COLLEGE OF BUSINESS EDUCATION

DODOMA CAMPUS

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COURSE NAME: PROGRAMMING IN JAVA

PROJECT NAME: TASK MANAGEMENT APPLICATION

TABLE OF CONTENTS

TABLE OF FIGURES

1 CHAPTER ONE

1.1 INTRODUCTION

Task management is a critical component of both personal productivity and team collaboration. With the increasing number of tasks and responsibilities in everyday life, having a reliable and easy-to-use system for tracking and managing tasks is essential. Traditional methods such as pen-and-paper lists or digital spreadsheets are often inefficient, prone to errors, and lack the features that enhance task prioritization, status tracking, and organization.

The Task Manager Application was developed to address these challenges by offering a simple yet powerful tool for managing tasks in an intuitive graphical interface. This application is designed for individuals and small teams who require a straightforward task management solution without the complexity of more robust project management software. The system allows users to add, edit, delete, and track tasks by specifying key attributes such as task name, priority, due date, and status.

Using Java Swing for the graphical user interface, the application enables users to interact with their tasks in a visually appealing way, with color-coded priorities and status indicators for quick assessment. Additionally, the app ensures data persistence by saving tasks in a local file, so users can continue from where they left off after restarting the application.

This project serves as both a personal productivity tool and a development exercise, allowing the creator to apply core programming principles in Java while also learning about file handling, GUI design, and user experience considerations. It aims to provide an accessible solution for managing tasks while keeping the process simple, clean, and efficient.

1.2 PROBLEM STATEMENT

In today’s fast-paced world, individuals and small teams often struggle to keep track of their tasks and deadlines. Traditional methods of task management, such as using paper lists or spreadsheet-based systems, tend to be inefficient, disorganized, and prone to errors. These methods do not offer an intuitive or scalable approach for managing increasing workloads. Furthermore, users often lack the ability to prioritize tasks, track progress, or easily modify task details once they have been entered.

1.3 OBJECTIVES

1.3.1 MAIN OBJECTIVE

The main objective of the Task Manager Application is to provide a simple, intuitive, and efficient desktop-based tool for individuals and small teams to manage and track their daily tasks. This application aims to streamline task management by allowing users to add, edit, delete, and prioritize tasks while maintaining an organized view of their workload. Additionally, it ensures data persistence, allowing tasks to be saved and accessed between sessions.

1.3.2 SPECIFIC OBJECTIVES

- To design an intuitive task management interface
- To add a task sorting and organizing system
- To create a task status tracking feature
- To ensure flexible user interaction experience

1.4 SYSTEM REQUIREMENTS

1.4.1 FUNCTIONAL REQUIREMENTS

1. The system should allow users to add, edit, delete, and view tasks.
2. The system should allow Task Sorting and Organizing.
3. The application must ensure Persistent Storage
4. The system should display tasks with a color-coded status for Pending (Orange), Progress (Blue) and Completed (Green).
5. Users must have the ability to delete individual tasks or clear all tasks at once.
6. The system should have a user-friendly graphical interface with clearly labeled buttons, text fields, and dropdown menus.

1.4.2 NON-FUNCTIONAL REQUIREMENTS

1. Usability
2. Performance
3. Reliability
4. Availability
5. Scalability
6. Security
7. Portability
8. Maintainability
9. Compatibility

2 CHAPTER THREE

2.1 FEATURES IMPLEMENTED

- Splash Screen: Initial screen displays when user launches the Task Manager Application.

