NAME OF PROGRAM: TaskManager™
PURPOSE: Task creation/management/administration
PROCESS: User-controlled via terminal

BREAKDOWN: TaskManager™ was created to bridge the gap between a user and an admin, effectively unifying both. While the "taskList" array of this version of TaskManager™ is locked to five individual objects of Task, this is merely a small taste of its true scalability; thousands of Tasks could be established, unlikely for one user, but the capability is present.

CONCEPTS:
• <u>Classes</u>: Uses a single main class (Task) to model all tasks.
• <u>Header Files</u>: Uses separate header files for the menu and welcome message.
• <u>Dynamic Task Array</u>: Uses a fixed-size array to store up to 5 tasks dynamically at runtime.
• <u>Binary Search</u>: Can search for a task by name using a binary search after sorting.
• <u>File I/O</u>: Saves tasks to a custom .txt file and loads them back in at startup (Optional).

BONUS:
• <u>Input Validation</u>: Validates user input for task creation, edits, deletes.
• <u>Sorting</u>: Sorts tasks by name to fulfill binary search requirements.
• <u>Basic Console UI</u>: Provides a simple menu system for user interaction.
• <u>Optional File Path Output</u>: User is given the direct file path to .txt file (Option 9).

CHALLENGES:
The biggest challenge when designing TaskManager™ was my overwhelming need to constantly remodel the output. I wanted every decision that the user made to be clear, communicative, and confident. Any ambiguity, and I would consider the entire program a waste. Besides having to learn new syntax, the addition of the "fstream" library was something I've never truly tackled very in-depth.

PROGRAM SCREENSHOTS:

```
Load a previous file? (0/1): 0

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     _____
    |                                           |
    |                  — Menu —                  |
    |                                           |
    |  1. Welcome Message                       |
    |                                           |
    |  2. Create Task                           |
    |  3. Rename Task                           |
    |  4. Reset Task Description                 |
    |                                           |
    |  5. Reset Task Priority Level             |
    |                                           |
    |  6. Delete Task                           |
    |                                           |
    |  7. Display All Tasks (Generally)         |
    |  8. Search for a Task by Name             |
    |                                           |
    |  9. Save session                          |
    |                                           |
    |  10. Quit                                 |
    |                                           |
    |  *** Enter a number: |
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```
Load a previous file? (0/1): 1

    *** Enter the name of the file: henny

**** Task(string, string short) created successfully ****

**** Task(string, string short) created successfully ****

**** Task(string, string short) created successfully ****

    *** Successfully loaded (3) tasks from henny ***

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    |                                           |
    |                  — Menu —                  |
    |                                           |
    |  1. Welcome Message                       |
    |                                           |
    |  2. Create Task                           |
    |  3. Rename Task                           |
    |  4. Reset Task Description                 |
    |                                           |
    |  5. Reset Task Priority Level             |
    |                                           |
    |  6. Delete Task                           |
    |                                           |
    |  7. Display All Tasks (Generally)         |
    |  8. Search for a Task by Name             |
    |                                           |
    |  9. Save session                          |
    |                                           |
    |  10. Quit                                 |
    |                                           |
    |  *** Enter a number: |
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```
    |   *** Enter a number: 1
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                    Welcome to TaskManager™!

In this console—based to—do—list, you can store and manage up to FIVE tasks at a time!

As a user, your privileges include:

● Creating a task
● Deleting a task
● Renaming a task
● Redescribing a task
● Resetting a task's priorty level

Features include:

● Display all tasks
● sortTasksByName algorithm + binarySearch algorithm
● Save/load TaskManager™ sessions

*** Be advised: Every session with TaskManager™ can be both saved and loaded to a text file for your convenience!

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|    *** Enter a number: 2
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                   — New Task —

       *** Please enter the following data ***


Enter Title (20 Characters or Less): Testing

Enter Description (75 Characters or Less): This is for a demo

Priorty level (1—10): 0
——— ERROR: Priority level must be within range (1—10)

Priorty level (1—10): 11
——— ERROR: Priority level must be within range (1—10)

Priorty level (1—10): 10

                — Task Breakdown —

Task: Testing | Priorty Level: 10

Description: This is for a demo

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|    *** Enter a number: 3
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    *** Current Tasks ***

    1. BARK
    2. Christian Licks
    3. Henny Run
    4. Testing


    Enter the number of the task to rename: 4


    Enter new name: Demoing
    *** Successfully changed Task Name!


    • New = Demoing


    • Previous = Testing


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|    *** Enter a number: 4
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    *** Current Tasks ***

    1. BARK
    2. Christian Licks
    3. Henny Run
    4. Demoing

    Enter the number of the task to rename description: 4

    Enter new Description: This is a test of the Reset Task Description
    *** Successfully changed Task Description!

    • New = This is a test of the Reset Task Description

    • Previous = This is for a demo

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|    *** Enter a number: 5
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    *** Current Tasks ***

    1. BARK
    2. Christian Licks
    3. Henny Run
    4. Demoing

    Enter the number of the task to update Priority Level: 4

    Enter new Priority level (1–10): 0
--- ERROR: Priority level must be within range (1–10)

    Enter new Priority level (1–10): 10
    *** Successfully changed Task Priority Level!

    • New = 10

    • Previous = 10

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```
|    *** Enter a number: 6
  _____


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    *** Current Tasks ***

    1. BARK
    2. Christian Licks
    3. Henny Run
    4. Demoing

    Enter the number of the task to delete: 1

    *** Task deleted successfully! ***


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```
|    *** Enter a number: 7
  _____


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    *** Current Tasks ***

    1. Christian Licks
    2. Henny Run
    3. Demoing


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```
|    *** Enter a number: 8
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    Enter the task name to search for: Henny Run

    *** Task Found! ***

    • Task: Henny Run
    • Description: Get Henny
    • Priority Level: 10


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|    *** Enter a number: 9
 ——————————————————————————————

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   Enter filename to save to (Ex: tasks.txt): demoForMidterm
   *** Show file path? (1/0): 1

   *** /Users/nicholasrubio/Library/Developer/Xcode/DerivedData/TaskManager-Midterm-dhjpzwupxmjuvhfblooqxjsceire/Build/Products/Debug

   *** Tasks saved to demoForMidterm ***

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|    *** Enter a number: 10
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    *** Successfully ended TaskManager™

Program ended with exit code: 0
```