CS 405

Module 5 Encryption

Caleb Ewer

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Input File:

A screenshot of a computer screen

Description automatically generated

Encrypted File:

A screenshot of a computer program

Description automatically generated

Decrypted File:A screenshot of a computer

Description automatically generated

The project involved completing a program to handle file encryption and decryption using XOR-based encryption. The primary tasks included implementing encryption logic, reading data from a file, saving processed data to new files, and addressing warnings related to deprecated functions. The encryption logic was implemented to transform each character using the XOR operation with a cycling key, ensuring compatibility with keys of varying lengths. The file reading and writing functions were completed to handle input and output in the required format, including metadata like student name, date, and encryption key.

During development, issues such as unsafe function usage (localtime) were resolved by replacing it with localtime\_s for better thread safety and compliance with modern C++ standards. Error handling was also improved to ensure the program handled scenarios like file access failures and time conversion errors gracefully. The program was thoroughly tested using a provided input file, with successful generation of encrypted and decrypted files, ensuring correctness and adherence to specifications.