

CHAPTER 1

INTRODUCTION

1.0 BACKGROUND OF THE STUDY

I have been told and have also experienced that one of the major challenges to us as humans are lack of co-operatives and collaborations being alone. Whether in a business venture, academic pursuit this limitation has a huge effect on productivity at this present age and time. There's an increased rate of business start-ups, increased number of graduates from various institutions and growing entrepreneurs who have great ideas, strategies, talents, skills, potentials but not everyone can/should start up solely. When it comes to business, co-operation is very key to growth, productivity and success, there's someone somewhere that can fill in or even improve a business with what they know and can do. These people due to wrong orientation, ideology and misconceptions venture and run their businesses with great duress. And by business I mean what someone does/provides as goods or as service that is/forms the source of income.

This report is on a virtual community as a business solution especially to the start-ups, entrepreneurs, freelancers. This platform was developed and designed by me, Sochima James Obele. Virtual communities have being implemented as solutions in various areas as socializing, promotion, marketing, publicity and scouting. It's an important platform that can be implemented in business to provide solutions, collaborations, innovations, advancements and connections which also play stands as a big part of almost everything we do beyond business. It has a great potential of providing human resources where and when needed which are of great importance.

This platform has also been used to source additional income to employees and also an avenue for educated unemployed persons to earn a living and even also help channel their mind towards creating self-employment opportunities. Productivity is key player very important in the Nigerian economy.

1.1 STATEMENT OF THE PROBLEM

The problems which prompted this project work can be viewed from the following perspectives:

- ❑ Limitations in productivity in Nigeria.
- ❑ Limitations in business opportunities especially start-ups in Nigeria.
- ❑ Limitations to business growth; the place for collaborators and investors.

- ❏ Limitations in human resources management in terms of hiring individual or organisations fit for the jobs and tasks.

1.2 OBJECTIVES OF THE STUDY

This project work on the development and design of a Virtual Community has is to provide a platform in form of a virtual community to facilitate businesses in Nigeria and that through that create/ provide them with opportunities for progress, growth, success, collaboration, connections and learning.

The objectives are:

- ❏ Hiring of products and services of users.
- ❏ Adverts placements and viewing for users.
- ❏ Activity sharing by users viewable by other users.
- ❏ Business connection creation within users.
- ❏ Meetings schedule meetings for using respective meeting centres in Nigeria.

1.3 SIGNIFICANCE OF THE PROJECT

Developing a virtual community for businesses is of significance and benefit to humanity as it will help increase employment nationwide and also make human resources available.

- **Improved Connectivity:** Users will be able to connect to people or establishments with like minds/ideologies/visions nationwide despite the distance. This can also help track and stop fraudulent practices.
- **Inspiration:** The product is intended to inspire and motivate people with business ideas but no fund or support to make a good start and enhance start-ups to make a good start and thrive in their businesses.
- **Collaboration:** It will also bring/promote business collaboration, which will enable people from various firms or establishments work together and co-operate, to learn from each other, grow together, take on projects and hold meetings.
- **Mentorship:** Users will be able to enhance and correct their business ideology as they learn and stand on the shoulders of the fore runners in their type of business to create successful, service oriented and solution-driven businesses.
- **Availability of Resources:** The business skills and resources needed and required will be accessible and obtainable to business people and the corporate world at large. The platform would allow community evaluation of user's accounts plus system records that can help guide others right.

LITERATURE REVIEW

2.0 INTRODUCTION

In this chapter, will be the theoretical background of the developed virtual community for business and also the review of related literature.

The concepts surrounding the virtual community developed and technologies used are covered in this chapter.

2.1 THEORETICAL BACKGROUND

In the development of the virtual community Hyper-Text Markup Language(HTML) was used for almost every environment as it offers skeletal structuring for the content.

HYPER-TEXT MARKUP LANGUAGE(HTML)

HTML codes are made up of characters that live inside angular brackets called **HTML elements**. Elements are usually made up of two tags: an opening tag and a closing tag, both are usually similar but the closing tag then has an extra forward slash in it. Each HTML element tells the browser something about the information that sits between its opening and closing tags. A HTML code usually follows this order/structure;

<!DOCTYPE html> This is to indicate it's HTML 5 version of html that's used

<html>

<head>

 <title> User Created Title for the Page </title>

</head>

<body>

The displayed content of the page is contained here between this tag. Other tags can be used in this tag.

</body>

</html>

The html tag (opening tag <html>, closing tag </html>) contains the html code for a page and with the head tag (<head> </head>) information and resources that are sent to say a web browser or gotten from external code files like stylesheets are contained the head tag which is in the html tag as well as every other tag. The html tag usually starts the html code and closes it.

The characters in the angular brackets indicate a tag's purpose eg. <body>. The opening and closing tag with the tag content make up what's called an element. Attributes provide additional information about the contents of an element. They appear on the opening tag of the element and are made up of two parts: a name and a value, separated by an equals sign.

```
<html lang="en">
```

Attribute = lang="en"

Attribute Name = html

Attribute Value = "en"

The attribute name indicates what kind of extra information is being supplied about the element's content. It's to be in lowercase.

The value is the information or setting for the attribute. It's to be placed in double quotes.

Shown above is an attribute called **lang** is used to indicate the language used in this element. The value of this attribute on this page specifies it is in English.

CASCADING STYLE SHEET (CSS)

CSS is used for styling the environments which involves coloring, positioning, decoration, alignment etc. CSS allows you to create rules that specify how the content of an element should appear.

CSS works by associating rules with HTML elements and these rules control how the content of specified elements should be displayed. A CSS rule contains two parts: a selector and a declaration.

Selectors indicate which element the rule applies to. The same rule can apply to more than one element if you separate the element names with commas.

Declarations indicate how the elements referred to in the selector should be styled. Declarations are split into two parts (a property and a value), and are separated by a colon.

```
p {
```

```
font-family: Arial;}
```

Selector = p

Declaration = font-family: Arial;

This rule indicates that all <p> elements should be shown in the Arial typeface/font.

CSS properties affect how elements are displayed. CSS declarations contained inside curly brackets and each is made up of two parts: a property and a value, separated by a colon. You can specify several properties in one declaration, each separated by a semi-colon.

Properties indicate the aspects of the element you want to change. For example, color, font, width, height and border.

Values specify the settings you want to use for the chosen properties. For example, if you want to specify a color property then the value is the color you want the text in these elements to be.

```
h1, h2, h3 {  
    font-family: Arial;  
    color: yellow;}
```

Property = color & font-family

Value = Arial; & yellow;

This rule says all <h1>, <h2> and <h3> elements should be shown in the Arial typeface and in yellow color.

HYPER-TEXT PRE-PROCESSOR (PHP)

Hypertext Pre-processor (PHP) is a server-side open source Web scripting language. It is used for developing dynamic Web pages. PHP supports powerful features for form handling. PHP uses cookies to store information on the user's local computer and uses sessions to store user information on the Web server. A PHP code is prompted by and enclosed in a <php ?> tag.

THE WEB BROWSER

The web browser was very essential in the development process as it was used to view what the codes did and also to check for bugs. Through out the process of development Opera 34.0 was used to view the results of the codes. Microsoft Edge was also used but for a few times.

XAMPP

Xampp (Apache, MariaDB, Pearl, PHP) was used to host the web-based pages locally on the computer. Without this the .php format pages won't run and the php won't work but the .html format files will load in the web browser. It has certain configuration settings that make it easy to develop and host content/resources locally but it may be insecure if you want to have your installation accessible to others. To use xampp for running the .php pages, after saving the php file `http://localhost/` or `http://127.0.0.1/` should be typed into the address space on the web browser and would to a page like this.

phpMyAdmin

This is used on the database end, implementing MariaDB. It's used to manage, browse and drop databases, tables, views, columns and indexes, createdatabases, copydatabases, dropdatabases, renamedatabases and alter databases, tables, columns and indexes, execute, manage MySQL users and privileges, search globally in a database or a subset of it, track changes on databases, tables and views, create, edit, call, export and drop stored procedures and functions.

2.2 REVIEW OF RELATED LITERATURE

Through the process of designing the virtual community it was thoughtful to make some consultations with respect to virtual community these findings were made as summarised from the earliest publication to the most recent works/literature.

An virtual community is a group of people who interact in a virtual environment. The term virtual community is said to be first mentioned in and attributed to the book titled 'The Virtual Community' published by Howard Rheingold in 1993, who is also one of the first proponents of the concept. Rheingold created one of the first major virtual communities, called "The Well".

According to [9], virtual communities are defined as social aggregations that emerge from the Internet when enough people carry on public discussions long enough and with sufficient human feeling to form webs of personal relationships in cyberspace. Hence the assertion that a virtual community is

a network of individuals who interact through specific media, potentially crossing geographical and political boundaries in order to pursue mutual interests or goals.

According to [9], a virtual community can to some people also mean an online society made up of people sharing common interests, ideas, opinions, resources and even feelings over the Internet or other collaborative networks. Virtual communities are known to encourage interaction, some are either built around a particular interest of focus or built to enhance communication although some do both. The Virtual Community members are allowed to interact over a shared passion through various means: boards/forums, chats, social networking sites, or virtual worlds. They have a purpose, are supported by technology, and are guided by norms and policies. A number of factors shape the character of a virtual community. The purpose of the community could be health support, education, business, neighborhood activities inclined and the software environment supporting it (e.g. board, chat, instant messaging, or the combination) greatly influence the nature of the community. The community's governance structure and the types of norms and rules that develop provide a framework for social interaction within the community and vary widely among communities. Other factors that contribute to the variability of virtual communities include the size of the community; the age and stage in the life-cycle; the way the members of the community see things, respond and do things and whether the community has a physical component as well as the virtual one.

According to [6], the characteristics of an virtual community are determined by the social interactions of the members, and the policies that guide them, a concept known as sociability. Software design also contributes to the character of an online community. The ease with which the software can be used is known as its usability and this depends on how well the user interface supports human-computer interaction (HCI). Attention to social policies and software design is therefore an important component in community development and evolution.

Before the coming of the Web, virtual communities existed, they were created and presented on bulletin board services also called Computer Bulletin Board Service and many still do. Some virtual communities or facilitators of them use the metaphor of a coffee house, park or something similar to help users visualize the community.

A Bulletin Board Service (BBS) or Computer Bulletin Board Service (CBBS) is a computer server running software that allows users to connect to a provided system using a terminal program. It is most likely to be an online service that allows callers to send and receive private e-mail, read and post messages under Topic forums, find tech support, play games online in which users can compete

with each other, have live conversations with other online users but it not the internet. The user can perform functions such as uploading and downloading software and data/files, reading news and bulletins, and exchanging messages with other users through email, public message boards, and sometimes via direct chatting while logged in. Many Bulletin Board Services also offer online games in which users can compete with each other, and Bulletin Board Services with multiple phone lines often provide chat rooms, allowing users to interact with each other. A community that communicates via asynchronous chat system will have quite a different ambiance from one that uses anasynchronous bulletin board.Bulletin board systems were in many ways a predecessor to the modern form of the World Wide Web, social networks, and other aspects of the Internet. Low-cost, high-performance modems drove the use of online services and Bulletin Board Services through the early 1990s.

There are pictures of the front page, main menu and options menu of a bulletin board service platform for virtual community in **Appendix C**.