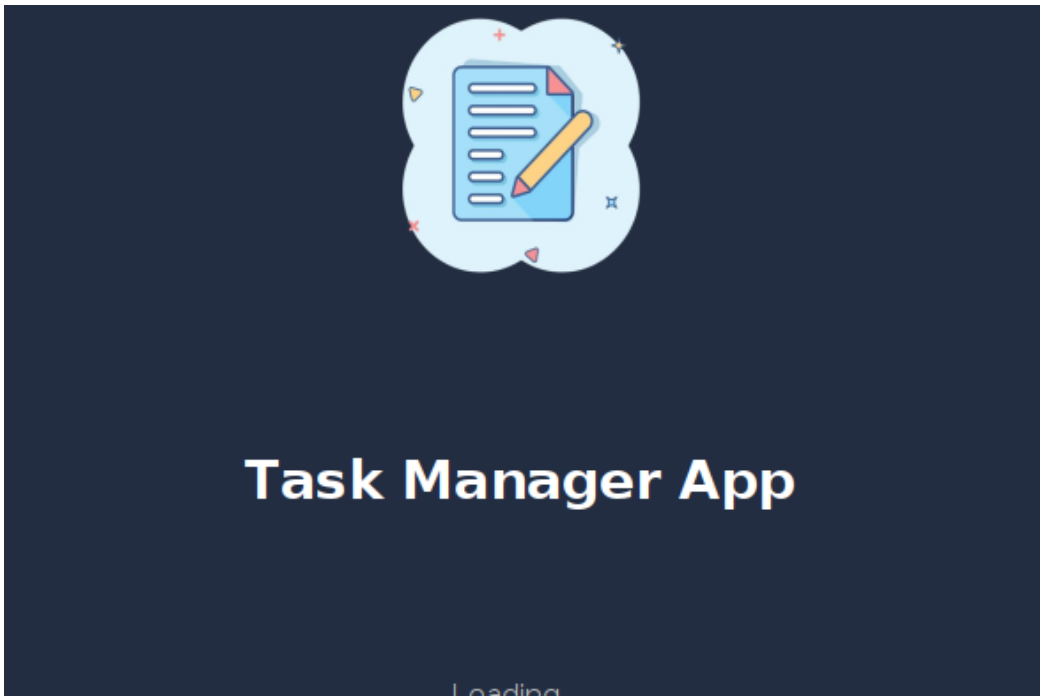

Figure 1: Splash Screen

- Main Screen: The task manager has a clean and user-friendly interface, displaying tasks with relevant details such as task name, priority, due date, and status.

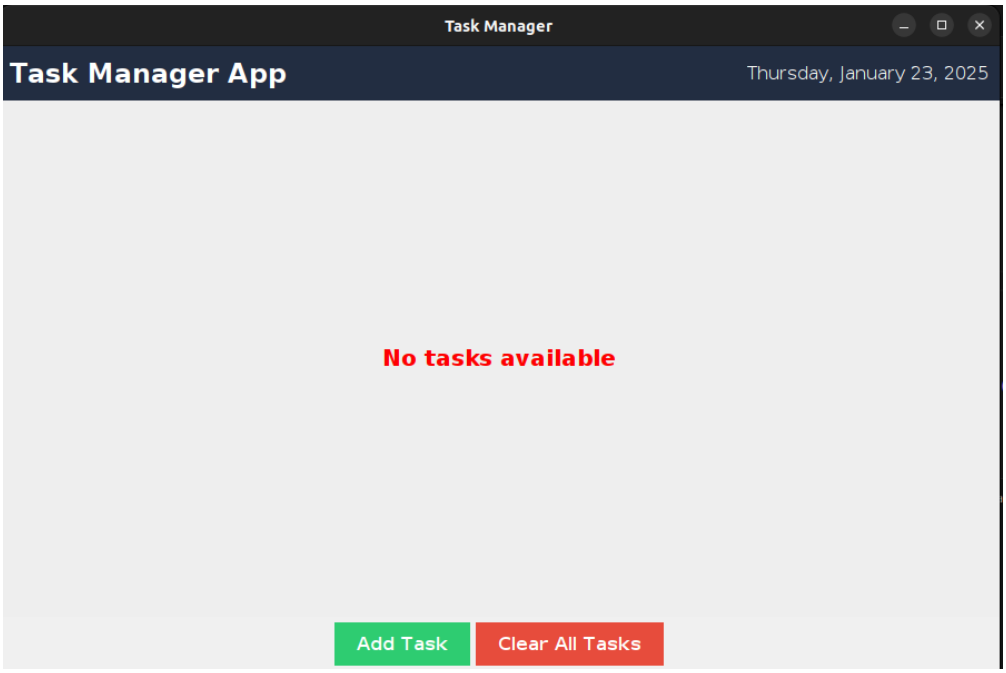

Figure 2: Main Screen

- Task Display: Tasks are displayed in individual panels with their name, priority, due date, and status. Each task also features buttons for editing and deleting.

