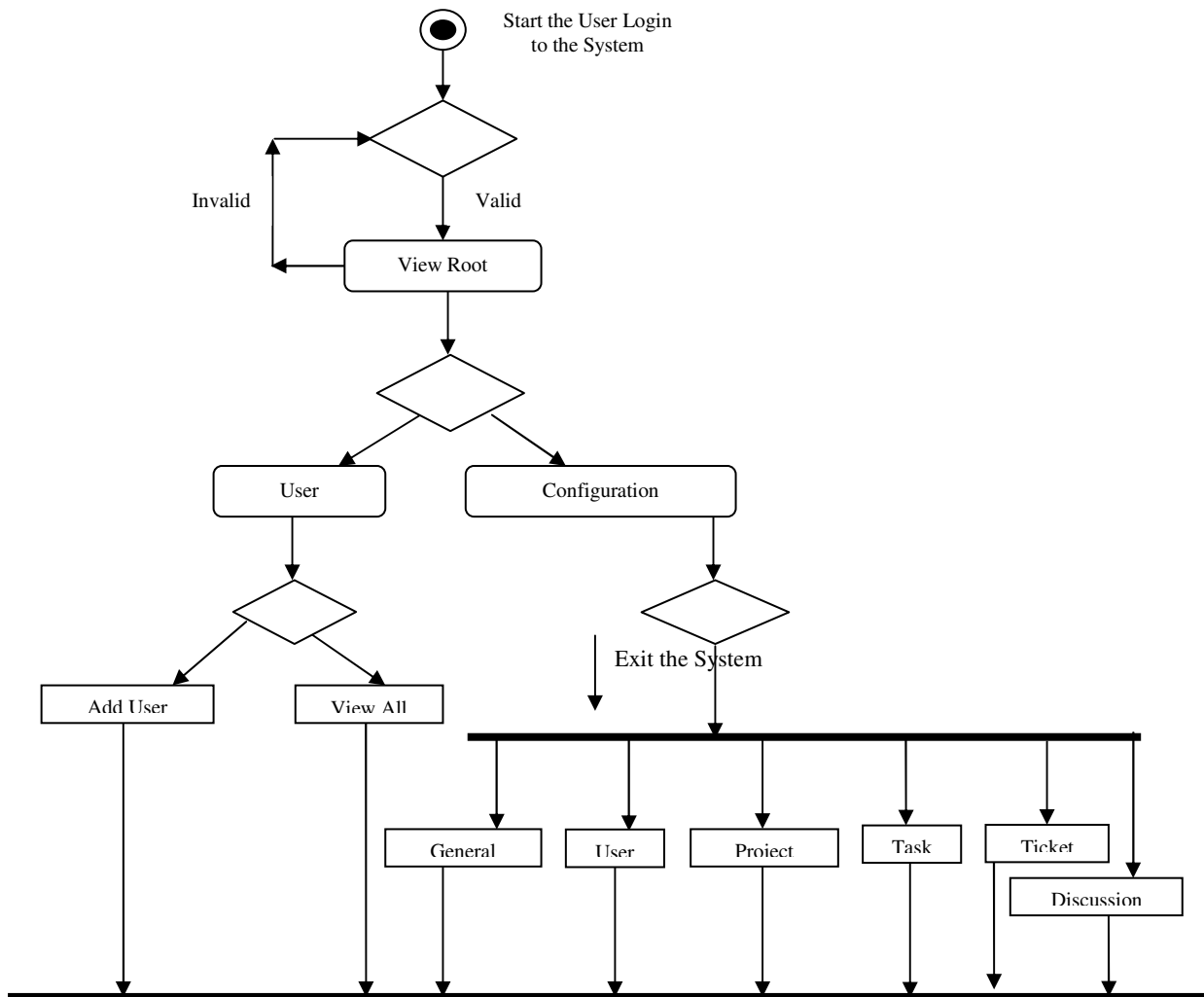


Figure 4.4 Activity Flow Diagram for Root Administrator



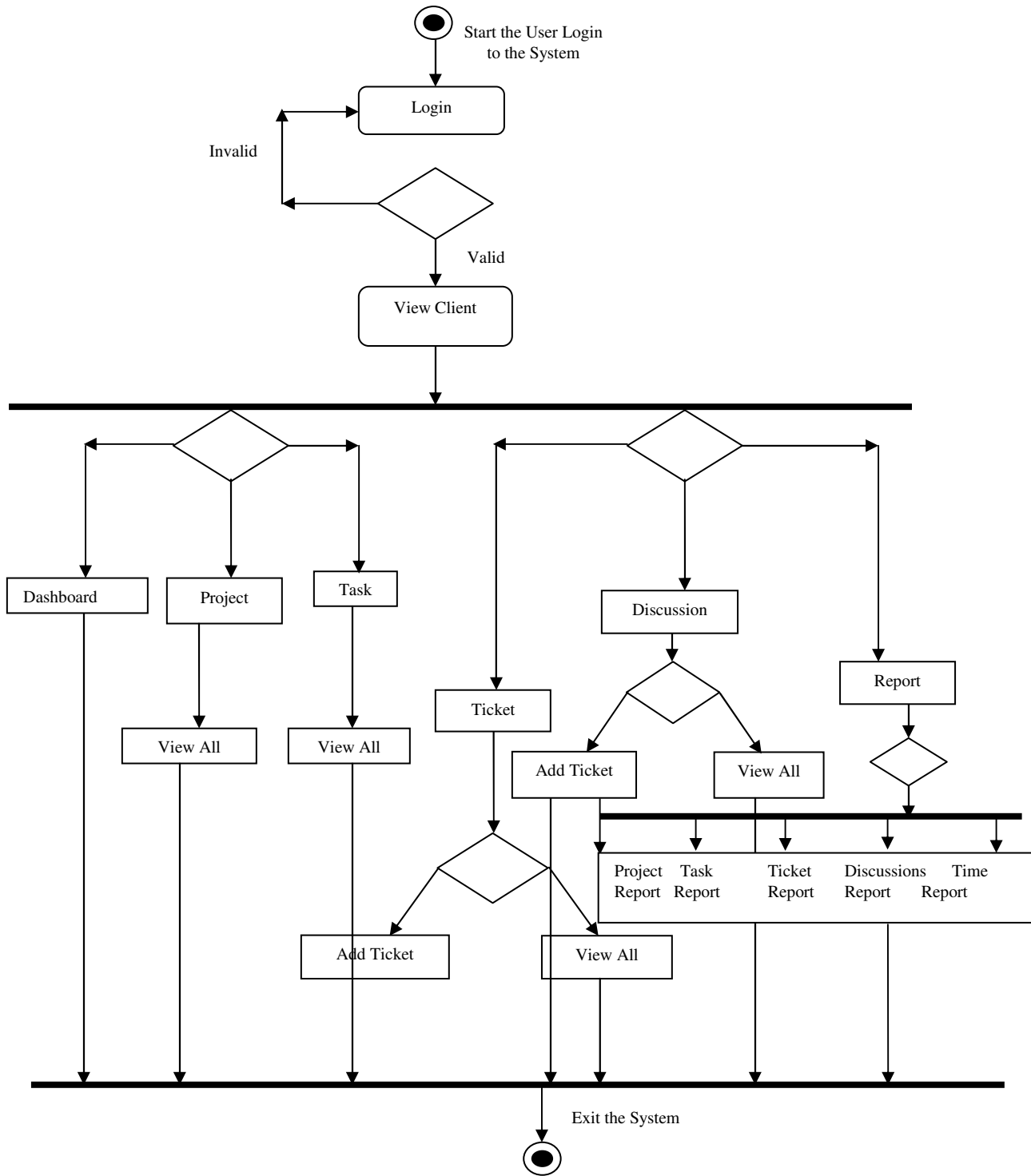


Figure 4.5 Activity Flow Diagram for Client Menu Navigation

5. SYSTEM DESIGN OF THE PROPOSED SYSTEM

This section deals with the overall system design of the proposed system. It provides the detailed design of the system and subsystem inputs design, output design and database design, it also analyze the integration of HTML, CSS, JavaScript and PHP on the web server The systems have a web interface which is user friendly and that is develop with HTML, Cascading Style Sheets. The interface can run on any web browser. Database design is achieved with use of MySQL database world most popular open source database. PHP is the server side scripting language use to interact between the web interface and the database. HTML Form is used to accept record and with the use of PHP it helps to get the form value and insert into the database with query language. Once the insertion is done successfully it will load into another page that will inform the user that form has been submitted successfully. The sections will also analyze how the function of the Apache Server. Apache server is a web server; it interprets the PHP scripts to a form that is readable and understandable.

5.1 Output Design

In this section, the out design will be discussed. The only output media for the system is the screen. The output is design to display based on the input from the users on the system.

There will be a login page that accepts user details, username and password, once it can authenticate the login details it will redirect the page to the dashboard page. On the Dashboard page there are three submenus. The menu is as follows: Dashboard, Contact, Users.

On click of the Contact menu it link to a page that display all the contacts on the systems showing names, emails and telephone numbers with functions to view, delete and edit. Users contact contains links to users that are available on the system, the user will be able to add, edit and delete. They will have right to use the systems. On users menu the user can edit user’s details.