According to [8], there are two kinds of communication among virtual community members:

Message posting, Usenet newsgroups is an example of this and

Real-time chat, Internet Relay Chat (IRC) is an example of this, which is a system used by many Web sites that foster virtual communities.

Everyone is unique or said to be different. We all have different things that interest us and scare us, and our opinions about some topics vary significantly. Many of us search the Internet looking for other individuals having similar interests, fears, and opinions and who are willing to share. The best forum for such sharing is a virtual community (VC).

According to [1] in a bid to satisfy what a virtual community is, stated citing [4], that researchers need to differentiate between the technology on which thevirtual group exists and the actual virtual community and that we should first consider the virtual settlement within which virtual communities exist. Jones defines virtual settlements as the virtual place in which people interact. Similarly, Jones argues that we can understand virtual communities by understanding the its postings, structure and contentof its virtual settlement.

According to [4] a virtual settlement exists when there are a minimal number of public interactions with a variety of communicators in which there is a minimal level of sustained membership over a period of time. Additionally, that eventhough virtual communities and virtual settlements are conceptually separate, if one finds a virtual settlement, then one has found a virtual community. He adds that the feelings and socialrelationships that develop within the virtual settlement help distinguish a virtual community from a virtual

group. Although these feelings were regarded as important, he does not provide much insight into their nature.

In [2], there exists focus on these feelings, defining them as a psychological sense of community. Going further to argue that the sense of community is an essential characteristic of virtual communities. Essentially, virtual settlements are necessary, but not sufficient conditions for a virtual community. It is the sense of community that distinguishes virtual communities from mere virtual groups.

[5] have the most well-regarded and well-researched conceptualization of Sense Of Community. They define it as consisting of the feelings of membership, feelings of belonging to, and identifying with the community, feelings of having influence on, and being influenced by the community, integration and fulfillment of needs, feelings of being supported by others in the community while also supporting them and also a shared emotional connection, feelings of relationships, shared history, and a "spirit" of community. Their definition is considered the strongest and many researchers have adopted this conceptualization of the Sense Of Community. And one can take that a sense of community exists in virtual communities.

Being a Virtual Community became important with time and goes on and this can be attributed to virtual communities being considered important for social reasons. Community activists argued that they would help replace the relationships lost as people became more isolated from their neighbours [7]. This would not necessarily create a global village, but it would expand a person's village around the globe. As people became more connected with others through these virtual communities, they would reap the benefits of social relationships with like minded others. More locally, researchers have argued that virtual communities can increase involvement within people's face-to-face communities by increasing democratic participation and other community activism. Some researchers have even empirically shown that participation in virtual communities can increase participation in face-to-face communities [2]. So there are arguments for and evidence of the positive social effects of virtual community participation.

A more practical reason for the importance of virtual communities relates to sustainability. When participants experience feelings of community, they are more likely to increase or maintain their participation in the virtual communities. A virtual community, therefore, is more likely to be self-sustaining than a "regular" virtual group, and sustainability is a goal important to both for the sponsors and the participants of any particular virtual group.

Virtual communities have both social and practical importance. The key, however, is that not all virtual groups are virtual communities.

People create and establish Virtual Communities online to provide a forum by which individuals can share and interact regardless of the subject matter and with target audience. One community may focus on specific member characteristics, such as age or career, while another focuses on types of merchandise, like literature and educational.

One may join a Virtual Community to support a political candidate, or to cheer for our favourite sports team. Some Virtual Communities provide emotional support for seriously ill or injured patients and their relatives. Or maybe to provide support to a family with a child diagnosed with a disease. People also join a Virtual Community to gain freedom of expression and to interact with others without being concerned with geographic/country boundaries, ethnic backgrounds, sexual orientation, religious beliefs, or political views.

Some virtual communities are composed of individuals engaged in work-related activities. These are called professional communities, which are often referred to as Communities of Practice (CoP). In this type of community, members typically share business secrets. For example, a world renowned business person/organisation may share/exchange business keys/best practices with other community members or a Human Resources Management (HRM) enterprise shares employment or management tips and link people to jobs by sharing available job openings. Additionally, a customer-based Virtual Community formed by commercial companies establishes an environment where customers can openly share and disseminate information to other customers and company representatives. A customer community encourages product-related feedback and is also a good source for tips and advice about using the device you just purchased more efficiently.

In addition, According to [3] the most important asset/valuable part of a business company can possess is people - the human capital - and any plans to move your business forward have to start with people. And that human capital-human resources - is the single most important asset a company needs to take the next step in growth and innovation.

2.3 SUMMARY

Anyone can join a Virtual Community of their choice as long as the required technology, like hardware, software, and connectivity, is obtained. There are chat rooms and Virtual Communities offering specific and detailed information about products and services, as well as personal associations through E-mail. Social networks, such as Facebook and Twitter. The media sharing world is also represented by Virtual Communities like Pinterest and YouTube.

Virtual communities offer a wide range of information and support opportunities for our societies. As an example, in the area of health, we have the CaringBridge Virtual Community. CaringBridge began as a website for patients, medical professionals and acquaintances to provide a space to discuss medical procedures and options relating to a loved one's health condition and care. The website became a Virtual Community over time when individuals began creating their own websites documenting personal family medical situations and stories. Visitors frequented the self-generated websites looking for information and, in return, usually provided their own emotional support for those in need.

Virtual Communities also provide and create avenues and platforms where people collaborate/team-up taking up or given roles as they build and work towards a goal/projects. In a business setting, there would be an individual or maybe an organisation with a bright idea and prospective solution to today's problems and challenges but then being delayed due to limitations like lack of some skills or other resources (as I do consider skills as part of human resources being that exploring and utilizing human resources is one the aims of the virtual community) or even an established company or business undertaking a project, have to engage the services of various key players needed for the project. This can be efficiently solved by finding a (virtual) community may involve not just the ones creating the solutions but also various people or groups of people that can provide services and resources needed for the accomplishment and publication of the products and solutions. At times what a business needs is people to work and collaborate with not money or other physical capital/resources. Having the right team most times results in the people provides/bringing in or attract requires resources.

In virtual communities especially Communities of Practice (CoP) one can find someone somewhere has that a potential/skill or even more and is looking for who to work with or for willingly for very humble cost mostly because they love what they can do and looking forward to using it in fulfilling a greater good. Ofcourse this requires a teamwork approach but more than that is the identification, co-operation and designation of individuals to roles and areas of service and dedication to the respective areas. On a virtual community platform the community members all have a role to play to keep the community productive and alive just like in real communities. It could start from a user-who could be a person or organisation- that is an entrepreneur investing into and collaborating with a another user who could be an entrepreneur or a freelancer's business.

William Henry Gates III (Bill Gates), the renowned billionaire, programmer, philanthropist on his visit to Nigeria at the Expanded National Council said that the most important choice to make as it concerns Nigeria's economy is to

maximize our greatest resource, the Nigerian people. And that if investment is made in Nigerian peoples health, education and opportunities – the human capital or human resource as I would like to refer to it. He then said that if that's not done then it's very important to recognise that there will be a sharp limit on how much the country can grow.

SYSTEM ANALYSIS AND DESIGN

3.0 INTRODUCTION

In this chapter, as concerning the design and system analysis of the virtual community platform, understanding of what a system analysis and design is as a method, applied in computer systems, in order to develop a new system or to improve an existing system; which can solve a given problem. System analysis is the understanding of the build and state of an existing system, future requirements, and finding solutions to meet the user's/stakeholder's requirement with constraints and timeframe and the design deals with the final solution approach to a given problem. This is aimed at telling how the input will flow to give an explicit output. Hence this involves the process of analysing a given system, finding and defining problems/limitations, defining the system specification, providing best feasible solution to a given problem and maintain of the proposed system with day to day future developments.

The methodology implemented in this work is the Object Oriented Model involves the intensive reuse of software components. This methodology is characterised by its easy integration of existing software modules (called objects or components) into newly developed software systems. A software component library solves this purpose by supplying software components for reuse. This begins with a sequence of object oriented analysis and design. The design phase is followed by acquisition of suitable components from the reusable software library when available but in a case where the component isn't available, regular development procedure is carried out otherwise. After this, copies of newly developed software components are then stocked in the software library for future reuse. It is expected that the growing software components stocks in the reusable software library will allow substantial and increasing reuse of software. Some of the benefits of this methodology are that the cost of integrating a reusable software component is much lower than the cost of developing a new component, improved quality, and the integration of reusable software components reduces scheduling pressure.

3.1 DESCRIPTION OF THE EXISTING SYSTEM

In describing of an existing system, which in this case is the system behind the building of various forms of communities especially the social networks/communities, functionality, products/results, process, strengths and limitations.

Social networks/communities have a great reward promoting communion beyond distance barriers thereby have breached a lot of disconnections between people and groups of people. It has promoted communication very remarkably, creating and providing a protocol to ensure information/messages are created, sent, delivered and received as purposed. A Social Networks/Community being addressed here is particularly the virtual one, more casually called online social networks which are characterised by users spread across different locations and an organised platform. These are the major key players in the social network.

In the existing system the processes include:

User registration: Users must be registered to access the community and its features.

User to User connection: Users are able to connect to other users distance notwithstanding.

Post sharing: Information, status, messages, publication, treads, image and video media can be shared.

Advertisement: Users or subscribers can place adverts, publications and alerts for other users to see.

Account profile: Users on registration are

User to User Communications: Users via chat system and comment feature were able to communicate with each other privately and publicly.

Subscription: 'Follow' and 'Like' functions are the most popular subscription terms us. They help elicit users' interests and likes.

Joining Interest Groups: This is a sense of community that's most likened to this project development.

The proposed system innovates and draws ideas from some of these features and processes.

3.2 ANALYSIS OF THE PROPOSED SYSTEM

In the light of analysis of the proposed system I evaluated the existing virtual community platforms, the platforms where mostly business inclusive rather than business exclusive as this work is business exclusive. This analysis of an existing system also involved physical and real world business from around me in Nigeria. The evaluation helped in highlighting the limitations of the existing systems and to proffer improvements, innovations and solutions as packaged in the virtual community for business.

The existing virtual communities are becoming more of a thing of just fun and chatter or communication, some people still try operate their accounts with a business mind-set but the community seems to be too porous permitting the inappropriate content and operation and all these seem anti-productivity as laziness of the hands and minds is on the rise.

In the real world business platforms, there exists appropriate corporate lifestyle and order of actions but puts the business people in demand of doing business or being productive only during office or business times and then asides that time they retire to whatever remnant of life in them. The real world business people treat work as task/punishment or struggle thereby time aside the working hours are seen as time to live and the working hours seen as time to die.

The real world business puts a lot of tasks on the peoples neck that can make them loose joy which they tend to consolidate with the thought that salary evens them up.