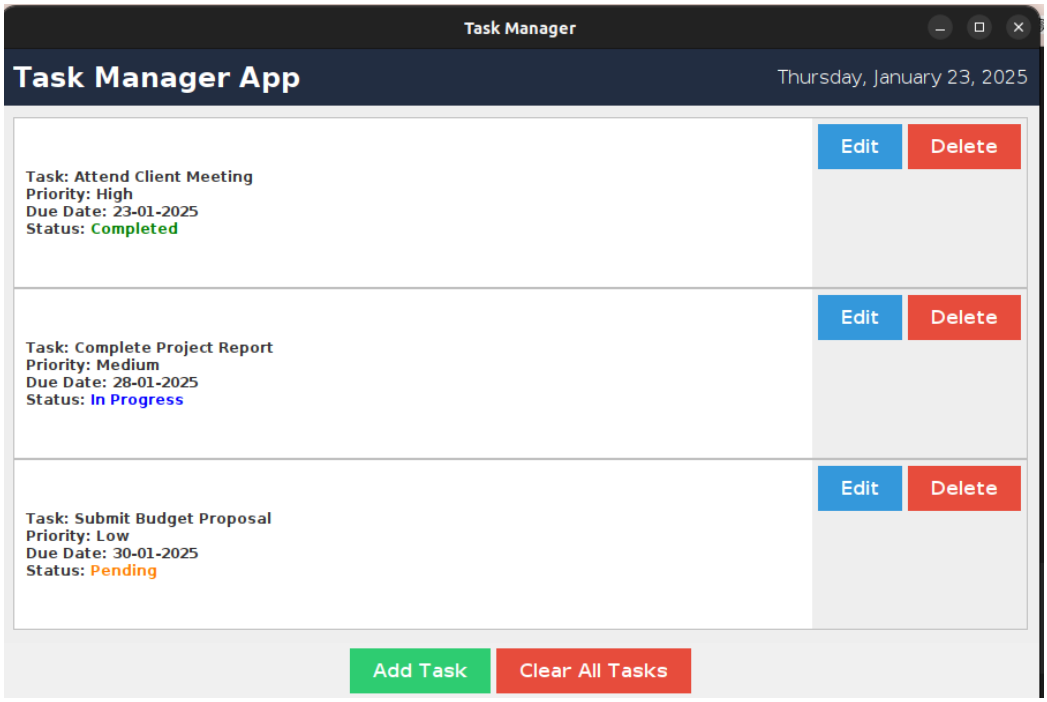

Figure 3: Task Display

- Add Task: Users can add a task by providing a task name, priority, due date, and status. The task is then displayed in the main task list.

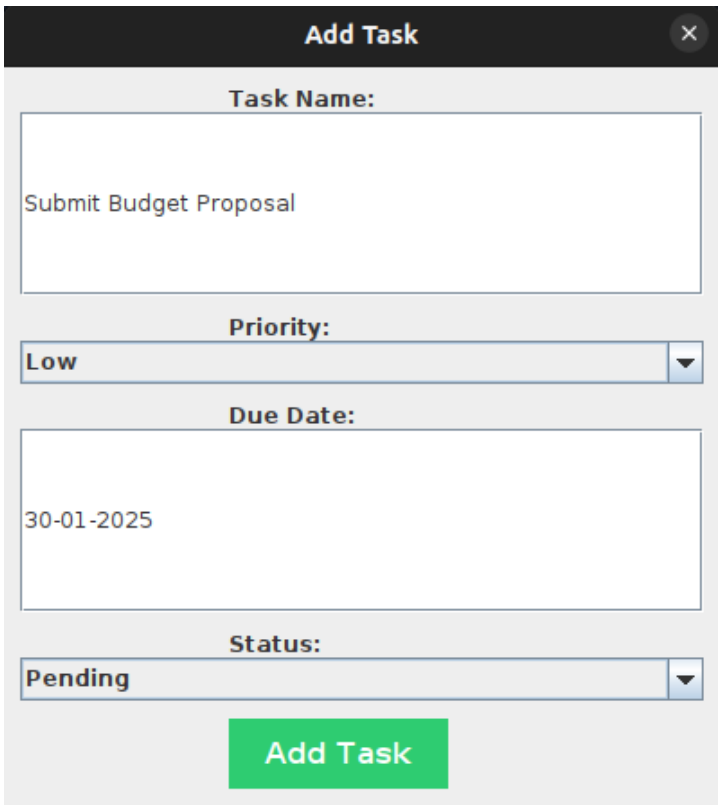

Figure 4: Add Task

- Edit Task: The application allows users to edit an existing task. They can update the task name, priority, due date, and status.

