Mini Project: Develop a basic to-do list application using functions and data structures.

Project Overview:

Objective: Develop a simple to-do list application using Python with an emphasis on functions and data structures.

Coding:

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# Initialize an empty list to store tasks
tasks = []


# Function to add a task
def add_task(task):
    tasks.append({"task": task, "completed": False})
    print("Task added successfully!")


# Function to delete a task
def delete_task(task_index):
    if 0 <= task_index < len(tasks):
        del tasks[task_index]
        print("Task deleted successfully!")
    else:
        print("Invalid task index.")


# Function to display the list of tasks
def display_tasks():
    if tasks:
        print("To-Do List:")
        for i, task in enumerate(tasks):
            status = " [X]" if task["completed"] else " [ ]"
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            print(f"{i + 1}. {task['task']} {status}")
    else:
        print("No tasks in the list.")

# Function to mark a task as complete
def mark_task_complete(task_index):
    if 0 <= task_index < len(tasks):
        tasks[task_index]["completed"] = True
        print("Task marked as complete!")
    else:
        print("Invalid task index.")

# Function to show menu options
def show_menu():
    print("\nMenu:")
    print("1. Add a task")
    print("2. Delete a task")
    print("3. Display tasks")
    print("4. Mark a task as complete")
    print("5. Exit")

# Main function to run the to-do list application
def main():
    while True:
        show_menu()
        choice = input("Enter your choice (1-5): ")
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        if choice == "1":
            task = input("Enter the task: ")
            add_task(task)
        elif choice == "2":
            display_tasks()
            task_index = int(input("Enter the task number to delete: ")) - 1
            delete_task(task_index)
        elif choice == "3":
            display_tasks()
        elif choice == "4":
            display_tasks()
            task_index = int(input("Enter the task number to mark as complete: ")) -
1
            mark_task_complete(task_index)
        elif choice == "5":
            print("Exiting the to-do list application.")
            break
        else:
            print("Invalid choice. Please enter a number between 1 and 5.")

# Run the application
if __name__ == "__main__":
    main()
```