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JUDUL: CROSS PLATFORM CHATTING

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CROSS PLATFORM CHATTING

CHONG YU HAO

This report is submitted in partial fulfillment of the requirements for the Bachelor of Information and Communication Technology.

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
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Projek Sarjana Muda (PSM) is compulsory for undergraduate students of KUTKM and all undergraduate are needed to pass it before graduated. Through this project, the students will be able to enhance their ability and skills in literature research, analyzed problems, propose alternative solutions or models and manage available resources in accomplishing the project and present the output effectively.

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ABSTRAK

Sistem *Cross Platform Chatting* adalah sistem kominikasi di mana ia akan menubuhkan satu sambungan di antara sistem pengoperasian yang berbeza tetapi dalam rangkaian *Ethernet* yang sama untuk menyediakan satu persekitaran untuk pengguna berkomunikasi. Pada perkataan yang lain, sistem tersebut membenarkan pengguna-pengguna dari rangkaian *Ethernet* yang sama berkomunikasi bersama tanpa kekangan dari sistem pengoperasian yang berbeza. Contohnya seperti *Windows* dan *UNIX*. Kemajuan dalam perkomputeran dan teknologi rangkaian pada masa kini dan kemunculan teknologi *Java* menyebabkan platform yang berlainan boleh berkomunikasi bersama melalui rangkaian *Ethernet*. Oleh sebab itu, *Java* telah dipilih sebagai bahasa pengaturcaraan untuk membangunkan sistem ini. Tujuan kajian literatur yang dijalankan adalah untuk mengumpul maklumat. Melalui kajian litelatur, skop projek dan kehendakan pengguna boleh dicapai. Pengguna methodologi membantu menghasilkan produk yang lebih berkualiti dari segi piawai documentasi, keterimaan pengguna, penyelenggaan dan ketepatan perisian. Analisis dan Rekabetuk Berorientasi Objek (OOAD) dipilih sebagai methodologi untuk projek ini dan ia akan dilaksanakan sepanjang proses pembangunan sistem untuk memastikan objektif projek boleh dicapai. Projek ini mempunyai empat modul di mana ia akan menerima dan menghantar teks antara pengguna-pengguna di dalam rangkaian yang sama, membolehkan pengguna untuk memilih saluran komunikasi, membenarkan pengguna *host* untuk menambah pengguna dan membenarkan pengguna-pengguna untuk menghantar msej persendirian kepada pengguna tertentu. Dengan menggunakan teknologi yang kuat dan terbaru, sistem ini bukan saja dijangka boleh beroperasi tetapi juga mempunyai kecekapan yang tinggi dari segi kelajuan pelaksanaan dan masa tindak balas.

ABSTRACT

Cross Platform Chatting System is the chatting system that will establish a connection between the difference OS platforms on the same Ethernet to provide an environment for the user to communicate. On the other words, the system allows the users from the same Ethernet to communicate together without the constraint of the difference operating system like Windows and UNIX. The current advancement in computing power and network technology and the emergence of the Java technology cause the difference platforms can communicate together through the Ethernet. Because of that, Java had been choosing as the programming language to develop the system. The purpose of research, particularly literature review is to collect data. Through this literature review, scope of project and user requirements can be retrieved. The use of a methodology helps to produce a better quality product, in terms of documentation standards, acceptability to the user, maintainability and consistency of software. Object-Oriented Analysis & Design (OOAD) has been chosen as a methodology for this project and will be implemented along the system development process to ensure the objectives of the project can be fulfilled. The project consist of four modules which are send and receive text among users on the same communication channel, allow host user to select communication channel, allow the owner of the user to add user and allow users to send private message to specific user. With the latest and powerful technology, the system is not only expected to be workable, but also highly efficient in terms of execution speed and response time.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ABBREVIATIONS		WORDS
4GL	–	Fourth Generation Language
AOL	–	America Online
API	–	Application Program Interface
ASCII	–	American Standard Code for Information Interchange
AWT	–	Abstract Windows Toolkit
BBP	–	Baseline Project Plan
BSD	–	Berkeley Software Design
COM/DCOM	–	Component Object Model /Distributed Component Object Model
CPU	–	Central Processing Unit
CSMA/CD	–	Carrier Sense Multiple Access / Collision Detection
DCE	–	Data Communication Equipment
DTE	–	Data Terminal Equipment
GUI	–	Graphic User Interface
HTML	–	Hypertext Markup Language
I/O	–	Input/Output
IDEs	–	Integrated Development Environments
IEEE	–	Institute of Electrical and Electronic Engineers
IP	–	Internet Protocol

