**Steganography Project**

**Introduction**

This project focuses on securing data hidden within steganographic images using advanced encryption techniques. By embedding secret messages within image files, this project ensures data integrity and protects against unauthorized access.

**Features**

* **Enhanced Security Algorithms**: Utilizes robust encryption methods to secure hidden data.
* **Multi-Format Support**: Supports various file formats beyond images, such as audio, video, and text files.
* **Steganalysis and Detection**: Tools for detecting and analyzing steganographic content within files.
* **User-Friendly Interface**: Simplifies the process of embedding and extracting hidden data.

**Installation**

1. Clone the repository:

Bash: git clone https://github.com/yourusername/steganography-project.git

cd steganography-project

1. Install the required libraries:

**Usage**

1. Run the script:
2. Follow the prompts to enter the image name, message, and encryption key.

**Code Explanation**

The code consists of two main functions:

* **Encryption**: Encrypts the image by embedding the message and key within the image pixels.
* **Decryption**: Decrypts the image and retrieves the hidden message using the provided key.

**Example**

1. Place an image file (e.g., image.jpg) in the project's directory.
2. Run the script and provide the image name, message, and encryption key when prompted.
3. The encrypted image will be saved and displayed.
4. The decrypted message will be displayed if the correct key is provided.

**Future Scope**

* **Integration with Blockchain Technology**: Enhance security and traceability.
* **Real-Time Steganography in Multimedia Streaming**: Secure communication channels for live video and audio streams.
* **AI and Machine Learning for Steganalysis**: Improve detection and analysis of hidden data.
* **Cross-Platform Compatibility**: Ensure compatibility across different operating systems and devices.
* **Advanced Encryption Techniques**: Continuously improve encryption methods.
* **Secure Communication for IoT Devices**: Protect data transmitted between smart devices.

**Contributing**

Contributions are welcome! Please fork this repository and submit pull requests for any enhancements or bug fixes.