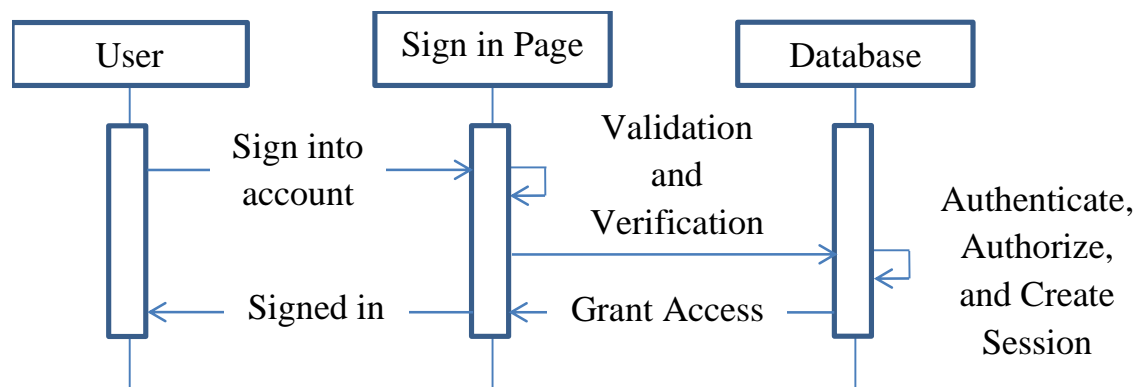


Fig.3.2.0: Account Registration & Sign in Sequence Diagram

A Sequence diagram helps demonstrate the sequence of activities and how the pages work in a system and the various functions and actions the pages initiate that in result interact over the course of the sequence between the user, database, and web browser. The Community and Account pages are secured and a user can access these pages only after Sign in; a user will not be able to access certain functions and pages without verifying their identity. The Sign in sequence diagram of the proposed system is shown above, where users will be able to sign-in into their account using their valid credentials. After sign in the users can manage and operate on the accessed pages and features.

Use Case Diagram

A Use case diagram shows the actions, activities or operations that users/actors of the proposed system will be able to perform within its designated class and sub system. It is also used to show all the actors that must play in their respective roles in order for the proposed system to function accordingly. The major actors of this system are the organisation, freelancer/entrepreneur and manager.

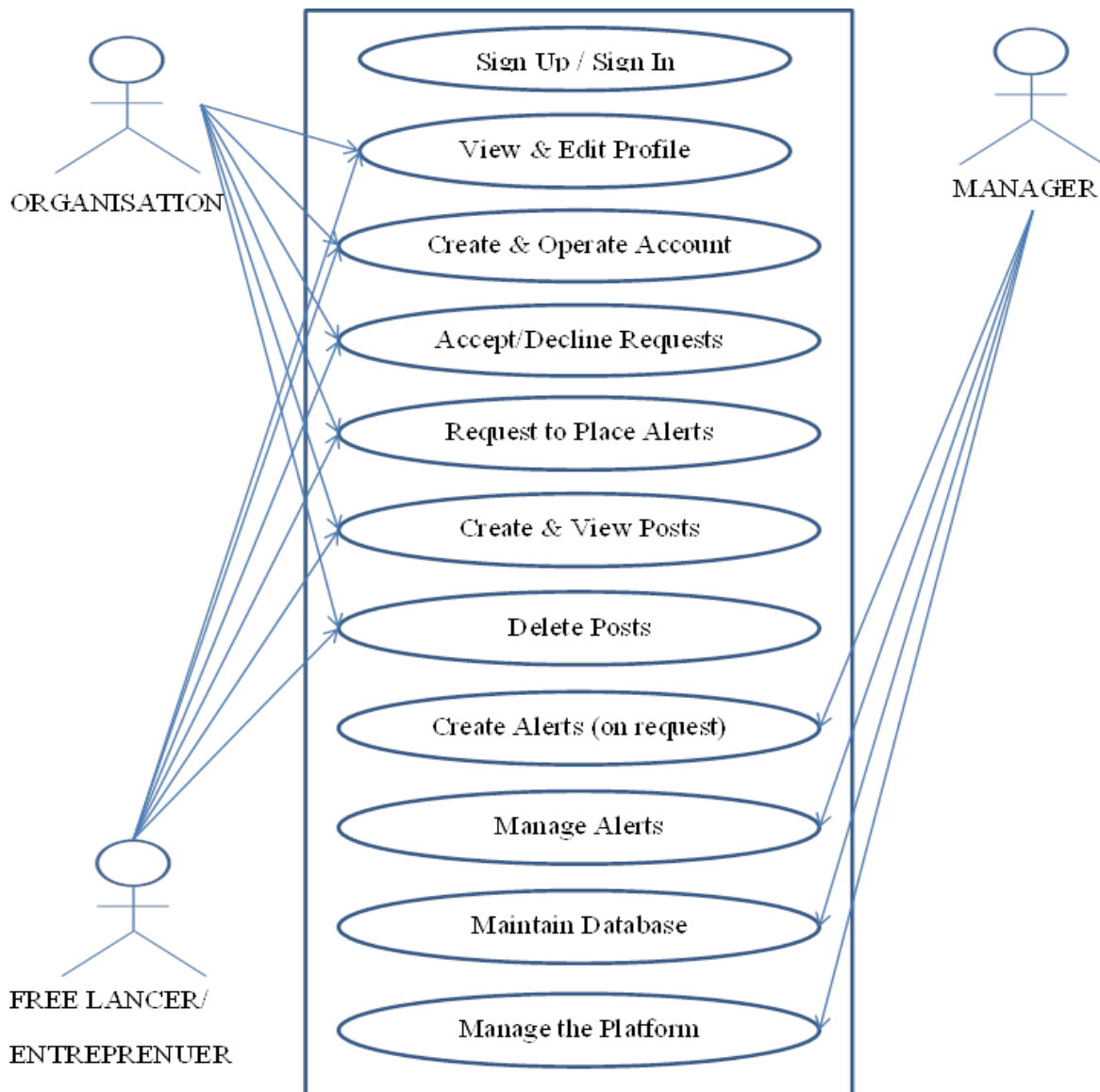


Fig.3.2.1: The Use Case Diagram

UML Diagram

The UML (Unified Modelling Language) diagram shows the interaction between the pages and functions.

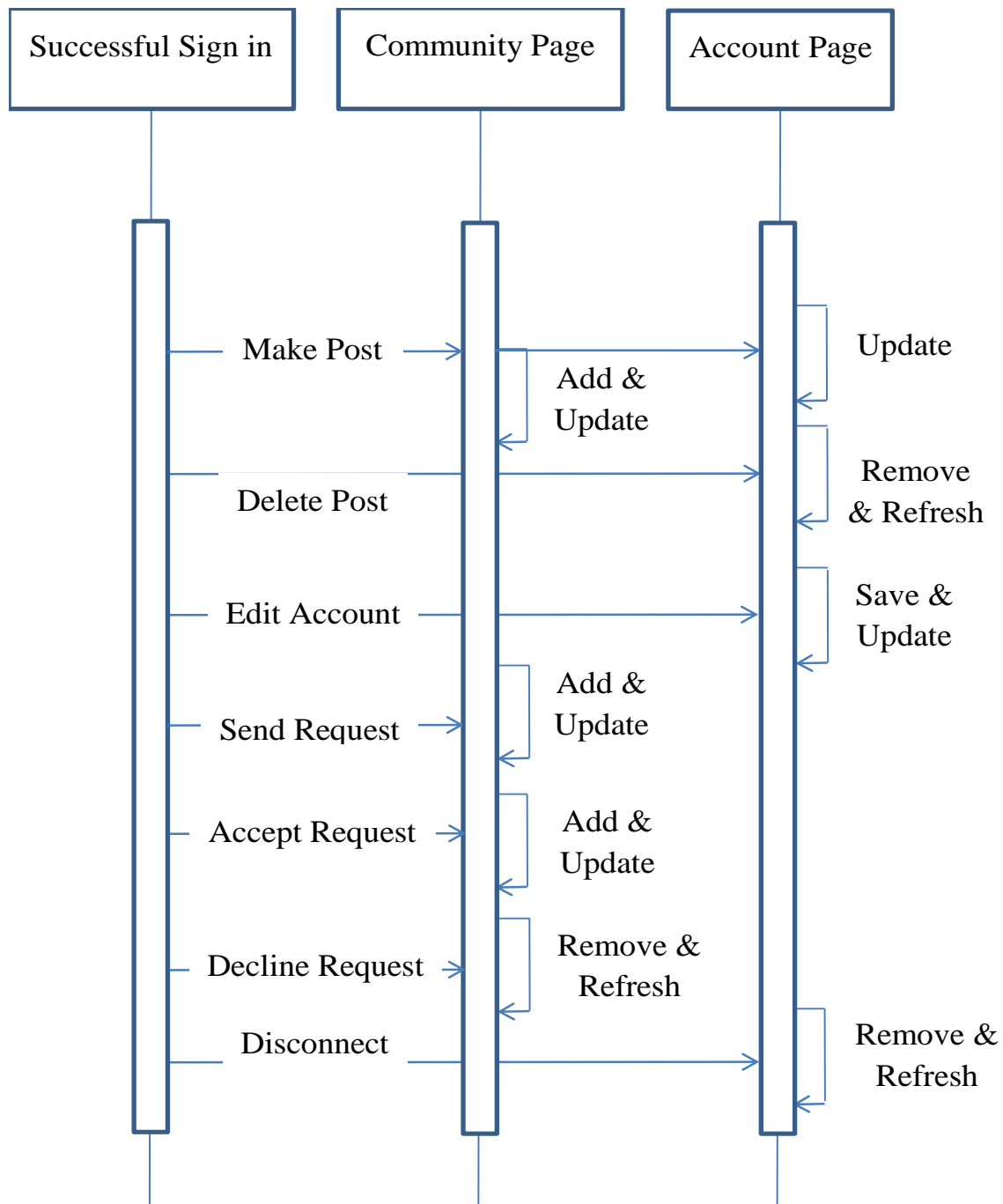


Fig.3.2.2: UML Diagram

3.3 DESIGN OF THE PROPOSED SYSTEM

The virtual community allows people create accounts used to help connect to job opportunities and jobs to able/qualified hands, collaborate on jobs/tasks and advertise.

The features of the virtual community include:

- Users are categorized; organisation and entrepreneur/freelancer.
- Login is allowed across multiple devices at same time but once per platform/device.
- An alert pane with limited publishing time to avoid excessive placements that may disturb the users.
- Sign-in function that would require a login identity such as User ID and Passkey to avoid unauthorized access and aid management.
- Support for accounts to request for adverts to be published on the community.
- Support for display of user's posts on user's account.
- Support for viewing of other user's account profile on user's account.
- Support for access from various web browsers.
- User friendly interface.
- Support for Send, Accept, Decline connection requests and disconnecting other accounts.
- Personalised Account management to share and delete posts.

The platform would be designed to have an index page from which the users can register user accounts and sign-in to navigate through the virtual community. For a visitor cannot move beyond the index page will bear some of the links but on sign-in, the park page will display all links on the menu bar for full access to contents/pages. The platform features multiple pages:

INDEX Page: This is the first page displayed on access to the platform (except in cases where account is already registered and logged in). It is the Register/Sign-in page from which access is granted to other pages and is returned to on sign out. This page was structured and designed using HTML and CSS, the server side was implemented using PHP and it was connected to the database and tables assigned to the Sign-in and Registration processes. Initially the page was designed to be an outlook and to link to the sign-in and registration page but eventually was left at being the Sign-in and Registration page. See index page code snippet **Appendix C**.