IT	–	Internet Technology
J2EE	–	Java 2 Enterprise Edition
J2SE	–	Java 2 Standard Edition
JAI	–	Java Advanced Imaging
JDK	–	Java Development Kit
JFC	–	Java Foundation Classes
JIT	–	Just-in-time Compiler
JRE	–	Java Runtime Environment
KUTKM	–	Kolej Universiti Teknikal Kebangsaan Malaysia
L&F	–	Look and Feel
LAN	–	Local Area Network
MS-DOS	–	Microsoft Disk Operating System
MVC	–	Model-View-Controller
NetBEUI	–	NetBios Enhanced User Interface
NFS	–	Network File System
NIC	–	Network Interface Card
NOS	–	Network Operating System
OOA	–	Object-Oriented Analysis
OOAD	–	Object-Oriented Analysis & Design
OOD	–	Object-Oriented Design
OOP	–	Object-Oriented Programming
OOP	–	Object-Oriented Programming
OS	–	Operating System
PSM I	–	Projek Sarjana Muda I
PSM II	–	Projek Sarjana Muda II

RAM	–	Random Access Memory
RMI	–	Remote Method Invocation
SMTP	–	Simple Mail Transfer Protocol
SOHO	–	Small Office or Home Office
SOW	–	Statement of Work
STP	–	Shielded Twisted-Pair
SWT	–	Standard Windows Toolkit
TCP/IP	–	Transport Control Protocol/Internet Protocol
UML	–	Unified Modeling Language
UTP	–	Unshielded Twisted-Pair
VGA	–	Video Graphics Array
VMs	–	Virtual Machines
WBS	–	Work Breakdown Structure

LIST OF ATTACHMENT

CHAPTER I

INTRODUCTION

1.1 Preamble/Overview

Nowadays there are two main platforms available in the IT world, which are UNIX and Windows. Because of the difference platform, the communication between the UNIX and Windows platforms is hard to establish. Due to this reason, a system that allows the communication between the difference platforms is necessary. The current advancement in computing power and network technology cause the difference platforms can communicate together through the Ethernet. Because of that, the system will allow the users from difference platforms can communicate together.

The main propose for this system is provide a service to allow the users from the difference platforms (Windows and UNIX) on the Ethernet to communicate between each others without constraint of the difference platforms. In the other words, the users can communicate cross over the OS platform through the system. This system only needs the user to start the system and select a channel and the host user can add the specific users form the Ethernet to perform a communication. The owner can protect the communication channel from the intruder because only the host user can add the users.

From this starting point, developers intended to design and develop a system, which is more systematic and effective. Developers will handle the tasks of

interview, information gathering and management, interface layout, network set, implementation and testing. The system that will be developed has four specific functions, which are: select a channel for communication, add the specific users to join the communication channel, send a private message to specific user, communicate among the members in the same communication channel and allow the users to enable a private chat room to send a private message to a specific user.

Methodology that will be used when developing this system is Object-Oriented Analysis & Design (OOAD). Object-Oriented Analysis & Design (OOAD) is a dynamic modeling is concerned with events and states, and generally uses state transition diagrams. Process modeling or functional modeling is concerned with processes that transform data values, and traditionally uses techniques such as data flow diagrams.

1.2 Problem Statement(s)

Nowadays there are two main platforms available in the IT world, which are UNIX and Windows. Because of the difference platform, the communication between the UNIX and Windows platforms is hard to establish. Due to this reason, a system that allows the communication between the difference platforms is necessary.

Besides this, the UNIX operating system becomes more powerful, stable, cost saving and high security. Due to this reason, the UNIS operating system become much more popular in many companies. Hence, there are necessary to create a system that will establish a communication between the UNIX platform and the Microsoft Windows platform.

The creation of the Cross Platform Chatting is to solve the problem that mention above. The Cross Platform Chatting system will establish a communication between difference platforms and provide a communication between the users from the same Ethernet to allow them to communicate.

1.3 Objective

In the world of cyber today, online chatting is no longer something new to everyone. Many people use Internet to communicate among each other. The communication between the difference platforms is hard to establish because of the difference OS platform, so the proposed system will allow the users to communicate without constraint of the different platforms. The system gives users to communicate through the Ethernet.

The main objective of this project is to provide a chatting system to allow the users to chat together without the constraint in the different platforms. Besides this, the system will establish a communication between UNIX users and Windows users, so it will help those users from the different platforms exchange the information and communicate smoothly. The system also emphasize on the security of the process communication where the system will not allow the users join in the communication channel without the permission of the channel owner.

In order to success in this project, developers have to achieve the following objective, which mentions as below:

- The system will ensure the users among the same group or channel can read the message during chatting.
- The system will ensure the unauthorized users cannot read the message or participant in the communication during chatting.
- The system will ensure the users can select a communication channel.
- The system will ensure the owner of the communication channel can add any users on the Ethernet.
- The system will ensure the users can send a private message to a specific user on the same Ethernet.
- The system will ensure the users can communicate together cross over the OS platforms.
- The system will ensure the users can join the communication channel.

