**CipherHide: Multimodal Steganography and Encryption Application**

CipherHide is an advanced desktop application that combines encryption and steganography to enable secure message hiding across various digital media formats. Designed with a user-friendly interface, the application empowers users to generate encryption keys, encrypt sensitive information, and embed encrypted messages seamlessly within images, audio, and video files. It offers a versatile approach to digital privacy and covert communication.

The application features robust encryption key management, allowing users to generate cryptographically secure symmetric keys, save them for future use, and load them as needed. Text messages can be encrypted and decrypted using the Fernet symmetric encryption algorithm, ensuring high levels of data confidentiality. Encrypted messages can also be conveniently copied to the clipboard for easy sharing.

CipherHide leverages Least Significant Bit (LSB) encoding for image and audio steganography, enabling users to embed encrypted messages into formats like PNG, JPG, BMP, WAV, and MP3 with minimal quality degradation. For video steganography, the application supports popular formats such as MP4 and AVI, allowing encrypted messages to be hidden and extracted while maintaining the visual integrity of the video.

With security at its core, CipherHide employs symmetric key encryption and random key generation to safeguard information. Its cross-media message embedding ensures flexibility and adaptability for various use cases, including secure communication, digital privacy protection, covert information exchange, and research in multimedia steganography.

By combining advanced cryptographic techniques with a multimodal steganographic framework, CipherHide offers a comprehensive and secure platform for protecting sensitive information across digital media. This innovative tool addresses the growing need for privacy in the digital age, making it a valuable asset for both personal and professional use.