**Project Description:**

**Task Manager with Logging**

**Author:** *Gergana Karabelyova*

**Overview**

This project is a simple command-line task manager application implemented in C++. It allows users to create, view, complete, and remove tasks. Additionally, the application logs various actions such as adding, completing, viewing, and removing tasks to a log file for tracking and debugging purposes. The logger provides insights into the program's operations and helps maintain a record of user interactions.

**Files:**

* logger.h
* logger.cpp – main file
* task.h
* task\_manager.h

**Features**

1. **Add Task**: Users can add a new task by providing a title, description, and due date. The task is then stored in a list.
2. **View Tasks**: Users can view all tasks along with their details, including completion status. This action is logged.
3. **Complete Task**: Users can mark a task as completed by specifying the task title. The task's completion status is updated and the action is logged.
4. **Remove Task**: Users can remove a task by specifying the task title. The task is removed from the list, and the action is logged.
5. **Logging**: All actions are logged to a file (**task\_manager.log**). The log includes timestamps and log levels (INFO, WARNING, etc.) to help track and debug the application.

**Components**

1. **Logger** (**logger.h**):

* Logs messages to a file with different log levels (DEBUG, INFO, WARNING, ERROR).
* Records timestamps for each log entry.

1. **Task** (**task.h**):

* Represents a task with a title, description, due date, and completion status.
* Provides methods to get task details and mark a task as complete.

1. **Task Manager** (**task\_manager.h**):

* Manages a list of tasks.
* Provides methods to add, view, complete, and remove tasks.
* Logs each action using the **Logger** class.

1. **Main Program** (**logger.cpp**):

* Provides a command-line interface for interacting with the task manager.
* Allows users to choose actions from a menu and perform operations on tasks.

**How to Use**

1. **Compile the Program**:

g++ -o task\_manager logger.cpp -I. -std=c++11

1. **Run the Program**:

./task\_manager

1. **Interact with the Program**:

* Follow the on-screen menu to add, view, complete, or remove tasks, or exit.
* Check the log file (**task\_manager.log**) to see recorded actions and debug if necessary.

**Example Usage**

1. **Add a Task**:

* Enter task title, description, and due date when prompted.
* The task will be added to the list and logged.

1. **View Tasks**:

* View a list of all tasks with their details and completion status.
* This action will be logged.

1. **Complete a Task**:

* Enter the title of the task to mark it as complete.
* The task's status will be updated and the action will be logged.

1. **Remove a Task**:

* Enter the title of the task to remove it from the list.
* The task will be removed and the action will be logged.

1. **Exit**:

* Choose to exit the program from the menu.