File Archiver

Team 3 Project Pitch

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Team Information

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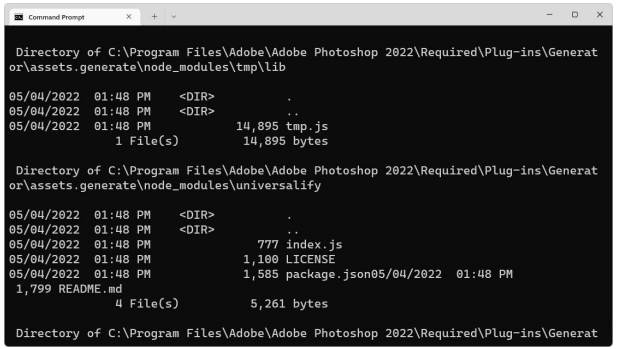
Overview

We are building a **file archiver** to efficiently manage archives of files on an user's machine, implementing different methods of compression and key functionality.

To prioritize depth and breadth of features built, we are simplifying the UI experience to a **command line**, which even in its text based format, will be designed for efficiency and user experience quality.

The user will run our program and input their own files.

In-terminal information and displays will be built custom.



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Key Aspects and Features

(1) Add functionality to make the archive content modular with the ability to add files and folders to a new archive. Will display error messages accordingly.

(2) File extraction to a specified folder capability. This will be specified by the user or the file path will be assumed based on the location of the archiver run.

(3) Password-based encryption support. We are open to multiple password techniques but have settled with a simple hash-based password system for now (ex. AES-256)

(4) File exploration of archive without extraction, allowing for ease of use for user.

(5) Support of multiple compression formats (ZIP, WinRAR, etc…), with **modular** design to leave room for other formats being implemented.

(6) Support for basic configurations for each chosen format (level, etc…).

Feature 1

Name: Add

Description:

Allows the user to add several files/folders to a new archive.

The user will enter the `archive <new archive name>` command, and will then be prompted to select a compression format, compression configurations, and a destination directory.

The user will then be prompted to add files and a finder window will open, allowing for selection of multiple files or folders.

We will store these files in a **Collection** object before compressing them, which will utilize a **CompressionStrategy** to compress them and create an **Archive**.

Champion: Charlee Lachance

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Feature 2

Name: Extract

Description:

Allows the user to extract all contents of an archive into a chosen folder.

The user will start by entering the command **extract <archive name>**.

If the archive is encrypted, the user will be prompted to enter a password. If the password matches the one stored for that archive in the Encryption class, the password will be used to decrypt the archive. A file window will appear, allowing the user to select the destination for the extracted files.

If the archive is not encrypted, the password step will be skipped and the user can immediately select a destination.

We will implement extraction separately for each compression format.

Champion: Charlee Lachance

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Feature 3

Name: Encryption/decryption

Description:

After an archive has been created, the user will have the option to encrypt it. This can be done by entering the command `encrypt <archive name>`. The user will be prompted to choose a password, which they will need again later in order to decrypt the archive.

Decryption will happen automatically upon extraction of the archive (assuming the password was entered correctly).

Our encryption feature employs a robust AES-256 algorithm to secure archived files, ensuring confidentiality and protection against unauthorized access. Paired with password protection, only users with the correct password can decrypt and access the original files, enhancing overall data security.

Champion: Luca Snooey

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Feature 4

Name: Explore contents

Description:

The user can explore the contents of the archive without extracting them. Executing the command `preview <archive name>` will show the following information:

- Creation date of the archive
- Compression strategy and configurations
- Encryption status
- Names, sizes, and types of the contents

Champion: Ania Serbina

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Feature 5

Name: Multiple compression formats

Description:

The user will be able to choose from different compression formats to suit their needs. We will create an abstract class that can be extended by classes for specific formats (e.g. ZIP, LZ4). If developers want to include more formats down the line, they will easily be able to do so with no changes to the software's core design.

After entering the `archive` command (as described in feature 1), the user will be able to select a compression format.

Champion: Jacob Roberts, Ania Serbina

Feature 6

Name: Compression configurations

Description:

Our software will support basic configurations for compression. The user will be prompted to select customizations after entering the **archive** command.

The main configuration we plan to implement will be compression level. The user will enter an integer corresponding to the level of compression. Note that the meaning may change depending on the context of the selected compression format.

If we have additional time during the implementation of our project, we plan to implement additional configuration options.

Champion: Jacob Roberts

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Time log

Member	Activity	Week number	Hours
All	Initial team meeting	2	1
Luca Snoey		2	1
Charlee Lachance	Assignment 1	2	1
Ania Serbina	Assignment 1	2	1
Jacob Roberts	Assignment 1	2	1
All	Mentor meeting and assignment 1	2	1

Signed contract

Team contract