

Title: TODO Application

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This project builds a command-line todo application that allows users to add and track the status of todos in a CSV file. The CSV file is a plain text file, containing data organized into columns separated by a comma. The first line of the file contains the headers for each column, which represent the information of each todo: text, completed, due, priority and category.

This system involves the following functionality:

- Add a new todo: updating the csv file with a new todo provided by the user.
- Complete an existing todo: updating the completed status of one or multiple existing todos.
- Display todos: displaying existing todos based on the provided format from the user, including incomplete filter, category filter, sorting by date, and sorting by priority.

This project develops solutions with MVC architecture and multiple design patterns to promote the reusability and flexibility of the object.

- MVC Architecture Pattern:
 - Model: model package that loads and stores data.
 - View: view package that presents data in a user-friendly format.
 - Controller: controller package that interprets user actions.
- Builder Pattern:
 - Location: Todo class in Model package
 - Reason: To separate the information of a new todo from the user and build the new todo object more easily with specific spaces.
- Singleton Pattern:
 - Location: FileState in FileIO package

- Reason: Implements singleton pattern by eager initialization and ensures thread-safety.
- Functional Programming
 - Location: CriteriaCategory and CriteriaPriority in View Package
 - Reason: To filter class using stream operations.
- Filter Pattern:
 - Location: ICriteria Interface in View package
 - Reason: To filter a set of objects using different criteria and chaining them in a decoupled way through logical operations.