There will be right menu navigation on the system with the following menu, search box, Add, Import/Export, Customer field, database view. Search Box is a single text box that is dedicated to perform function of accepting user input to be searched for in the database. They are to allow users of the system enter query to be submitted. The Add menu is to allow users add a new contact to the systems, while the Export and Import are used to either import contact from a csv file or export a file to Spreadsheet application. Fig. 5.1 shows how the output design of the system will look like.

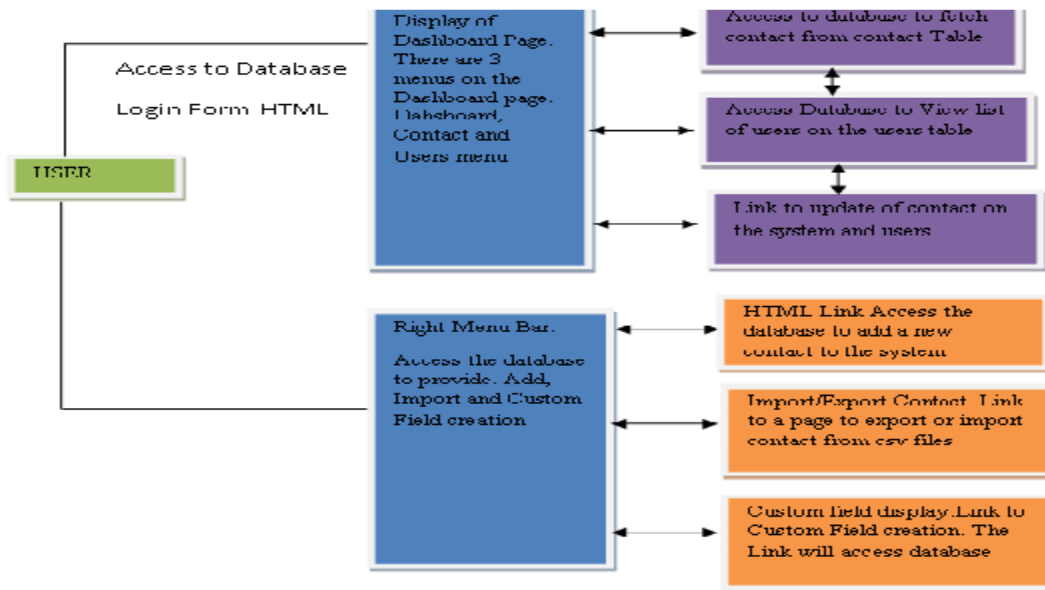


Figure 5.1 Output Design for the Proposed System

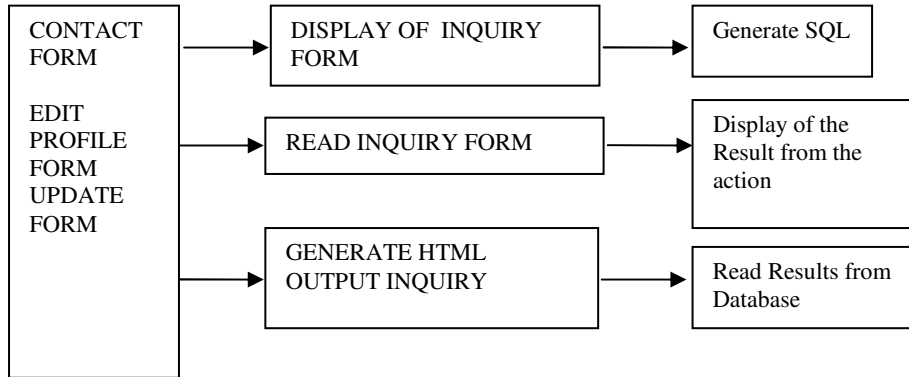


Figure 5.2: Interface Design with Database Communication

5.2 Input Design

In this section the input design and user interface will be discussed, this involves the selection of strategy for getting data into the system at the right time and as accurately as possible.

The following are the highlights in the input design of these projects:

Composition. This is a description of what the systems contain. The entry point to the system is the login page which need authentication before an entry can be allowed into the system. If the username and password matches with record on the database they user will be redirected to the homepage page of the system know as the dashboard. From the dashboard the user can have a fully access to the system to add a new contact, edit an existing contact on the system, delete contact, edit user details, create a custom field for contact, import contact from a csv file and export contact to csv file.