Community(Home) Page: This is for users to view posts from various accounts, send requests to the accounts, accept or decline requests and view

published alerts. It's the public community's front page; other accounts can be seen and accessed but not operated from here as it's not authorized. The Account and Sign Out links are placed here. This isn't accessible without being signed in. This page was structured and designed using HTML and CSS, the server side was implemented using PHP and it was connected to the database and tables assigned to the Posts, Alerts, and Requests processes.

Account(Profile) Page: This is for users to view, edit and update their accounts. The account's post can be seen and deleted from here; accepted requests can also be seen here. It should contain sign out and medium for lodging complaints. The Account and Sign Out links are placed here. This isn't accessible without being signed in. This page was structured and designed using HTML and CSS, the server side was implemented using PHP and it was connected to the database and tables assigned to the Posts, Edit and Disconnect processes. The database schema for proposed system is shown below:

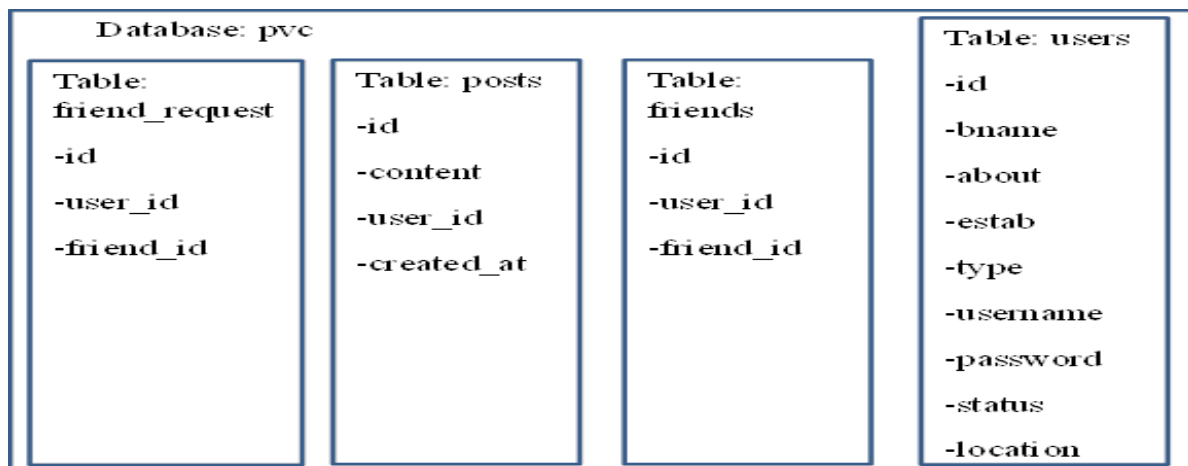


Fig.3.3.1 A schema illustration of the database and tables in it

Table Name: Posts			
S/N	Field Name	Data Type	Field Length
1	Id	int	11
2	Content	varchar	65000
3	user_id	int	11
4	created_at	datetime	

Table 3.3.2: Post table

A screen shot of tables created in the database is placed in **Appendix C**.

A screenshot of the user table in the database can be found in **Appendix C**.

SYSTEM IMPLEMENTATION

4.0 INTRODUCTION

System Implementation is the integration of interdependent physical devices with programming which provides the functionality and performance and meets the requirements for which the system was designed. System implementation includes all the activities necessary to set the system that has been analysed and designed to be fully functional to the users. The system was implemented using HTML5 and CSS at the frontend, PHP at the server side, Apache as the middleware and MySQL for Database at the backend.

4.1 CHOICE OF DEVELOPMENT ENVIRONMENT

The Integrated Development Environments: The Development of this platform, a Virtual Community for Business, was developed using the Sublime Text 3 Integrated Development Environment, Build 3176 and NetBeans Integrated Development Environment 8.2. Sublime Text is a propriety cross-platform source code editor with a Python Application Programming Interface. It natively supports many programming languages and Markup languages, and functions can be added by users with plugins, typically community-built and maintained under free-software licenses. NetBeans, though being an IDE for Java, has extensions for other languages like PHP, C, C++, HTML5 and JavaScript. NetBeans runs on Microsoft Windows, macOS, Linux and Solaris.

The choice of using the two IDEs was because I wanted to utilise the specific areas of strength of the two. Sublime Text 3 was used for most of the code input at it (from my view) seems to help to quicker input. Its dark theme helped keep the human eyes without stress though NetBeans IDE had dark theme, I preferred Sublime Text themes. NetBeans IDE 8.2 was used preferably for code organisation and making the codes easily readable via auto-format feature. I didn't find the auto-format feature on Sublime Text 3. But I also utilised the efficient quick find and replace feature as this help locate and correct codes and lines of code at will. NetBeans IDE also offered code compare feature and more accommodation for code per view (in my opinion). The code compare feature helped me trace bugs and debug them. The both IDE were necessary and important for me during the project work as concerning coding (and learning as well).

The Web-Programming Languages:

Through the development of this project work **HTML** (Hyper-text Markup Language) for structure of the webpages, Cascading Style Sheet (CSS) for styling and designing the outlook of the webpages, Hyper-text Pre-processor (PHP), as the server-side and MySQL (My Structured Query Language) were implemented at various times and to various causes so as to come up with a stable and simple platform. The choice of these technologies were predetermined as I didn't want to involve JavaScript, AJAX and some other technologies fit for such a project and that was one of the causes for the highly demanding of this work.

CASCADING STYLE SHEET (CSS) was used for styling the environments and pages which involves colouring, positioning, decoration, alignment etc. CSS was implemented to create rules that specify how the content of an element should appear.

CSS works by associating rules with HTML elements and these rules control how the content of specified elements should be displayed.

HYPER-TEXT PRE-PROCESSOR (PHP) is a server-side open source Web scripting language. It is used for developing dynamic Web pages. PHP supports powerful features for form handling. PHP uses cookies to store information on the user's local computer and uses sessions to store user information on the Web server. A PHP code is prompted by and enclosed in a `<?php` `?>` tag.

THE WEB BROWSER

The web browser was very essential in the development process as it was used to view what the codes did and also to check for bugs. Throughout the process of development the web browsers utilised were Opera version 34.0, Microsoft Edge version 42.17134.1.0, Internet Explorer version 11.112.17134.0 and Google ChromiumVersion 69.0.3491.0 (Developer Build) was used to view the results of the codes. The choice for involving the various browsers was to view the outlook of the work being and noting areas needing improvements and also to help me know best to style, align and implement the codes for the platform.

XAMPP

XAMPP (Apache, MariaDB, Pearl, PHP) was used to host the web-based pages locally on the computer. Without this the pages in .php format won't run and the php won't work but the .html format files will load in the web browser. It has certain configuration settings that make it easy to develop locally but that are insecure if you want to have your installation accessible to others. To run the

.php files without internet connection, XAMPP had to be installed and Apache and MySQL enabled/started. Doing this required so little as to install and run XAMPP as administrator, start the Apache and MySQL by clicking their respective buttons then save the file in .php format into the htdocs folder found in the xampp directory on the local disk, after saving the php file type <http://localhost/thefilepath> or <http://127.0.0.1/thefilepath> into the address space on the web browser and your .php page would be displayed (if it's done right).

phpMyAdmin

This is used on the database end. It can be used to manage, browse and drop databases, tables, views, columns and indexes, create databases, copy databases, drop databases, rename databases and alter databases, tables, columns and indexes, execute, manage MySQL users and privileges, search globally in a database or a subset of it, track changes on databases, tables and views, create, edit, call, export and drop stored procedures and functions.

As the MySQL was started on XAMPP it enabled the local host activate and communicate with the database management system. A lot of input and output would be bugged if this wasn't done as the database system holds data supplied and retrieved from the virtual platform.

MySQL

MySQL is the fastest growing open-source relational database management system. It is a popular database of choice for use in web apps and is currently used by many big and popular web platforms. It makes use of SQL, a language for managing data in relational databases. MySQL (My Structured Query Language) was implemented for communication with the database. It was specific for creating the database used, creating tables in the database, storing data into the tables in the database and retrieving stored data when and where needed. We'll be writing SQL queries alongside PHP. SQL databases contain tables.

4.2 IMPLEMENTATION ARCHITECTURE

Block Diagram

A Block diagram is a diagram of a system in which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. Here it's used in designing and process flow as seen below.

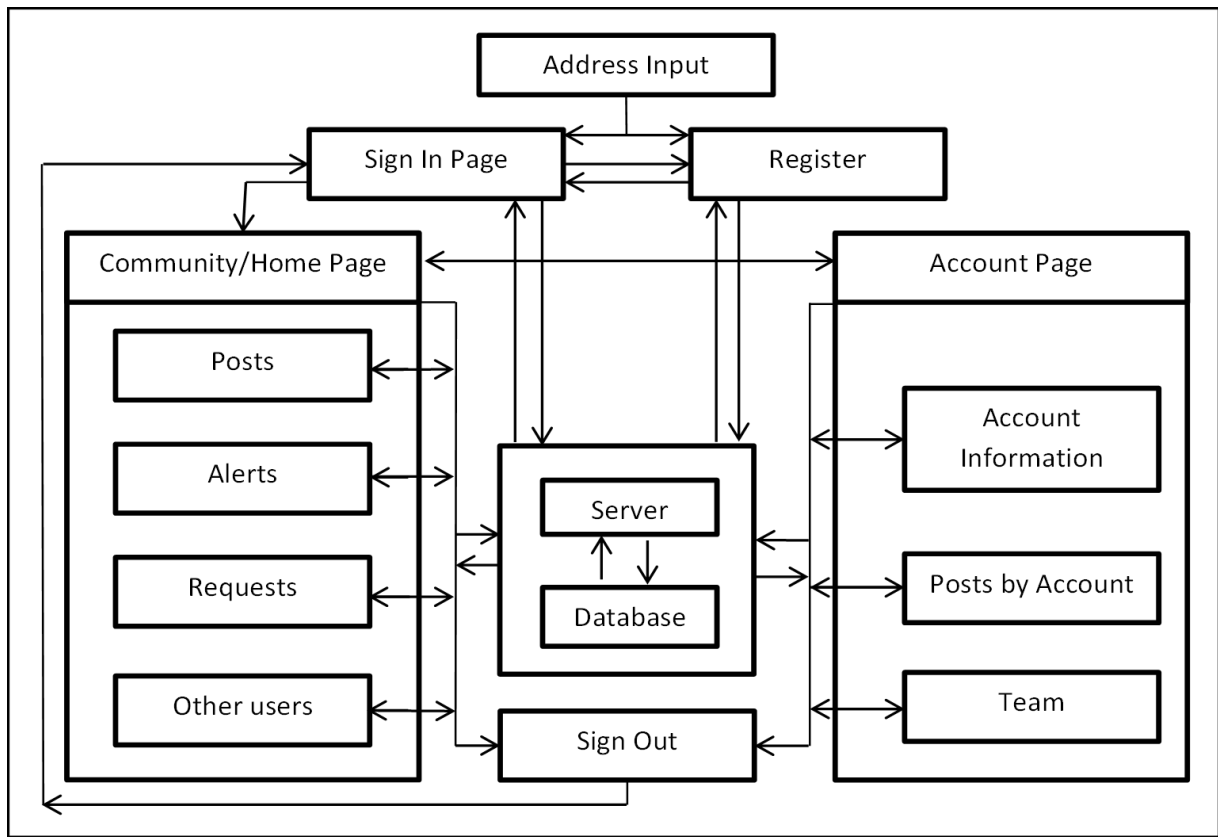


Fig.4.2.0: Block Diagram

The 3-Tier diagram can be found in **Appendix C**.

