

Coding Projects Portfolio

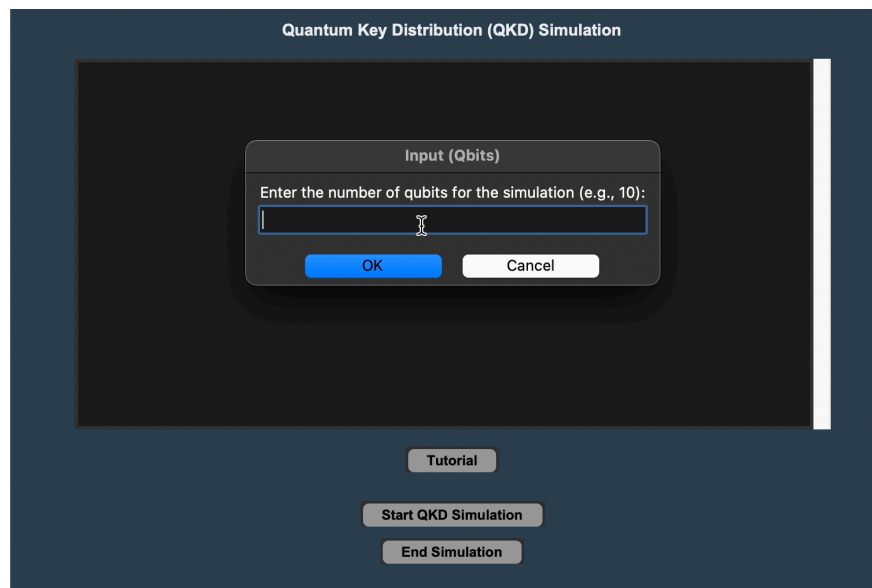
• Quantum Key Distribution Software

Description: Software developed for academic purposes, focusing on quantum cryptography. (BB84 - Protocol)

Technologies Used: Python, Quantum Computing frameworks (QSKIT, IBM Quantum)

Outcomes: Preparation for bachelor's thesis in Quantum Cryptography.

My Role: Sole developer, responsible for design, coding, and testing.



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Simulation results:
Alice's Bases: ['X', 'X', 'Z', 'Z', 'X', 'X', 'Z', 'Z', 'Z', 'X', 'Z', 'Z', 'Z', 'X', 'Z',
'Z', 'X', 'Z', 'Z', 'Z', 'X', 'X', 'X', 'X', 'Z', 'X', 'Z', 'Z', 'Z', 'Z', 'X', 'Z',
Bob's Bases: ['Z', 'Z', 'Z', 'X', 'Z', 'X', 'X', 'X', 'X', 'Z', 'X', 'Z', 'Z', 'X', 'Z',
X', 'X', 'Z', 'Z', 'X', 'Z', 'Z', 'Z', 'Z', 'X', 'X', 'X', 'Z', 'X', 'X', 'X', 'Z']
Alice's Key: [1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1,
0, 1, 1, 1, 1]
Bob's Key: [1, 1, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 0, 1,
0, 1, 1, 1, 0, 0]

Shared Key: [0, 0, 0, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1] (only bits where Alice and Bob used the s
ame basis)

No eavesdropping was simulated. The error rate is expected to be 0%.

