Creating a Task Manager with Boolean Logic and Conditionals

Objective:

You will create a basic task manager program that stores and displays up to three tasks using individual string variables. The tasks can be marked as completed using Boolean flags, and the program will display which tasks are completed or still pending.

Problem Statement

Imagine you're an engineer managing a small to-do list with three tasks. You want a simple program that allows you to:

- Add a task
- Mark tasks as completed
- Display the status of each task (either completed or pending)

The catch? You can only manage up to three tasks, and you haven't learned how to work with arrays yet. But you can still accomplish this with what you know: variables, if-else statements, and loops.

Steps

1. **Create Variables for Tasks and Their Status**
    - Set up three string variables to store the tasks.
    - Create three Boolean variables to track whether each task is completed.
2. **Prompt User to Add a Task**
    - Ask the user to input a task.
    - Check which task variable is empty and store the new task in that variable.
    - If all task slots are full, inform the user that no more tasks can be added.
3. **Mark a Task as Completed**
    - Ask the user to choose which task (1, 2, or 3) to mark as completed.
    - Use **if-else** conditions to update the corresponding Boolean variable, marking the task as completed. Use if-else conditions to update the task status and Send/Display a confirmation message to the user.

- If the user selects an invalid task number, display an error message.

4. **Display the Tasks and Their Status**

   - Print out each task along with its status (either "Completed" or "Pending").
   - Use **if-else** conditions to check whether each task is completed or not and display the appropriate status.

Code:

```
using System;

namespace TaskManager
{
    class TaskManager
    {
        // Task descriptions and statuses
        static string task1 = "", task2 = "", task3 = "";
        static bool isTask1Completed = false, isTask2Completed = false,
isTask3Completed = false;

        static void Main()
        {
            bool running = true;

            while (running)
            {
                ShowMenu();
                string choice = Console.ReadLine() ?? "";

                switch (choice)
                {
                    case "1":
                        AddTask();
                        break;
                    case "2":
                        MarkTaskAsCompleted();
                        break;
                    case "3":
                        ShowTasks();
                        break;
                    case "4":
                        running = false;
                        Console.WriteLine("Exiting Task Manager.
Goodbye!");
                        break;
                    case "5":
                        RemoveTask();
                        break;
                    default:
                        Console.WriteLine("Invalid option. Try again.");
                        break;
                }
            }
        }
```

```
        static void ShowMenu()
        {
            Console.WriteLine("\n=== Task Manager ===");
            Console.WriteLine("1. Add Task");
            Console.WriteLine("2. Mark Task as Completed");
            Console.WriteLine("3. Show Tasks");
            Console.WriteLine("4. Exit");
            Console.WriteLine("5. Remove (Clean) a Task");
            Console.Write("Choose an option (1-5): ");
        }

        static void AddTask()
        {
            if (task1 == "")
            {
                task1 = GetTaskDescription();
                Console.WriteLine("Task 1 added.");
            }
            else if (task2 == "")
            {
                task2 = GetTaskDescription();
                Console.WriteLine("Task 2 added.");
            }
            else if (task3 == "")
            {
                task3 = GetTaskDescription();
                Console.WriteLine("Task 3 added.");
            }
            else
            {
                Console.WriteLine("Task list is full. You can't add more
than 3 tasks.");
            }
        }

        static string GetTaskDescription()
        {
            Console.Write("Enter task description: ");
            return Console.ReadLine() ?? "";
        }

        static void MarkTaskAsCompleted()
        {
            Console.Write("Enter task number to mark as completed (1-3):
");
            string taskNum = Console.ReadLine() ?? "";

            if (taskNum == "1" && task1 != "")
                isTask1Completed = true;
            else if (taskNum == "2" && task2 != "")
                isTask2Completed = true;
            else if (taskNum == "3" && task3 != "")
                isTask3Completed = true;
            else
            {
                Console.WriteLine("Invalid task number or task does not
exist.");
                return;
            }
```

```
                Console.WriteLine($"Task {taskNum} marked as completed.");
            }

            static void ShowTasks()
            {
                Console.WriteLine("\n--- Task List ---");
                ShowTask(1, task1, isTask1Completed);
                ShowTask(2, task2, isTask2Completed);
                ShowTask(3, task3, isTask3Completed);
            }

            static void ShowTask(int number, string task, bool isCompleted)
            {
                if (task == "")
                    Console.WriteLine($"Task {number}: [Empty]");
                else
                    Console.WriteLine($"Task {number}: {task} -
        {(isCompleted ? "Completed" : "Pending")}");
            }

            static void RemoveTask()
            {
                Console.Write("Enter task number to remove (1-3): ");
                string taskNum = Console.ReadLine() ?? "";

                if (taskNum == "1" && task1 != "")
                {
                    task1 = "";
                    isTask1Completed = false;
                    Console.WriteLine("Task 1 removed.");
                }
                else if (taskNum == "2" && task2 != "")
                {
                    task2 = "";
                    isTask2Completed = false;
                    Console.WriteLine("Task 2 removed.");
                }
                else if (taskNum == "3" && task3 != "")
                {
                    task3 = "";
                    isTask3Completed = false;
                    Console.WriteLine("Task 3 removed.");
                }
                else
                {
                    Console.WriteLine("Invalid task number or task does not
        exist.");
                }
            }
        }
    }
```