4.3 SOFTWARE TESTING

The system is tested at every stage of its development in order to be able to detect errors and remove them immediately. Tests were carried in two major phases:

Testing was carried out during the development phases of the project to ascertain that the code and designs were appropriately implemented and that the requirements were met. In this process, errors were frequently observed but were also subsequently corrected and the requirements met. The errors can also be called bugs; hence the process of testing for bugs/abnormalities and fixing them is called debugging.

Compatibility Testing was done to determine whether all the languages and technologies used in the development of the Virtual Community platform were well integrated with each other.

Browser Testing was done to test the appearance and structure of the web platform on the browser. Testing for this involved running the project on

various web browsers including Google Chromium, Microsoft Edge, Opera, and Internet Explorer; all Windows PC versions.

Testing was also carried out using sample data to check the input, processing and output functionality of the project. Being a web based program, it was run on XAMPP's localhost with Apache engine and MySQL for database operations to emulate actual web service and hosting experience identifying my computer as a network node.

Syntax Errors are errors due to wrong/bad syntax; the rules that state how words and phrases must be used in a computer language. Testing for syntax errors was used to check for all syntax errors and reports encountered during the development of the project work.

Logical Errors are errors due to wrong/invalid arguments implemented during the development of the platform. Testing for logical errors was done to check whether the argument will be accepted by the system and if it's not the argument is corrected or valid. See index page screenshot in **Appendix C**.

The following are screenshots of test processes after debugging:

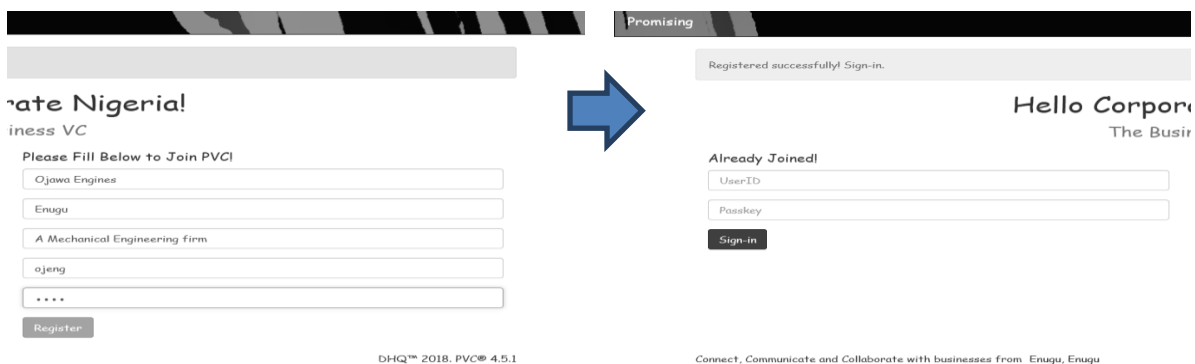


Fig.4.3.1: Sign Up Test



Fig.4.3.2: Sign In Test

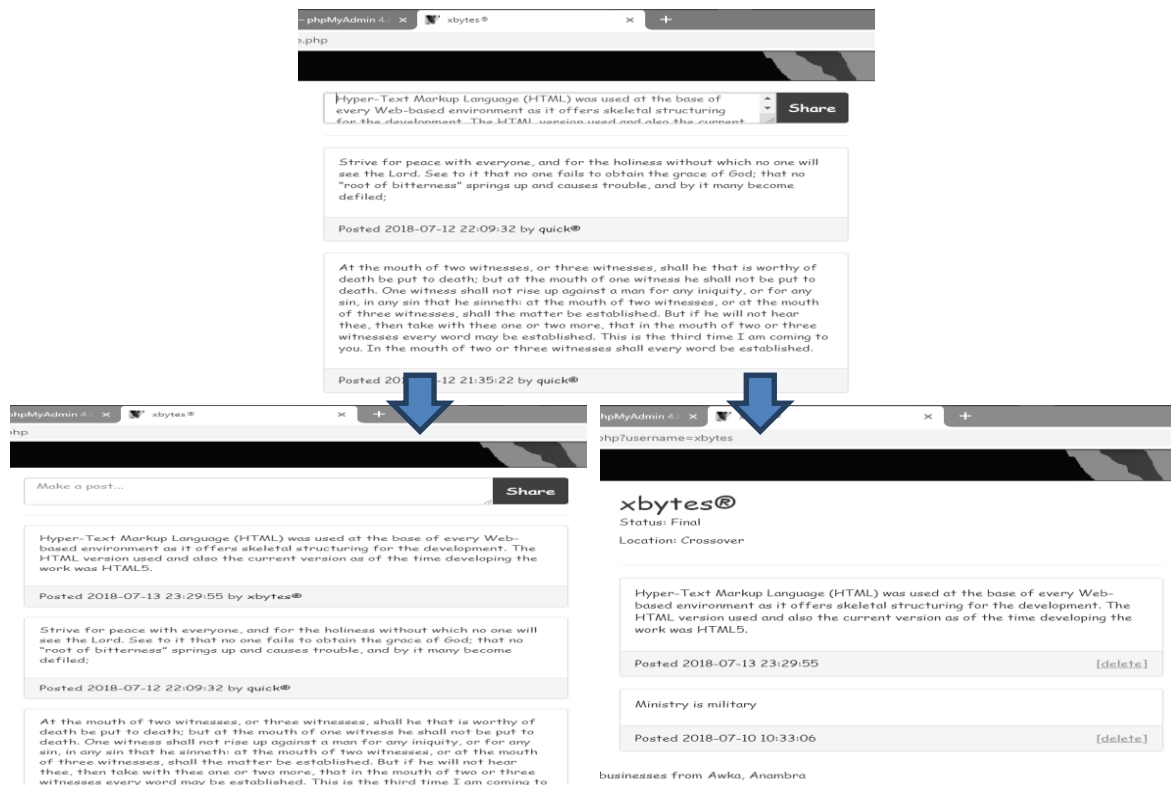


Fig.4.3.3: Post Test

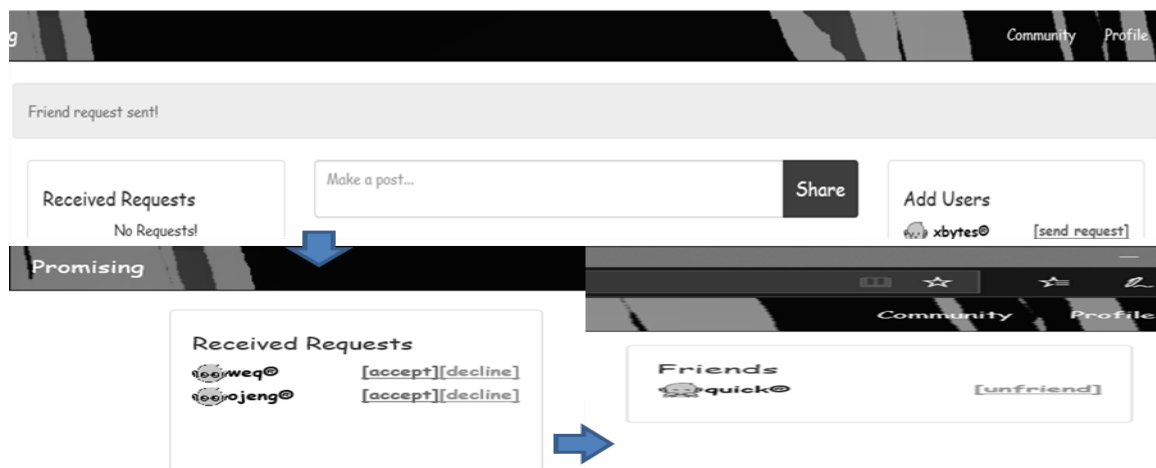


Fig.4.3.4: Request Test

4.4 DOCUMENTATION

This system was built with HTML5 features and tags, PHP, CSS, XAMPP with its phpMyAdmin and MySQL; they are all open source technologies hence they'll allow modification to place in future.

phpMyAdmin is a free software tool written in PHP that is intended to handle the administration of a MySQL or MariaDB database server. You can use phpMyAdmin to perform most administration tasks, including creating a database, running queries, and adding user accounts. Currently phpMyAdmin can:

- create, browse, edit, and drop databases, tables, views, columns, and indexes
- perform create, copy, drop, rename and alter on databases, tables, columns and indexes
- load text files into tables
- export data to various formats: CSV, XML, PDF, ISO/IEC 26300 - OpenDocument Text and Spreadsheet, Microsoft Word 2000, and LATEX formats
- import data and MySQL structures from OpenDocument spreadsheets, as well as XML, CSV, and SQL files
- add, edit, and remove MySQL user accounts and privileges
- connecting required tables
- Search globally in a database or a subset of it
- support InnoDB tables and foreign keys
- support MySQL, the improved MySQL extension
- communicates in 80 different languages

Shortcut keys: Currently phpMyAdmin supports following shortcuts:

- k - Toggle console
- h - Go to home page
- s - Open settings
- d + s - Go to database structure (Provided you are in database related page)
- d + f - Search database (Provided you are in database related page)
- t + s - Go to table structure (Provided you are in table related page)
- t + f - Search table (Provided you are in table related page)
- Backspace - Takes you to older page.

Requirements

Web server: Since phpMyAdmin's interface is based entirely in the web browser, a web server (such as Apache, nginx, IIS) is needed to install phpMyAdmin's files into.

PHP: PHP 5.5.0 or newer is needed, with session support, the Standard PHP Library (SPL) extension, and JSON support. The mbstring extension is strongly recommended for performance reasons. To support uploading of ZIP files, the

PHP zip extension is needed. When using the cookie authentication (the default), the openssl extension is strongly suggested.

Database: phpMyAdmin supports MySQL-compatible databases; for instance and in this case MySQL 5.5 or newer and MariaDB 5.5 or newer which were used.

Web browser: To access phpMyAdmin a web browser with cookies and JavaScript enabled is needed. A web browser which is supported by jQuery 2.0 is needed.

Installation on Windows PC

The easiest way to get phpMyAdmin on Windows is using third party products which include phpMyAdmin together with a database and web server such as XAMPP.

Configuring phpMyAdmin

There are many configuration settings that can be used to customize the interface. Those settings are described in Configuration. There are several layers of the configuration. The global settings can be configured in config.inc.php as described in Configuration. This is only way to configure connections to databases and other system wide settings. On top of this there are user settings which can be persistently stored in phpMyAdmin configuration storage, possibly automatically configured through Zero configuration. If the phpMyAdmin configuration storage are not configured, the settings are temporarily stored in the session data; these are valid only until you logout. You can also save the user configuration for further use, either download them as a file or to the browser local storage. You can find both those options in the Settings tab. The settings stored in browser local storage will be automatically offered for loading upon your login to phpMyAdmin.

User management

User management is the process of controlling which users are allowed to connect to the MySQL server and what permissions they have on each database. phpMyAdmin does not handle user management, rather it passes the username and password on to MySQL, which then determines whether a user is permitted to perform a particular action. Within phpMyAdmin, administrators have full control over creating users, viewing and editing privileges for existing users, and removing users. Within phpMyAdmin, user management is controlled via the Users link from the main page. Users can be created, edited, and removed.