This simulation demonstrates the basic principles of QKD. In a real-world scenario, additi
onal steps such as error correction and privacy amplification are required to ensure the s
ecurity of the key.
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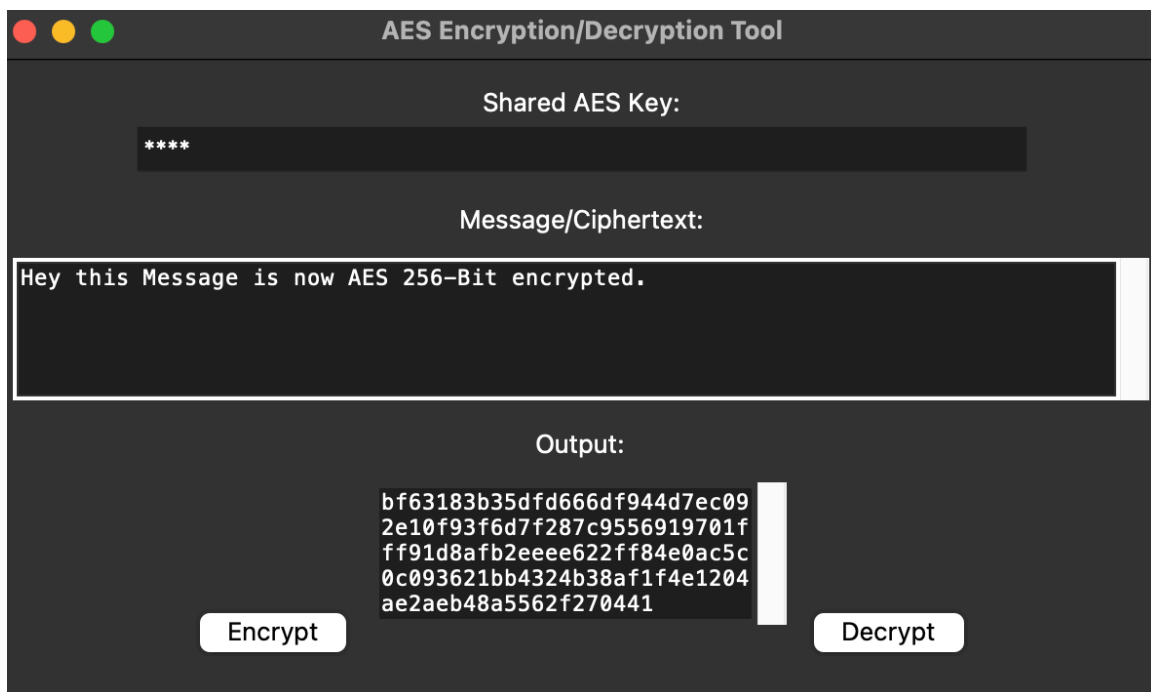
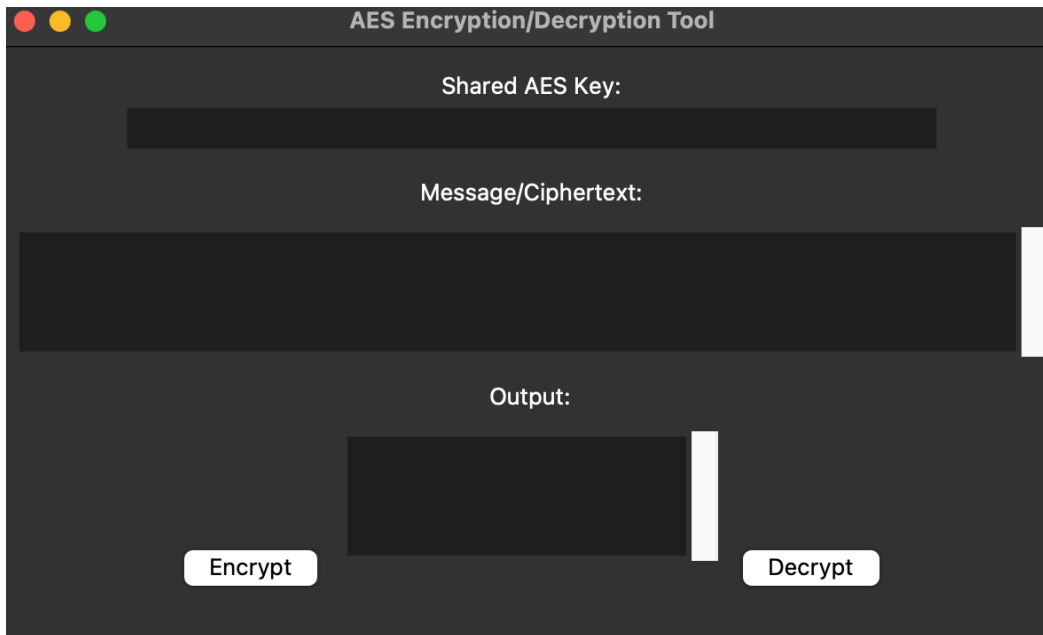
- **Classical Cryptography Messenger**

Description: A secure communication tool utilizing AES-256 bit encryption.

Technologies Used: Python, AES-256 Encryption

Outcomes: Enhanced secure messaging capabilities.

My Role: Complete project lifecycle from conception to deployment.



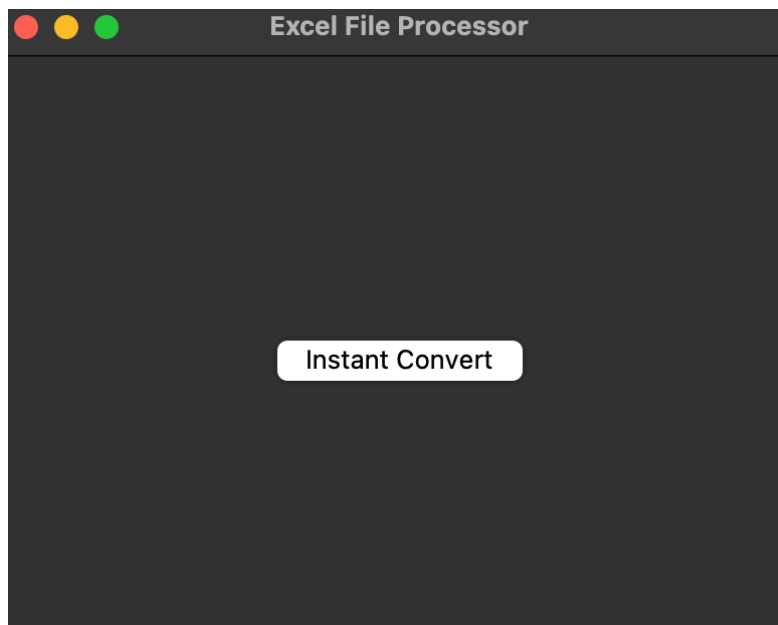
- **Amazon Business Automation Software**

Description: Automation tool for improving workflow efficiency by extracting buyer information from PDFs and formatting into Excel.

Technologies Used: Python

Outcomes: Successfully licensed and used in business operations to streamline data handling.

My Role: Developer and vendor, including software licensing and testing on various architectures.



- **Telegram Chat Bot**

Description: Bot designed to automate responses and streamline communication processes.

Technologies Used: Python, Telegram API

Outcomes: Improved interaction efficiency and response time.

My Role: Engineered the entire bot functionality and integrated with Telegram.

- **Quantum Computing Simulations**

Description: Simulations conducted to explore quantum computing potentials, focusing on Bell Equations and cryptography.

Technologies Used: IBM Quantum, QSKIT

Outcomes: Advanced understanding and practical application of quantum computing in academic research.

My Role: Initiated and executed complex simulations, integrated API for job tracking.

- **StreetArt Scanner (Blockchain Conference Project) (<https://devpost.com/software/streetcollect>)**

Description: Blockchain-based app to reward users for physical activity, integrating technology with interactive art discovery.

Technologies Used: Blockchain technology

Outcomes: Developed a working prototype that encouraged engagement at the conference.

My Role: Collaborative team effort, focused on idea development, design and technical implementation.