# Cross-Platform Password Manager

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# 1 Introduction

The Cross-Platform Password Manager is a robust Java-based desktop application designed to securely manage passwords across any operating system that supports Java, including Windows (7 to 11), most Linux distributions, and macOS. Utilizing AES 256-bit encryption, the application ensures the highest level of security for stored passwords. The application organizes passwords in a hierarchical tree structure, similar to folders and files, allowing for efficient management, sorting, labeling, and flagging of credentials. Additionally, the application integrates a built-in command line interface for advanced operations and offers extensive customization options, making it suitable for both casual users and professionals.

# 2 Features

This section provides an overview of the key features of the Cross-Platform Password Manager.

## 2.1 AES 256 Encryption

The application employs AES 256-bit encryption to secure all stored passwords. AES 256 is widely recognized as one of the most secure encryption standards available, providing strong protection against unauthorized access.

## 2.2 Cross-Platform Compatibility

The Password Manager is designed to operate on any platform that supports Java, including all versions of Windows from 7 to 11, most Linux distributions, and macOS. This cross-platform capability makes it a versatile tool for users who need to manage passwords across different systems.

## 2.3 Tree Structure Organization

Passwords are organized in a tree structure, similar to folders and files, which allows users to categorize their credentials efficiently. This structure makes it easy to retrieve and manage related passwords.

## 2.4 Command Line Interface (CLI)

For advanced users, the application includes a built-in command line interface. The CLI supports a wide range of operations on the password storage, including batch processing, sorting, and other complex tasks. This feature is particularly useful for power users who prefer command-line efficiency.

## 2.5 Customizable Interface

The application's interface is fully customizable. Users can select fonts from those available in the operating system, adjust the base size of UI elements, and change the overall theme. This customization ensures that the application can be tailored to individual preferences.

## 2.6 Operating System Detection

The application automatically detects the operating system it is running on and adjusts its saving behavior accordingly. It also records the most frequently used save locations, making it easier for users to manage their passwords across different platforms.

## 2.7 Interactive and Resizable UI

The user interface is interactive and resizable, adapting to different screen sizes and resolutions. This feature ensures that the application remains user-friendly and visually appealing, regardless of the device.

### 2.8 Tooltips and Menus

To enhance usability, the application includes custom-built tooltips that provide context-sensitive help and left-click drop-down menus that offer quick access to commonly used functions.

### 2.9 Automatic Password Generation

The application features a sophisticated password generator that creates secure passwords using extended ASCII characters. Users can customize the complexity and length of the generated passwords to meet specific security needs.

### 2.10 Backup and Restore Functionality

The application includes tools for backing up and restoring password databases, ensuring that user data is protected against accidental loss. Backups can be encrypted for added security.

### 2.11 Multi-User Support

The application supports multiple user profiles, allowing each user to have their own set of passwords and settings. This is particularly useful for shared environments where multiple users need access to the password manager.

## 3 Usage

This section provides an overview of how to use the Cross-Platform Password Manager.

### 3.1 Password Management

Passwords are stored in a hierarchical tree structure, which allows users to categorize and manage their credentials efficiently. The tree structure makes it easy to locate and organize related passwords.

### 3.2 Command Line Operations

The built-in command line interface allows users to perform advanced operations on their password storage. This includes batch processing, sorting, and other complex tasks that can be executed directly from the command line.

### 3.3 Customization

Users can fully customize the application's interface, including selecting fonts, adjusting the size of UI elements, and choosing a theme. This customization ensures a user-friendly experience tailored to individual preferences.

### 3.4 Automatic Password Generation

The application includes a password generator that allows users to create strong, secure passwords. The generator can produce passwords using extended ASCII characters, and users can customize the complexity and length of the passwords to suit their needs.

## 4 Conclusion

The Cross-Platform Password Manager is a comprehensive tool for managing passwords securely across multiple operating systems. With features like AES 256 encryption, tree structure organization, a command line interface, and extensive customization options, the application offers a versatile solution for both casual

users and professionals. The application's cross-platform compatibility, interactive UI, and advanced features make it an essential tool for anyone who needs to manage passwords securely and efficiently.