Creating a new user: To create a new user, click the Add a new user link near the bottom of the Users page (you must be a “superuser”, e.g., user “root”). Use

the textboxes and drop-downs to configure the user to your particular needs. You can then select whether to create a database for that user and grant specific global privileges. Once you've created the user (by clicking Go), you can define that user's permissions on a specific database (don't grant global privileges in that case). In general, users do not need any global privileges (other than USAGE), only permissions for their specific database.

Editing an existing user: To edit an existing user, simply click the pencil icon to the right of that user in the Users page. You can then edit their global- and database-specific privileges, change their password, or even copy those privileges to a new user.

Deleting a user: From the Users page, check the checkbox for the user you wish to remove, select whether or not to also remove any databases of the same name (if they exist), and click Go.

Assigning privileges to user for a specific database: Users are assigned to databases by editing the user record (from the Users link on the home page) not from within the Users link under the table. If you are creating a user specifically for a given table you will have to create the user first (with no global privileges) and then go back and edit that user to add the table and privileges for the individual table.

The developed system is packed in the provided storage device in a directory named **BVC**

4.5 USER MANUAL

Procedure on how to execute the program:

- i. Boot the system to windows desktop.
- ii. Install Sublime Text 3/NetBeans 8.2 IDE and XAMPP Server.
- iii. Launch Sublime Text 3/NetBeans 8.2 IDE and XAMPP Server.
- iv. Click on the start button attributed to the Apache row and the start button on the MySQL row.
- v. Open the file from the CD drive and copy the file (pvc4) and paste at C:\xampp\htdocs\it's a XAMPP server folder named 'htdocs'.
- vi. Open the browser and type localhost/pvc4 to access the index page.

The home.php, header.php, footer.php and functions.php source code of this system is attached in **Appendix A**.

4.6 SOURCE CODE LISTING

Please see (**Appendix A**)

SUMMARY AND CONCLUSION

5.0 SUMMARY OF FINDINGS

After due consideration of the outcome of the data and findings enumerated in preceeding chapters, this chapter brings into conclusion and summary the project report.

Through the time and process of developing the virtual community there were various challenges some embedded in others but after every solution there came more knowledge and insight. Through the practice of designing operation process which was partly achieved with the flowchart, standard understanding and process of generating a flowchart. Having some knowledge of a flowchart before the research, more knowledge and understanding gained during the research helped in producing a good flowchart and also having some knowledge of developing a structure and design of a system.

The development of the virtual platform enhanced the existing knowledge and skill in web-based development. Knowledge in the implemented coding languages was greatly improved.

The study undergone with respect to business in (corporate) Nigeria served a great enlightenment in the business as well as various types of technologies have been and can be implemented in business and how and having the two fronts complement each other and also work together productively.

5.1 CONCLUSION

The development of the virtual community for businesses and projects was a hectic one yet a successful one. The product is a worthwhile result of innovation research, learning and good work. The Virtual Community is hoped to help improve corporate Nigeria, being designed to serve as a platform for co-operation, growth, promotion and collaboration.

Despite the challenges at different levels especially discontinuity with the initially intended programming language (python programming language). The platform is hoped to serve its purpose and as well render solutions and eliminate/reduce the limitations that exist in business today.

5.2 RECOMMENDATION

Post development views of the platform lead to the following recommendations, which were born from tests/observations, further researches, innovation and complementary work.

- The platform should be developed and implemented into an end-user application. This is to break the limitation due to low/lack of strong and steady network service. This would enhance portability, ease of access and extension adjustments. This can be in PC, Mac, mobile executable files.
- The application could be developed to be customisable to allow users especially large businesses redesign/create their extension with their preferences implemented.
- The end-user application could be monetised by categorically creating application extensions
- Having come to an understanding of how the virtual community is built and works, work can be put in to create/develop inovative/advanced systems in the future.
- The reward for good work is more work; a chat and groups of system, a like/follow/subscribe function, and interest team feature could be integrated into the platform as well as some other business tools.
- Development of such work should be an open ended one so as to allow further innovation, improvement and implementation.

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APPENDICES

APPENDIX A :

SOURCE CODES

**Source code for
home.php(Community)**

```
<?php require_once "functions.php";
?>

<?php include "header.php"; ?>

<?php
check_auth();

db_connect();

?>

<div>
<!-- main -->

<main class="container">

<!-- messages -->

<?php if
(isset($_GET['request_sent'])): ?>

<div class="alert alert-success">

<p>Friend request sent!</p>

</div>

<?php endif; ?>

<!-- ./messages -->

<div class="row">

<div class="col-md-3">

<!-- friend requests -->

<div class="panel panel-default">

<div class="panel-body">
```

```
</div> Received Requests</h4>

<?php

$sql = "SELECT *
FROM friend_requests WHERE
friend_id =
{$_SESSION['user_id']}";

$result = $conn-
>query($sql);

if ($result->num_rows > 0) {

?><dt><?php

while ($f_request = $result-
>fetch_assoc()) {

?>

<dt>

<?php

$u_sql =
"SELECT * FROM users WHERE
id = {$f_request['user_id']} LIMIT
1";

$u_result =
$conn->query($u_sql);

$fr_user =
$u_result->fetch_assoc();

?>

<a
href="profile.php?username=<?php
echo $fr_user['username'];
?>"><?php echo
$fr_user['username']; ?>&reg;</a>
```

```
<a class="text-danger"
href="php/remove-
request.php?uid=<?php echo
$fr_user['id']; ?>">[decline]</a>
```

```
<a class="text-success"
href="php/accept-
request.php?uid=<?php echo
$fr_user['id']; ?>">[accept]</a>
```

```
</dt>
```

```
<?php }
```

```
?></dt><?php
```

```
} else {
```

```
?>
```

```
<p class="text-center">No
Requests!</p>
```

```
<?php
```

```
}
```

```
?>
```

```
<br>
```

```
<br>
```

```
</div>
```

```
<!-- ads alert -->
```

```
<div class="panel">
```

```
<div class="panel-body">
```

```
<h4>Alerts <small>(hover to
steady)</small></h4>
```

```
<marquee direction="up"
onmouseover="stop()"
onmouseout="start()"
scrollamount="2" scrolldelay="0"
style="height:400px;">
```

```
<div class="text-center">
```

```
<?php
```

```
$sql =
"SELECT username FROM users
WHERE id = ? LIMIT 1";
```

```
$statement =
$conn->prepare($sql);
```

```
$statement-
>bind_param('i', $post['user_id']);
```

```
$statement-
>execute();
```

```
$statement-
>store_result();
```

```
$statement-
>bind_result($post_author);
```

```
$statement-
>fetch();
```

```
?>
```

```
<p><b>ATTENTION!</b><br/>
```

You can request to have your content placed here.

Simply type it into your Status, type Alert as your Location then Update.

Also share a post saying ALERT REQUEST! before or after your update.

Your request will be reviewed and placed if it's fit, if not the report will be placed on your alert space.

</p>

<hr />

<p>ATTENTION!

After your content is placed on Alerts.

It's displayed for 4 days then it's removed.

If you would prefer a shorter time or longer time please indicate in the Status as you update.

If want to reduce/extend the time after its already posted repeat the request process but with ALERT REQUEST!! instead.

And ALERT REQUEST!!! if you want to withddraw the placement.

Please don't forget to indicate the duration like this D1 for one Day, H1 for one Hour, likewise for Minutes, Seconds and Weeks

</p>

<hr>

<p>ATTENTION!

Work is being put into this community keenly for the benefit of all.

Feel free to king share your commendations, support, suggestions and reports on the community page.

It'll be noted and appropriately responded to.

Thanks for your corporation. Explore

</p>

<hr>

<p>Team Meet-Up

If you have a team you work with whether individual or organisation.

You place alerts for them to see from here.
</p>

<hr>

<p>Hiring

If you are hiring or want to be hired, you can place content here.

</p>

<hr>

<p>Role Alert

You can place alerts for available roles in your teams
</p>

<hr>

```

<p><b>Business Trend</b><br/>
                Business
nuggets, news and other information
can be placed here.<br/></p>
</div>
</marquee>
</div>
</div>
<!-- ./ads alert -->
</div>
<!-- ./friend requests -->

</div>

<div class="col-md-6">
<!-- post form -->
<form          method="post"
action="php/create-post.php">
<div class="input-group">
<!--<input      class="form-control"
type="text"      name="content"
placeholder="Make a post..."
required> -->
<textarea      class="form-control"
type="text"      name="content"
placeholder="Make a post..."
required></textarea>
<span class="input-group-btn">

```

```

<button      class="btn btn-primary"
type="submit"
name="post"><h4/>Share</button>
</span>
</div>
</form><hr>
<!-- ./post form -->
<!-- feed -->
<div>
<!-- posts -->
<?php
                $sql = "SELECT *
FROM posts ORDER BY created_at
DESC";
                $result = $conn-
>query($sql);

if ($result->num_rows > 0) {
while ($post = $result-
>fetch_assoc()) {
                ?>
<div class="panel panel-default">
<div class="panel-body">
<p><?php echo $post['content'];
?></p>
</div>
<div class="panel-footer">
<?php

```

```

        $sql =
"SELECT username FROM users
WHERE id = ? LIMIT 1";

        $statement =
$conn->prepare($sql);

        $statement-
>bind_param('i', $post['user_id']);

        $statement-
>execute();

        $statement-
>store_result();

        $statement-
>bind_result($post_author);

        $statement-
>fetch();

        ?>

```

```

<span>Posted <?php echo
$post['created_at']; ?> by <a
href="profile.php?username=<?php
echo $post_author; ?>"><?php echo
$post_author; ?>&reg;</a></span>

```

```

</div>

```

```

</div>

```

```

<?php

```

```

    }

```

```

    } else {

```

```

        ?>

```

```

<p class="text-center">No posts
yet!</p>

```

```

<?php

```

```

    }

```

```

        ?>

```

```

<!-- ./posts -->

```

```

</div>

```

```

<!-- ./feed -->

```

```

</div>

```

```

<div class="col-md-3">

```

```

<!-- add friend -->

```

```

<div class="panel panel-default">

```

```

<div class="panel-body">

```

```

<h4>Add Users</h4>

```

```

<?php

```

```

        $sql = "SELECT id,
username, (SELECT COUNT(*)
FROM friends WHERE
friends.user_id = users.id AND
friends.friend_id
= {$_SESSION['user_id']}) AS
is_friend FROM users WHERE id
!= {$_SESSION['user_id']}
HAVING is_friend = 0";

```

```

        $result = $conn-
>query($sql);

```

```

if ($result->num_rows > 0) {

```

```

        ?><dt><?php

```

```

while ($fc_user = $result-
>fetch_assoc()) {

```

```

        ?>

```

```

<dl>

```

```

<a
href="profile.php?username=<?php
echo $fc_user['username']; ?>">

<?php echo $fc_user['username'];
?>&reg;

</a>

<a                class="text-success"
href="php/add-
friend.php?uid=<?php        echo
$fc_user['id'];            ?>">[send
request]</a>

</dl>

<?php

                }

                ?></dt><?php

        } else {

                ?>

<p class="text-center">No users to
add!</p>

<?php

                }

                ?>

</div>

</div>

<!-- ./add friend -->

</div>

</div>

</main>

<!-- ./main -->

</div>

