

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

WAV Audio File (WAVEform Audio) is a standard audio file format used by windows as an uncompressed audio file format. WAV audio files use the RIFF structure. There are 3 parts in the WAV audio file format, namely RIFF, FMT and data. Each part has its own function. RIFF saves the identity, size and format of the chunk. Whereas FMT stores audio information and sub-chunk data. Data stores audio size information and audio data.

Because WAV audio files are not compressed, encryption data can be added to the file without damaging the file structure. The encryption process utilizes a combination of Base64 and LSB (Least Significant Bit) algorithms. The workings of this algorithm are that data in the form of messages will be encrypted using the Base64 algorithm. The output of Base64 encryption will be used as input for the LSB algorithm. In the process of inserting a message into a WAV audio file, the RIFF and FMT sections were not modified. Modifications are made in the part of the data where the encrypted message will be inserted. After the data has been modified, the RIFF and fmt sections will be merged back with the data where the encrypted message has been inserted. The decryption process only needs to do the opposite of the combination of the 2 algorithms.

Based on the discussion above, this project discusses research on implementing a combination of the Base64 and LSB algorithm in inserting encrypted data into the WAV audio file format and performing decryption techniques to retrieve the data. Implementation into the program aims to analyze the time needed during the encryption and decryption process. With this research a secure encryption will be formed because encryption is done by 2 algorithm processes.

### 1.2 Problem Formulation

The formulation of the problem in this study are :

1. Application of a combination of Base64 and LSB (Least Significant Bit) algorithms into WAV audio files.
2. Analyze the combination of Base64 and LSB (Least Significant Bit) algorithms in terms of encryption and decryption speed processes.

### 1.3 Scope

Limitation problems in this study are :

1. Data used is text / message.
2. Insertion of encryption in the WAV audio file format.

### 1.4 Objective

The purpose of this study is to implement a combination of Base64 and LSB (Least Significant Bit) algorithms, and analyze the speed of the encryption decryption process. By doing a combination of the two algorithms will create a secure encryption.