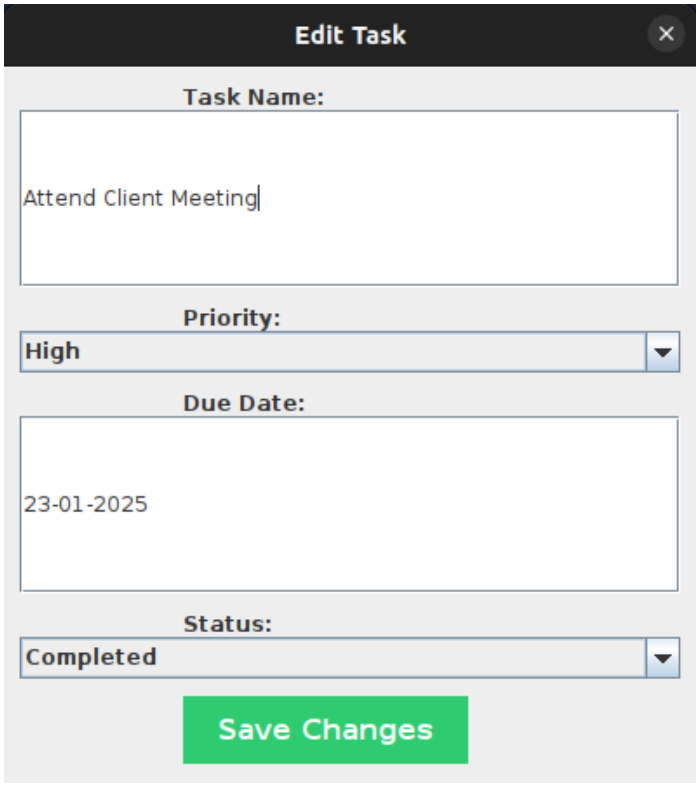

Figure 5: Edit Task

- Delete Task: Users can remove a task from the list with the delete button, and the task will be permanently removed from the system.

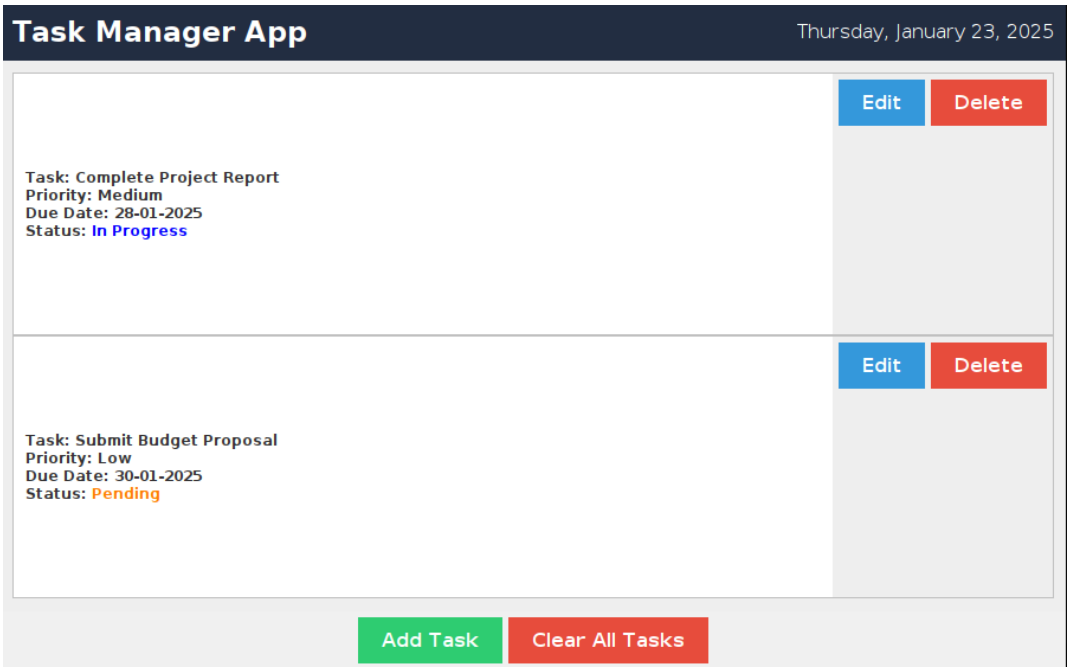

Figure 6: Delete Task

- Clear All Tasks: Users can delete all tasks from the system, and these changes are reflected immediately and persist after closing and reopening the app.

