IMPLEMENTATION OF STEGANOGRAPHY ALGORITHMS IN JAVA

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ABSTRACT

Steganography tools allow hiding of secret information inside image and audio files. Different steganographic algorithms have been produced to create secure and efficient file hiding applications.

This study presents a discussion of steganography and the different algorithms used to hide text files in image and audio files. A comparison of the different encryption algorithms applied to steganography is also discussed. Design and implementation of the file hiding prototype uses the Java programming language. Different classes were created to allow the application to work with different audio and image files.

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Information is considered to be any organization's significant asset nowadays. Modern advances in computing power and recent interest in privacy led to the development of techniques to protect information. Some cryptographic tools scramble messages to protect them when intercepted. However, mixed up messages are suspicious because they are visible. Steganography tools hide secret messages in otherwise ordinary computer files such as digital pictures and digitized audio. This technology makes it possible to exchange information across any medium without anyone detecting the existence of secret data. With steganography, information is invisible thus, reducing suspicions.

Steganography provides an advantage over cryptography when it comes to file protection. Its potential in providing the best file security presupposes a need to study the different steganography algorithms and apply it to a file hiding application.

1.2 Statement of the Problem

The present study seeks to answer the general problem: How can steganography algorithms be implemented in Java?

Specifically, it seeks to answer the following questions:

- How does steganography work?
- What are the different steganography algorithms?
- How can these steganography algorithms be implemented in a file-hiding application using Java?

1.3 Objectives of the Study

The general objective of this study is to implement steganography algorithms in Java.

The specific objectives are:

- To identify different steganography algorithms for the different file formats.
- To make a comparison of the steganography algorithms
- To demonstrate the algorithms in a file-hiding application

1.4 Scope and Limitation of the Study

This study presents a comparative study of the different steganography algorithms. The algorithms are analyzed and evaluated according to performance based on a comparison criteria and shall be implemented and tested in a file hiding application using the Java programming language. Cover files are in image and audio formats. Secret messages are in the form of text files.

1.5 Significance of the Study

The implementation of steganography would benefit Internet patrons who make regular information exchange through a network. By developing a file-hiding implementation employing the concept of steganography, regular Internet users can protect their files from malicious retrieval and even modifications.

Companies and their employees, to exchange vital information with their peers, can also use the steganography tools. A way of encrypting and decrypting information is used to help them generate hidden information.

This study can also serve as basis for future researches on file hiding and file security applications. This would help form basis for creating and using steganography algorithms for other purposes.