On the dashboard page there three menu bar which are dashboard, contact and users. Each of the menu bars are links to other page. From the dashboard page there is also a right navigation bar with menu Add Contact, Export/Import and Custom Field. User Interactions. The system has several input field that accept value from the user. The inputs fields are HTML form and can only be viewed from a web browser. These following are the list of forms that are available on the system. (i) Login Page, this contains two text field one for username and the other for password. Also the Login Page has two buttons ie Submit and Cancel Button. (ii) Contact Form and Edit Contact Form. The two forms are used to capture clients details and these contain basic details about the clients. Like Address, Telephone, email, Title, First_name, Last_name, Image and Note. Each of the form field are compulsory excepts Image field and the Note. The email field is design in way that it requires the @ sign.

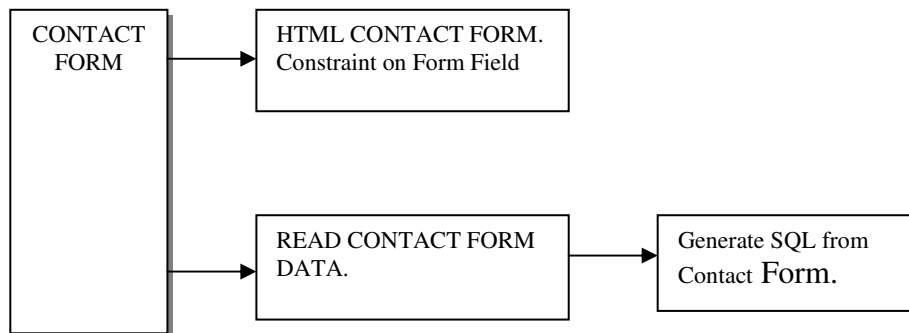


Figure 5.3 Contact Form Design



Figure 5.4 Export/Import Input Design

5.3 Database Design

The database consists of five tables: contacts, users, notes, fields. Information regarding contacts includes their first_name, last_name, title, image, address, telephone, fax and contact_id used as primary key. Contact information can be identified uniquely with the unique identification which is the contact_id. For update and delete the unique id is fetch and that allows update and deletion query to be executed. Unique id is derived automatically at the point of creating the contact. Auto Increment is set to the column and it continues to increase the unique id plus 1 each time a contact is inserted into the table.

Users tables four columns: user_id, email, ,user_password, password, date, user_home. Unique id for this table is user_id which is set as auto increment and it is the primary key. The password field is set with a function called PASSWORD. This convert the password input to alphanumeric character on the database to secure the password from unauthorized users. Only the primary key is integer data type others are varchardatatype

Notes table contains two columns: note_id and status,. The note_id is the primary key set to auto increment and the status column to know the status of the clients. Fields tables allow customs field to be created on the system, it includes the following fields: fields_id, cfield_value. is the primary key to to auto increment and the cfield value to accept value from the user to input field to be created. Data type for the two columns is integer. Further to the tables and columns in the database access to the database server is secure with username and password, only the database administrator has access to the database. The server engine has port which will be assign to by the administrator and from the port instance of the database engine can called to gain access into the database servers.

6. CONCLUSION

The main aim of the paper was to develop a web based Client Management System that enable organization to analyse the behavior of their customer and their value which serves as an extension to the system of managing clients' information. The study enables to provide a web based interface that will manage client's information. The web interface is user friendly and easy to use. Solution was provided to improve clients request for information and also this will improve communication with clients.

The research undertaken help to provide a solution that will manage clients' details. Information such as office address, telephone, email, fax, transaction type, clients' id, photograph and other vital information about the clients, which can be used in cloud server to get vital information about the clients.

6.1.1 Recommendations

For easy usability of the Client Management System, the following recommendations were made to ensure a proper, effective and adaptation of the systems. These recommendations are based on findings during the cause of research. These is as follows:

- Only Comma Separate Delimiter file should be used when to import contact into the system.
- Based on the database design, user should use email address for their user name. This is to ensure that the user do not forget their username because email can be easily remembered.
- Password for users should contain alphabets, characters and special characters as this ensure the safety of the password.
- Due to bugs and errors encountered with Windows Vista, it is recommended that the system should not launch on the Operating system. Window XP, Windows 7 and Linux are advisable to run the system.
- Always clear cache once in a week, this is to clear the information that is been stored.

6.1.2 Future Work

Further research as regards the paper is to create a mobile application that can manage client's information. Further work can embark on creating a simple client management system application that will run on major mobile operating system like Android, Blackberry, ios for iPhone and Windows operating system for smart phone.

7. EXPECTED CONTRIBUTION TO KNOWLEDGE

This research proposed a framework that employs web programming to develop a Web-based Client Management System (SVOCMS) that provides Client Solution, Project Management, Quotations (Billing), Suggestion, On line tracking for particular project, Reports by daily E-mails/SMS with status, Query solve, Interact with company's developers and marketing manager.

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