# Steganography Tool for Image/File Hiding

## I.INTRODUCTION

Secure communication today is a must to safeguard information. Cryptography encrypts the message contents, but not its existence. Steganography is a further step that involves hiding data within media like pictures so that no one else can see it. This Steganography Tool for Image/File Hiding project applies the Least Significant Bit (LSB) approach to insert and retrieve concealed text or files inside images. An easy GUI guarantees convenient actions such as drag and drop for data hiding and retrieval

## 2.ABSTRACT

This project introduces a Python-based Steganography Tool which conceals text or files within images using the Least Significant Bit (LSB) technique. It is implemented with PIL, stepic, and tkinter and provides an easy-to-use GUI to embed and retrieve concealed data. The tool supports PNG/BMP formats and has the option to use encryption for maximum security. It illustrates the real-world application of steganography in secure communication and offers a straightforward method to comprehend data-hiding methods.

## 3.TOOLS USED

- **Python –** Core programming language for implementation**.**
- **PIL (Pillow) –** Image processing and pixel manipulation.
- **stepic –** Provides steganographic embedding/extraction using LSB**.**
- **tkinter –** GUI framework for creating the drag-and-drop interface.

## 4.STEPS INVOLVED

- **Message Conversion**

  Input message/file is converted into a binary sequence for embedding.

- **Image Upload**

  User selects a cover image in PNG or BMP format**.**

- **Embedding Process**
  The binary data is inserted into the least significant bits of image pixels using the stepic library**.**

- **Stego-Image Generation**

  A new image file is saved with the hidden message embedded.

- **Data Extraction**

  Hidden data is retrieved from the stego-image by reversing the embedding process.

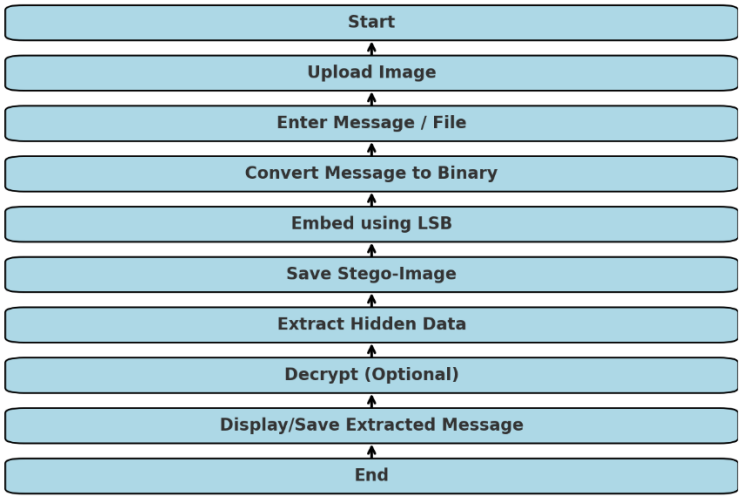
- **Decryption (Optional)**

  If encryption is applied, the extracted binary is decrypted to recover the original message.

- **GUI Features**

  A tkinter interface enables drag-and-drop functionality for embedding and extracting with ease

## 5.FLOW CHART




## 6.CONCLUSION

The Steganography Tool successfully conceals and extracts data in images with no visible alterations. Employing the LSB approach and a minimal GUI, it provides a convenient means to practice safe data hiding. This project calls attention to the use of steganography in cybersecurity and can be improved further with more robust encryption and compatibility with more formats**.**