Project Title: TruCrypt

Student Name:- Manish Jangid

Roll no:- MC-I-49

Scope of the System:- The project aims to design and implement a robust steganography system that can effectively hide data within digital media while maintaining a high level of security and minimizing the risk of detection by unintended recipients.

Problem Statement:- The main problem of sharing data between the users is interference of the unauthorized users. Unfortunately, sometimes it is not possible to send the confidential data securely. The main aim of this project is to design a Steganography Algorithm that allows safe and secured data sharing.

Existing System:-

1)Security Concerns: Some tools lack advanced encryption, making hidden information vulnerable to unauthorized access.

2)Usability: Technical expertise might be required, and the usability of some tools may be suboptimal.

3)Image Quality: Embedding information could degrade image quality in some cases.

Proposed System:

1)Enhanced Security : Implementation of robust encryption techniques to ensure the security of hidden information.

2)Usability improvement : A user-friendly graphical interface developed using Java Swing for seamless interaction.

3)Maintained Image Quality : Advanced algorithms to maintain image integrity during the embedding process.

4) Enhanced Compatibility: Comprehensive support for various image formats to increase compatibility.

Actors of the System:- There are two actors in this application.

1) User
2) Program

Project modules:-There are totally 5 modules available in this project.

1) User Interface Module :

Develop a graphical user interface using Java Swing for user interaction.

Include options for image selection, message input, and operations (embed/extract).

2) Embedding Module :

Implement algorithms to embed information within the pixel values of the selected image.

Utilize encryption techniques to secure the hidden information.

3) Extraction Module :

Develop algorithms to extract hidden information from the steganographically modified image.

Ensure accuracy and integrity in the extraction process.

4) Image Format Support Module :

Implement support for various image formats to enhance compatibility.Integrate libraries like ImageIO for efficient image manipulation.

5) Security Module :

Integrate advanced encryption techniques to secure the hidden information

Ensure that the steganographic process leaves no traces of the embedded information.

Hardware and Software Requirements:-

Software Requirements

- **Front End- JAVA SE 20(20.0.2)**
- **Operating System- Windows 7**
- **Tool- Apache NetBeans IDE 19**
- **Any file to embed**

Hardware Requirements

- **Hard Disk – 2 GB.**
- **RAM – 1 GB.**
- **Processor – 300Mhz or Above.**
- **Mouse.**
- **Keyboard.**
- **Monitor.**