```

```

<?php include "footer.php"; ?>

```

Source code for header.php

```

<!DOCTYPE html>

<html>

<head>

<meta charset="utf-8">

<!-- Always force latest IE rendering
engine or request Chrome Frame -->

<meta content="IE=edge,chrome=1 "
http-equiv="X-UA-Compatible">

<meta                name="viewport"
content="width=device-width,
initial-scale=1.0" />

<title><?php

if (is_auth()) {

echo $_SESSION['user_username'] .
'&reg;';

        } else {

echo "Nigeria's Corporate Virtual
Community";

        }

?></title>

<meta                name="description"
content="Promising is a virtual
community for corporate Nigeria."
/>

```

```
<meta name="keywords"
content="promising, promising vc,
promisingvc, bvcness, bvc,
corporatenigeria, corporate nigeria,
businessvc, business vc, business
platform, business platform,
business community,
businesscommunitycorporateplatfor
m, corporate platform pvc, provc,
devhq, dhq, qunltd" />
```

```
<link rel="stylesheet"
type="text/css"
href="css/style.min.css">
```

```
<link rel="stylesheet"
type="text/css" href="css/style.css">
```

```
<link rel="icon" type="img/png"
href="img/favicon.png">
```

```
</head>
```

```
<body>
```

```
<!--nav -->
```

```
<nav class="navbarnavbar-default">
```

```
<div class="container-fluid">
```

```
<div class="navbar-header">
```

```
<a class="navbar-brand"
href="index.php">Promising</a>
```

```
</div>
```

```
<ul class="navnavbar-navnavbar-
right">
```

```
<?php if (is_auth()): ?>
```

```
<li><a
href="home.php">Community</a><
/li>
```

```
<li><a
href="profile.php?username=<?php
echo $_SESSION['user_username'];
?>">Account</a></li>
```

```
<li><a href="php/logout.php">Sign
Out</a></li>
```

```
<?php endif; ?>
```

```
</ul>
```

```
</div>
```

```
</nav>
```

```
<!-- ./nav -->
```

Source code for footer.php

```
<!-- footer -->
```

```
<footer class="container text-left">
```

```
<ul class="nav">
```

```
<li>
```

```
<div class="footer-mod">
```

```
<h5 class="remote-text">
```

```
Connect, Communicate
and Collaborate with businesses
from <div class="remote-
locations"><p style="float:
right;">DHQ&trade; 2018.
PVC&reg; 4.5.1</p>
```

```
<span>Awka, Anambra</span>
```

```
<span>Enugu, Enugu</span>
```

```
<span>Victoria Island,
Lagos</span>
```

```
<span>Ikeja, Lagos</span>
```

```
<span>FCT, Abuja</span>
```

```

<span>Port-Harcourt,
Rivers</span>
<span>Owerri, Imo</span>
<span>Kaduna, Kaduna</span>
<span>Abeokuta, Ogun</span>
<span>Ibadan, Oyo</span>
<span>Calabar, Cross-River</span>
<span>Uyo, AkwaIbom</span>
<span>Asaba, Delta</span>
<span>Kano, Kano</span>
<span>Oshogbo, Osun</span>
<span>Umuahia, Abia</span>
<span>Surulere, Lagos</span>
<span>Nnewi, Anambra</span>
<span>Onitsha, Anambra</span>
<span>Aba, Abia</span>
<span>Warri, Delta</span>
</div>
</h5>

</div>
</li>
</ul>
</footer>
<!-- ./footer -->

```

```
</body>
```

```
</html>
```

```
<?php $conn->close(); ?>
```

Source code for function.php

```

<?php

session_start();

function db_connect() {
    global $conn; // db connection
    variable

    $db_server = "localhost";
    $username = "root";
    $password = "";
    $db_name = "pvc";

    // create a connection

    $conn = new mysqli($db_server,
$username, $password, $db_name);

    // check connection for errors

    if ($conn->connect_error) {
        die("Error: " . $conn-
>connect_error);
    }
}

```



```
}
```

```
function redirect_to($url) {  
    header("Location: " . $url);  
    exit();  
}
```

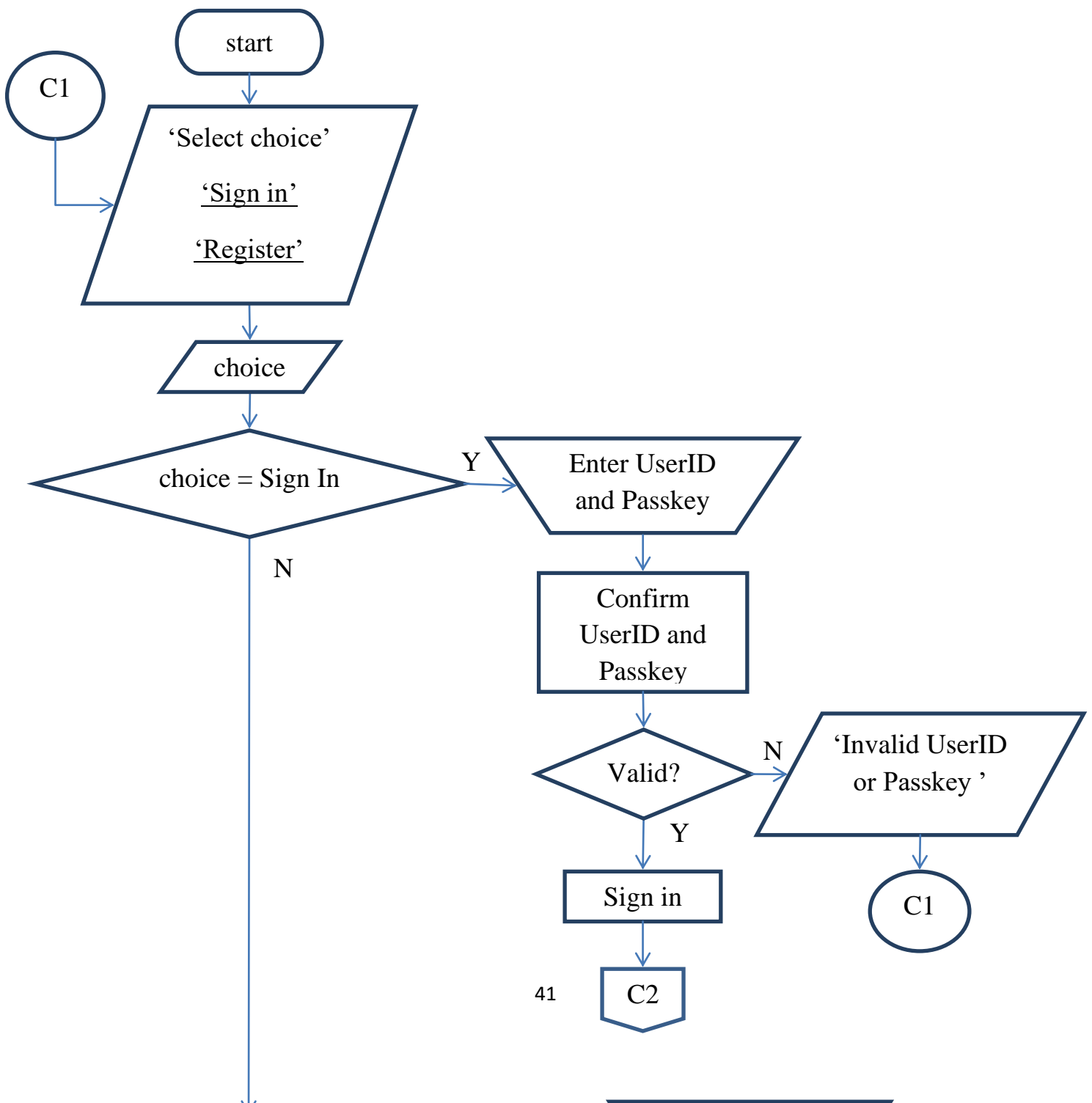
```
function is_auth() {
```

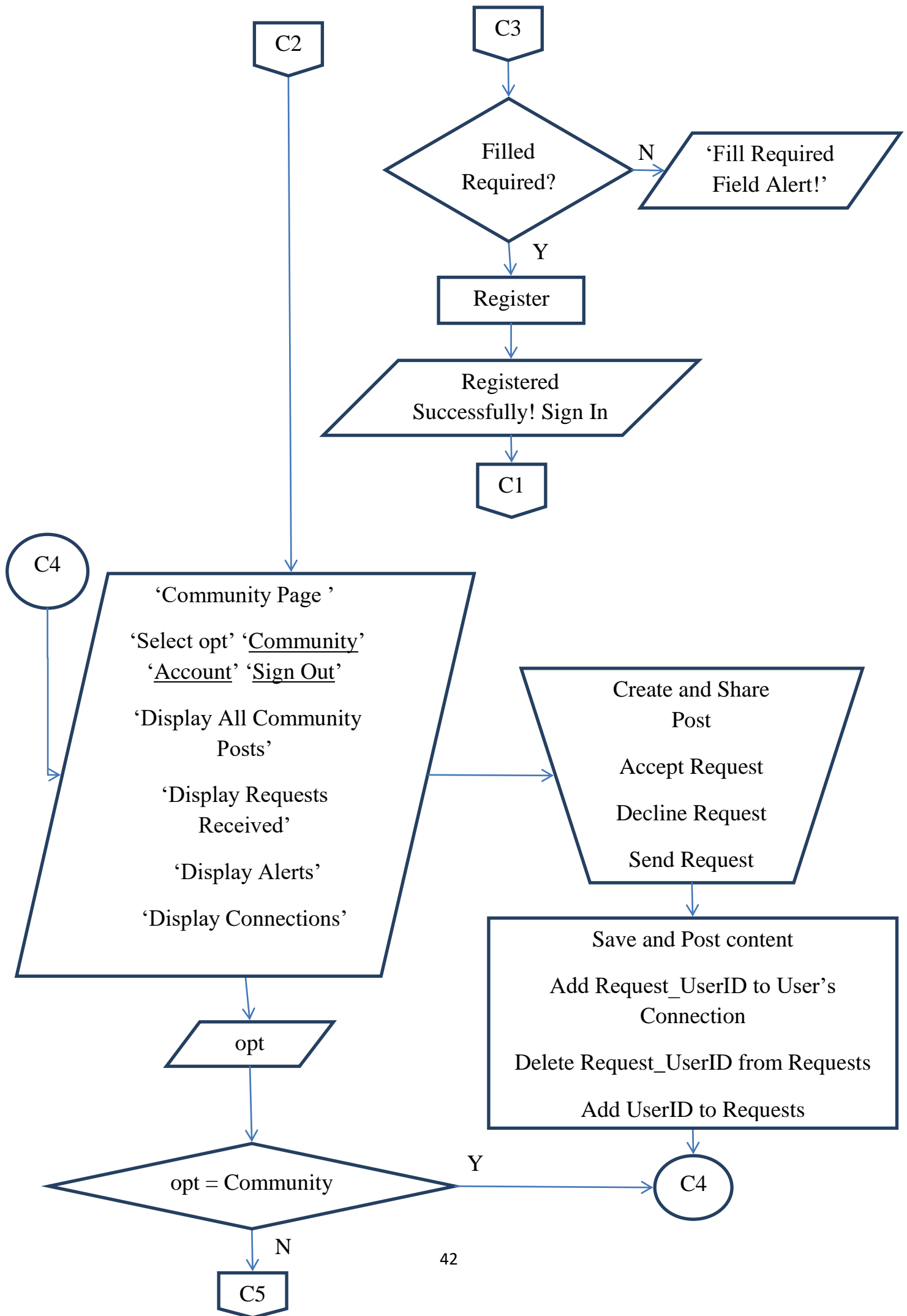
```
    return isset($_SESSION['user_id']);  
}
```

