

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 BACKGROUND OF THE STUDY**

The ongoing dilemma of digital age is balancing convenience against security. Security is a system safeguard for protecting information technology against disasters, system failure, and an unauthorized access that can result in damage, loss or exposure. There are several reports of spammers, crawlers and hackers who break into people's privacy to gain illegal access to their data. This has posed greater challenges on people who use database, transact online, and internet users. Information is a valuable and costly asset that must be presented, controlled and planned just like other valuable assets within an organization. This work is designed to provide a security mechanism using a computerized data encryption system, readable data is altered into unreadable form to prevent unauthorized access. Encryption is able to use powerful mathematical concept to create coded message that is virtually impossible to break. It is easy to encrypt a message on a simple personal computer so that the biggest computer in the world could not decipher without spending for more time on the problem that exists in the life span of the entire universe.

There are two basic forms of encryption; private key encryption and public key encryption, the same secret key is used by the sender and receiver to encrypt and decrypt message. Public key encryption also known as asymmetric key encryption uses two different keys at once, a combination of a private key and public key, the private key is known only to your personal computer, while the public key is given by your computer to any computer that wants to communicate securely with it. To decode an encrypted message, a computer must use the public key, provided by the originating computer, and its own private key.

#### **1.1 STATEMENT OF THE PROBLEM**

Security is currently a widespread and growing concern that affects all areas of the society, in the same manner data and information security has become one of the most pressing challenges confronting all kinds of present day organizations owing to their rapid adoption of information technology (IT) in the entirety of their activities. This development has made data and information to a larger extent vulnerable to unauthorized users, spammers, crawlers and hackers who break into people's and organization's privacy. This has no doubt

posed greater challenges on people who use database, share files and other resources on computer networks.

## **1.2 AIMS AND OBJECTIVES**

The aims and objectives of this work are as follows:

- Reduce stress, time consumption and cost of operation involved in a manual security system.
- Develop a software system that will restrict unauthorized access to data files on systems.
- Suggest security techniques which can create conducive working atmosphere for organizations that are having their data threatened.
- Enhance key sharing mechanism that allows users to share and have access to files security.

## **1.3 SIGNIFICANCE OF THE STUDY**

This study serves as a contribution towards improving information, data and information security on computerized information systems especially for organizations where data is transferred from one point to another. It will contribute in solving the problems of insecurity on both network for individual computers on a network. It also enhances the ability to support customers by providing secured and accurate access to all information. In the same manner, it will benefit those who transact online.

## **1.4 SCOPE AND LIMITATIONS**

This work is only concerned with security of information (encryption and decryption) for firms and individuals. It does not consider the firm's policies and other issues.

## **1.5 JUSTIFICATION OF THE NEW SYSTEM**

With regards to existing system, it is important for organization to develop a new system. This system will be designed with security as its watchword. It will be able to check access to the system. It will provide improved system efficiency, the unintentional distortion of data will be avoided and fraudulent practices and defaulters will be checked.

## **1.6 DEFINITION OF TERMS**

- Data: data is the raw fact or observation, typically about physical entity or business transactions. Technically, data is the raw form of information stored as columns and rows in our databases, network servers and personal computers.

- Data security:This is the practice of keeping data protected from corruption and unauthorized access. The focus behind data security is to ensure privacy while protecting personal or corporate data.
- Information:This refers to data that has been processed in such a way to be meaningful to the person who receives it.
- Cryptography:This is the science of scrambling data.
- Encryption:encryption is the conversion of data into a form that cannot be easily understood by an unauthorized person.
- Decryption:Decryption is the process of converting encrypted data back into its original form, so it can be understood.
- Cipher text:this is the encrypted data; it is also called a cipher.
- Decipher text:This is the decrypted data; it is also called a plain text.

## **DESIGN AND IMPLEMENTATION OF FILE ENCRYPTION AND HASH SYSTEM**

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