- The system will ensure the host user to edit and delete the users on the communication channel.

1.4 Scopes

There are many types of communication in order to carry out a communication between two difference OS platforms (Windows and UNIX), for example: Email, chatting, video conferencing and voice conferencing. Because of that, it is impossible to develop a system that will cover all the types of communication between the two difference OS platforms, so that the scopes of the project only limit and focus on the chatting only. Besides this, the system will include some security methods to prevent from the intruders for intruding the system. The details of the project scope are describes in below.

The system that will be developed will just sending and receiving text among the users in same OS platform and difference OS platform. Developers focus on six specific functions, which are as below: send and receive text among the users in communication channel, allow the host user to select a communication channel for chatting, allow the host user add another users in the same Ethernet to join the communication channel, allow the users to send a specific message to a specific person, allow the users in the same group or communication channel communicate among each other whatever the OS platform is same or difference.

The system will be secured with security protection where only the authorized person who is defined by the host user can join the communication channel. The users cannot join the communication channel without the permission of the owner of the communication channel. Besides this, the unauthorized users cannot participant in the chatting and do not have authorize to view what message or text is sending or receiving by the authorized users on the system during the chatting.

The programming language that will be used to develop this system is JAVA. This is because JAVA is high-level programming languages, which can provide an interactive and user-friendly interface to the user and make the system become easier to learn and use it intensively. Besides this, JAVA is an object-oriented language similar to C++, but simplified to eliminate language features that cause common programming errors. JAVA source code files (files with a .java extension) are compiled into a format called bytecode (files with a .class extension), which can then be executed by a Java interpreter. Compiled Java code can run on most computers because Java interpreters and runtime environments, known as Java Virtual Machines (VMs), exist for most operating systems, including UNIX, the Macintosh OS, and Windows. Bytecode can also be converted directly into machine language instructions by a just-in-time compiler (JIT). Moreover, JAVA also is a free source programming language, which can obtain the free support directly from the Internet.

1.5 Contributions

The Cross Platform Chatting System is developed to accommodate the same Ethernet users to communicate between each other without constraint of the difference platforms. That means the users from the difference platform like UNIX and Windows in the same Ethernet can communicate together to make the communication between the two difference platforms become more efficient.

Because of Java is free source programming, the Cross Platform Chatting that will be developed is specially for any users who has the LAN or Ethernet connection. The Cross Platform Chatting system will establish a communication connection between all the users that using the system without the constraint of difference platform. Because of that, every user who has LAN or Ethernet connection also can participate on the communication although the operating system is difference.

Each user on the same Ethernet only need to implement the Cross Platform Chatting system on the computer and run the system. The system will automatically establish a connection in the same Ethernet to allow users to communicate.

1.6 Expected Output

After the Cross Platform Chatting had been developed, The Cross Platform Chatting system will able to allow the users to select communication channel then select and add the other users on the same Ethernet to participant in the communication whatever the OS platform is same or not. Because of that, the users from the difference platform also can participant on the chatting. For example, the user A is host user and user A can send a message to user B and user C if user B and user C in the same communication channel. Other user cannot receive the message if there are not listed in the communication channel.

Besides this, the Cross Platform Chatting system included a private chat room function where it allows the users to send a private message to a specific user. The users only need to insert the computer name of the target user and send the private message to target user only.

Apart of this, the system also includes some security method to prevent the system from intruder and make the process communication among the users secure. The host user has authority to add the users from the same Ethernet to join the communication channel while the unauthorized users cannot join the communication channel or view the contents of the communication without the permission. The users only can join and view the content of the communication in the communication channel with the permission of the host user only. Same like the security that mention above, the private chat room also enables the target user to read the message only. This function or method is use to protect the users confidentiality.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

Before starting to develop this system, research of literature is essential to identify the user requirement regarding the functions in the system. During this phase, developer had used several methods to get user requirements.

There are many types of programming languages that can be use to develop the Cross Platform Chatting System. Java is the must favorite programming language to develop the system. Java is an object-oriented language similar to C++, but simplified to eliminate language features that cause common programming errors. Java source code files (files with a .java extension) are compiled into a format called bytecode (files with a .class extension), which can then be executed by a Java interpreter. Compiled Java code can run on most computers because Java interpreters and runtime environments, known as Java Virtual Machines (VMs), exist for most operating systems, including UNIX, the Macintosh OS, and Windows. Bytecode can also be converted directly into machine language instructions by a just-in-time compiler (JIT). JAVA also is a free source programming language, which can obtain the free support directly from the Internet.

Throughout this research, developers have gather information and user requirements about the needs of a systematic system to help the staff in handling