Steganography Tool for Image/File Hiding

1. Introduction

The Steganography Tool for Image/File Hiding is a Python-based program designed to conceal text messages within image files. This project demonstrates how digital steganography can be implemented using the least significant bit (LSB) method. It provides functionality for both encoding and decoding hidden messages in image files.

2. Abstract

This tool allows the user to embed secret text messages inside image files without visibly altering the image. The message is converted into binary form and stored in the LSBs of the pixel values. The program also includes decoding functionality to retrieve and display the hidden message from the encoded image.

3. Tools Used

- Python 3.x
- Pillow (PIL)
- argparse

4. Steps Involved in Building the Project

1. Loaded the input image using the Pillow library.
2. Converted the secret message into binary form.
3. Embedded the binary data into the image's pixel LSBs.
4. Saved the encoded image file.
5. Developed a decoding function to extract and reconstruct the message from the image.
6. Tested the tool with sample images and various messages for successful encoding and decoding.

5. Conclusion

The Steganography Tool effectively demonstrates the fundamental concept of hiding data within image files using LSB manipulation. It serves as a practical example of how digital steganography works and can be used for secure message transmission in cybersecurity applications.