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# LOCAL AREA NETWORK (LAN) MESSENGER

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This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Computer Networking)

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY**
**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**
**2009**

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**DECLARATION**

I hereby declare that this project report entitled

**LAN MESSENGER**

is written by me and is my own effort and that no part has been plagiarized without citations.

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# DEDICATION

Specially dedicated to my beloved family members who have encourage, guide and inspired me through my journey of education my lecturer, friends and colleagues.

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It is therefore difficult to name all the people who have directly or indirectly helped me in this effort; an idea here and there may have appeared insignificant at the time but may have had a significant causal effect. However, special thanks and apologies must first go to my family, who over the duration has been neglected even ignored, during my deepest concentrations.

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## ABSTRACT

Local Area Network (LAN) Messenger is communication tools that used in the Local Area Network. This application is used in the LAN without using the internet connection. This application provides few functions such as security. This application is used for group chat. Besides that, this application is also provides the security features such as encryption. This application is only allow the authenticated user to be used. The users who have no valid username and password will not success enter the system. This application is developed using Java so that it can support on multi-platform.


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# ABSTRAK

*LAN Messenger* adalah satu applikasi digunakan untuk berkomunikasi antara satu sama lain di dalam satu rangkaian setempat. Aplikasi in digunakan dalam rangkaian setempat tanpa bersambung kepada *Internet*. Aplikasi ini boleh digunakan di mane-mane system pengoperasi kerana ia direka dengan menggunakan *Java*. *LAN Messenger* ini membekalkan fungsi untuk berkomunikasi antara satu sama lain. Selain itu, ia juga ada fungsi keselamatan. Aplikasi ini hanya boleh digunakan oleh pengguna yang mempunyai nama pengguna dan katalaluan yang sah sahaja.

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## LIST OF ABBREVIATION

| ACRONYM | WORD |
|---|---|
| IP | Internet Protocol |
| DES | Data Encryption Standard |
| AES | Advanced Encryption Standard |
| LAN | Local Area Network |
| OS | Operating System |
| TCP | Transmission Control Protocol |
| UDP | User Datagram Protocol |
| PC | Personal Computer |
| WAN | Wide Area Network |
| FTP | File Transfer Protocol |
| IPv4 | Internet Protocol version 4 |
| IPv6 | Internet Protocol version 6 |

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# CHAPTER I

# INTRODUCTION

## 1.1 Project Background

Nowadays, communication is one of the important things in our life. In a company, communication is very important between the staffs in order to complete works. Nowadays, there are many instance messengers had been created this is because to give the convenience to the users to communicate with the colleagues. The objective for this Local Area Network (LAN) messenger is to give the users more convenience in communication. The users can use this messenger in the office to communicate with their colleague because it is easy to use and there is no internet connection is required instead of using the current existing messenger such as MSN messenger, Yahoo Messenger and so on that required the internet connection. Besides that, this can also reduce the usage of telephone or hand phone.

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This messenger also provides a security feature that is encryption. All the messages send by the user will be encrypted. This messenger can be support a lot of user in the same time. The users can be more convenience in communication with a group of people by using this messenger. This can help the users to avoid from calling each other because this messenger provides the group chat service.

## 1.2 Problem Statement

Nowadays, there are a lot of instant messengers that are developed to give the users more convenience in communication such as MSN messenger, ICQ, MIRC, Yahoo Messenger and so on. Most of the instant messengers, there are required the internet connection to operate.

The users will have some problem in communication for these messengers if the internet connection is out of service. Besides that, some of the messenger is lack of security feature such as encryption. Messages send by users are not encrypted and this can cause the messages can be read by other users.

In this project, this system provides communication service like the other messenger but that is no internet connection required. Even thought the internet connection is out of service, this messenger is still can be use for communication.

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## 1.3 Objective

- To allow users to communicate between each other in the Local Area Network without using the internet connection to sending the messages.
- Allow users to communicate with many users in the same time because this application is using for group chat. This application can make users more convenience to communicate with each other that are working in the same workgroup.

  This application provides some security features such as required username and password for login and encryption. Only the authenticated users can use this system. Besides that, the messages send by users will be encrypted.

## 1.4 Scope

This application is very useful for the users who work in the office that already has the network connection. The application provides the instant messaging service for the users. They can communication within a workgroup by using this application.

Besides that, there is no internet connection required. When the internet connection is out of service, the staffs in the office are still can be communicate with each other.

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This application is also provide the security features. The users must have the valid username and password to login the system. This application also provides the encryption function. All the messages send by the users will be encrypted.

In this project, the encryption method used is Advance Encryption Standard. To encrypt the messages, there are phases will be carry on that are add round key, sub Bytes, shift rows and mix columns. Initial state, the messages will be add a round key, after that, sub bytes step will be carry on. In the sub bytes state, each byte in the array is updated using an 8-bit substitution box. After the sub bytes state, the shift rows phase will carry on. In the shift rows phase, it cyclically shifts the bytes in each row by a certain offset. The final state is mix columns. In this state, the four bytes of each column of the state are combined using an invertible linear transformation.

## 1.5 Project Significance

This messenger is very useful for the staffs that who work in a group because this can save cost and time. This messenger can be support a lot of users in the same time. The staffs can also communicate with each others in the same time.

Besides that, this messenger also provides the encryption. All the message send by the users will be encrypted.

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## 1.6 Expected Output

The main purpose of this project is to develop a new messenger that can be used in the Local Area Network. This messenger has no internet connection required. The users no worry about the internet connection out of service because this messenger still can be work without internet connection. Besides that, this messenger is also provides the security feature like authentication and encryption. The users are required to login the system using the valid username and password. The messages will also encrypt before send to the others.

## 1.7 Conclusion

In this chapter, I have reviewing the problem statement of the current messenger. The objective and scope is made for the solution about the problem. There are 3 main objectives to develop this messenger for the purpose of communication in the Local Area Network.

In the next chapter, we will discuss of the literature review and the project methodology. I will review the existing messenger and discuss about the problem.

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