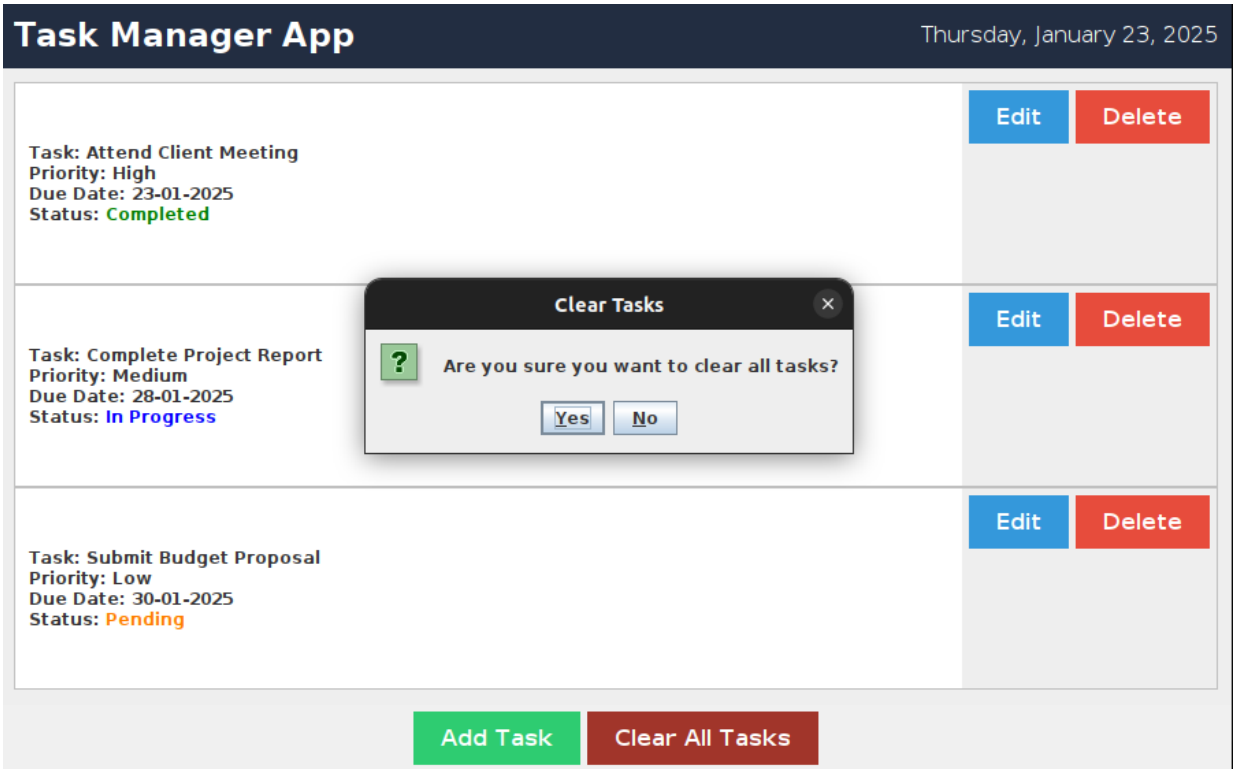

Figure 7: Clear All Tasks

3 CHAPTER FOUR

3.1 CHALLENGES FACED DURING DEVELOPMENT

1. Data Persistence and File Handling: Ensuring that tasks were saved permanently after the application closed and that they could be loaded upon restarting the application posed some challenges. The process of serializing and deserializing data required careful handling of file I/O operations.
2. Task Sorting and Priority Management: Sorting tasks dynamically by priority, and ensuring that the list updated in real-time when tasks were added or deleted, was complex. Ensuring the task list was sorted by priority and not losing task order after updates required special attention to the sorting logic.

3.2 CONCLUSION

Task Manager project was developed to address the need for an efficient, user-friendly application to help users manage their tasks effectively. Throughout the development process, key features were implemented, including task creation, editing, deletion, priority sorting, status updates, and data persistence. By ensuring that tasks were stored permanently even after the application was closed, the project met its goal of providing a reliable task management system.

Key challenges, such as data persistence, date handling, user interface consistency, and error handling, were successfully overcome through careful design and implementation. The application’s intuitive interface and robust functionality make it easy for users to manage their daily tasks, prioritize them, and track their progress.

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