

Project Plan - Available Commands

- **-h OR --help** - Prints help menu (overrides all other functionality via argument parsing)
- **-e=<file_to_encrypt>** - Defines the file to encrypt (must work for relative pathing)
- **-d=<file_to_decrypt>** - Defines the file to decrypt (must work for relative pathing)
- **-p=<password>** - Captures the password for encryption/decryption from the user

Project Plan - File Descriptions

main.zig

[DESCRIPTION] - This is the entry point of the program.

- Initialises the allocator

Functions

- **main** - Orchestrates the entire program flow, from parsing arguments and getting password input to performing the encryption/decryption and handling errors.
- **clean_up** - A security function that securely overwrites sensitive data in memory i.e. passwords.

cipher.zig

[DESCRIPTION] - Contains the core crypto functions for encryption and decryption.

Functions

- **encrypt** - Handles all encryption logic. Generates a nonce and adds authentication tag to ensure data integrity.
- **decrypt** - Handles all decryption logic. Validates the file and verifies the authentication tag.

cli.zig

[DESCRIPTION] - Manages all command-line logic. This includes argument parsing, file path validation and writing help messages to stdout.

Functions

- **parseArgs** - Parses and validates cli arguments to determine the action to be performed on data.
- **printHelp** - Displays the usage instructions and a list of available commands.
- **validateFilePath** - Checks if a file exists and if the program has the correct permissions to perform its operations.
- **getInputFileName** - Extract the filename from a file path.
- **getOutputFileName** - Generates a new filename (including extension) for the output based on the operation performed.
- **getPassword** - Reads a password from the cli without echoing characters to the screen (toggle this option).
- **getPasswordConfirmation** - Prompts the user to re-enter a password to confirm it was typed correctly.
- **cleanTerminalHistory** - Clears the terminal history of the PC (optional).

constants.zig

[DESCRIPTION] - Stores all application-wide constants and configurations. This way constants can be easily modified without changing core logic.

Functions

N/A

err.zig

[DESCRIPTION] - A centralised module for defining all app-specific errors.

Functions

N/A