**🧾 Conclusion**

The project successfully integrates **AES encryption** and **LSB image steganography** to provide a robust and secure method for hiding sensitive information within digital images. By combining cryptographic strength with steganographic invisibility, the system ensures both **confidentiality** and **concealment** of the data being transmitted.

Extensive testing confirmed that the system is:

* Functionally accurate in both embedding and extracting encrypted messages.
* Secure against unauthorized access using password-based encryption.
* Reliable for use with standard image formats such as PNG and BMP.
* Efficient in performance, with minimal memory and time usage.

This solution is especially relevant in the field of **cybersecurity**, where stealthy and secure communication channels are increasingly necessary. It can be extended further for real-world applications such as secure email systems, digital watermarking, and covert data transmission in sensitive sectors like defense and intelligence.

In conclusion, this project achieves its objective of enhancing data security through an effective blend of encryption and steganography, and lays a strong foundation for future developments in secure communication technologies.