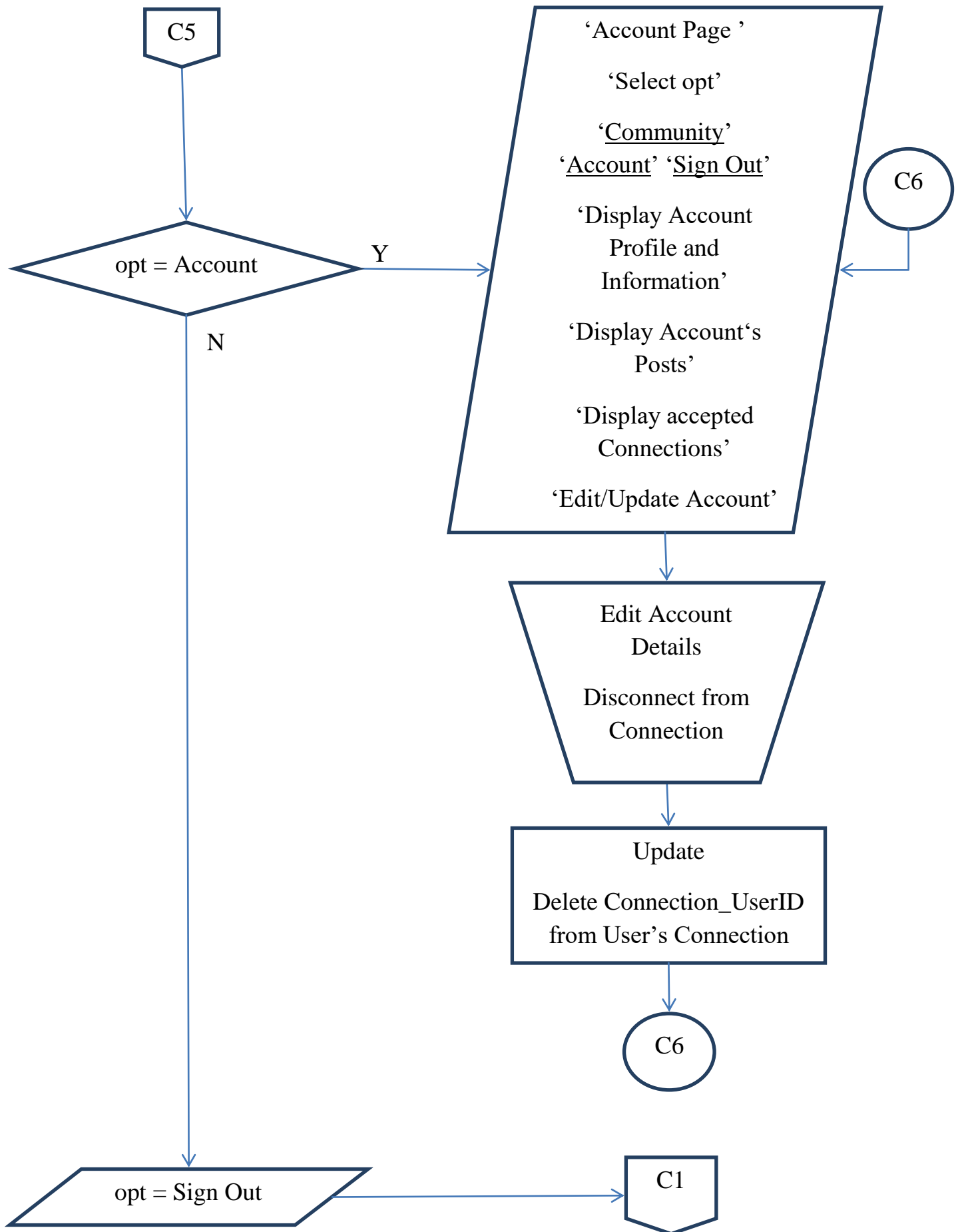
```
function check_auth() {
```

```
    if (!is_auth()) {  
        redirect_to("index.php?logged_in=false");  
    }  
}
```

APPENDIX B : PROGRAM FLOWCHART







APPENDIX C : FIGURES

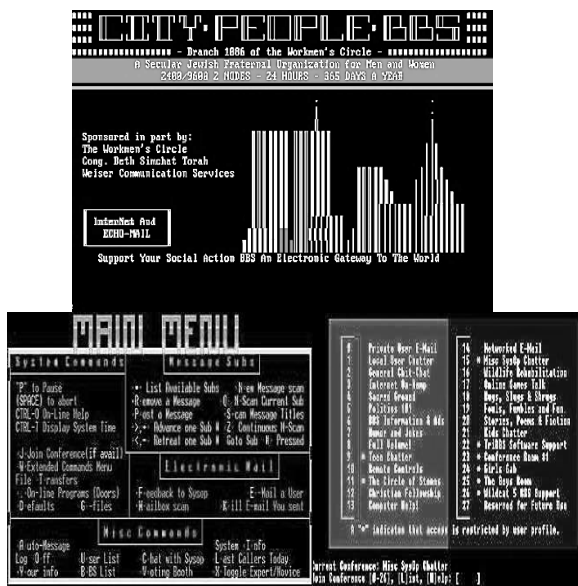


Fig.2 The front page, main menu and options menu of a bulletin board service platform for virtual community

id	uname	about	estab	type	username	password	status	profile_image_url	location
1	Test								
50	Business Name	asas	Jan 01, 1970 at 01:00 AM	Freelancer	testacc	\$2y\$10\$4p101u2989yic2ue152h1m1v5e0q6h620ML	Final		Crossover
49	test	test	Jan 01, 1970 at 01:33 AM	freelancer	test	\$2y\$10\$80p0Xy0LAC0V5u0E1TgRhmL90mPP9S0e...			test
48	test	test	Jan 01, 1970 at 01:00 AM		test	\$2y\$10\$8ndcsuP102FFM7687a0C9u0d0f00Q4Y8U...			test
47	testaccount like		Jan 01, 1970 at 01:33 AM	Freelancer	testaccount	\$2y\$10\$8e0F08Q2q06X0m0Q2S0SP1aHAMP2VE0Z...	Final	FB_IMG_152384780704462.jpg	blue
46			Jan 01, 1970 at 01:00 AM		ibiyawa	\$2y\$10\$1u15E14h05q1k1qF5iG5Qd0D08Aeg4Y50Wg...			aten
44			Jan 01, 1970 at 01:00 AM		qiang	\$2y\$10\$8MA0E2AG3E1V0q16t0w2C49U0can0p0cSP50k...			Enugu
43	So Gout		Jan 01, 1970 at 01:00 AM	Entrepreneur	quick	\$2y\$10\$1jy0C3K0Q03X0u0d0sY0u04e0P0c0K0E2...	To be able to use the functionality of a module wh...		GO University, Enugu
Console			Jan 01, 1970 at 01:00 AM		weq	\$2y\$10\$...			Oyo

Fig 3.3.4: Screenshot of the user table in the Database

Promising

Hello Corporate Nigeria!

The Business VC

Already Joined!

UserID

Passkey

Sign-in

Please Fill Below to Join PVC!

Business Name

Address Please...

Brief business description... in one sentence!

UserID

Passkey

Register

Connect, Communicate and Collaborate with businesses from Abu, Abia

DAHQ™ 2008. PVC® 4.5.1

Fig.4.3.0 The index.php page for the Virtual Community

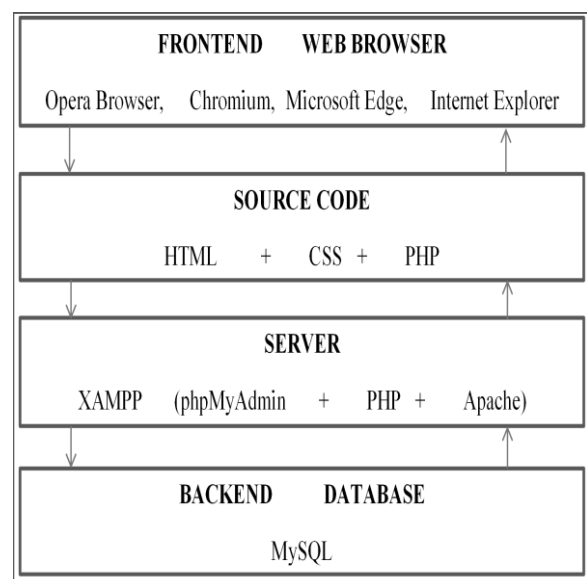


Fig. 4.2.1: 3-Tier Diagram

```

1 <?php require_once "functions.php"; ?>
2 <?php
3 db_connect();
4 // if user is logged in, redirect to home page
5 if (is_auth()) {
6     redirect_to("home.php");
7 }
8 ?>
9
10 <?php include "header.php" ?>
11
12 <!-- main -->
13 <main class="container">
14     <!-- messages -->
15     <?php if (isset($_GET['registered'])): ?>
16         <div class="alert alert-success">
17             <?Registered successfully! Sign-in.</?>
18         </div>
19     <?php endif; ?>
20
21     <?php if (isset($_GET['login_error'])): ?>
22         <div class="alert alert-danger">
23             <?Invalid username or password!</?>
24         </div>
25     <?php endif; ?>
26
27     <?php if (isset($_GET['logged_in'])): ?>
28         <div class="alert alert-danger">
29             <?You are not Signed in!</?>
30         </div>
31     <?php endif; ?>
32     <!-- ./messages -->
33
34     <h1 class="text-center">Hello Corporate Nigeria!<br><small>The Business VC</small></h1>
35
36     <div class="row">
37         <div class="col-md-6">
38             <h2>Already Joined!</h2>
39
40             <!-- login form -->
41             <form method="post" action="php/login.php">
42                 <div class="form-group">
43                     <input class="form-control" type="text" name="username" placeholder="UserID" required>
44                 </div>
45

```

Fig.3.3.0: Screenshot of the index page code snippet

Server: 127.0.0.1 » Database: pvc

StructureSQLSearchQueryExportImportOperationsPrivilegesRoutinesEvents

Filters

Containing the word:

Table	Action	Rows	Type	Collation	Size	Overhead
friends	Browse Structure Search Insert Empty Drop	84	InnoDB	latin1_swedish_ci	16 KiB	-
friend_requests	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16 KiB	-
posts	Browse Structure Search Insert Empty Drop	28	InnoDB	latin1_swedish_ci	64 KiB	-
users	Browse Structure Search Insert Empty Drop	49	InnoDB	latin1_swedish_ci	16 KiB	-
4 tables	Sum	162	InnoDB	latin1_swedish_ci	112 KiB	0 B

Fig 3.3.3: Screenshot of the created tables in the database