UNIVERSITY OF CALOOCAN CITY
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## Progress Report No. 4

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| **Course Code: CPE201L** | **Program: BSCPE** |
| **Course Title: Data Structure and Algorithm** | **Date Performed: November 3, 2025** |
| **Section: 2A** | **Date Submitted: November 3, 2025** |
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### 1.Objectives

This progress report details the successful evolution of the initial Universal Task Scheduler into a more streamlined and user-friendly desktop application, now branded as Task Reminder Pro. The primary objective of this phase was to pivot from a complex, mobile-targeted Kivy application to a lean, efficient desktop application using Python's built-in Tkinter framework. Key goals for this iteration included:

• Simplifying the Architecture: Replacing the multi-component Kivy, SQLite, and Plyer system with a lightweight, single-file Tkinter application using JSON for data persistence.
• Enhancing Desktop Usability: Focusing on a traditional desktop GUI with intuitive buttons, dialogs, and a scrollable task list, moving away from swipe gestures optimized for touchscreens.
• Implementing Core Functionality: Retaining the essential features of task creation, date/time setting, automated reminders, and persistent storage.
• Improving Aesthetic Appeal: Introducing a modern, card-based UI with a real-time light/dark theme toggle for a more polished user experience.

### 2. Discussion

The transition from the Universal Task Scheduler to Task Reminder Pro represents a significant refinement in the project's direction. While the initial Kivy-based architecture was powerful and cross-platform, its complexity was better suited for mobile deployment. The new Tkinter implementation demonstrates a focused effort to create a robust and elegant solution for the desktop environment. This progression in architecture is evident in several key areas:

• Streamlined Data Management: The shift from a full SQLite database to a simple JSON file (tasks.json) drastically reduced code complexity while maintaining effective data persistence for task lists and user preferences like the theme setting.
• Desktop-Native Interaction: The removal of the alarm system with vibrations and custom sounds—features reliant on plyer—was a strategic decision. It was replaced by a robust, threaded reminder checker that triggers native desktop message boxes, which are more conventional and reliable on Windows.
• Intuitive Input Flow: The date and time selection process was simplified from a Kivy spinner panel to a sequential text-based dialog, making it faster for users who are comfortable with standard date formats.
• Modernized User Interface: The introduction of a dynamic, color-configurable theme system and a card-based layout for tasks provides a visually appealing and professional look that was absent in the initial prototype.

### 3. Materials and Equipment

Hardware:

- Computer - Windows (Primary development and execution environment)

Software & Platforms:

- Python 3.x
- PyCharm IDE (or any text editor/IDE)
- Tkinter library (GUI toolkit, included with standard Python)

Libraries & Components:

- Tkinter (for all UI components) o JSON (for data serialization and storage)
- threading (for running the background reminder checker)
- datetime (for task scheduling and time calculations)
- os (for file system checks)

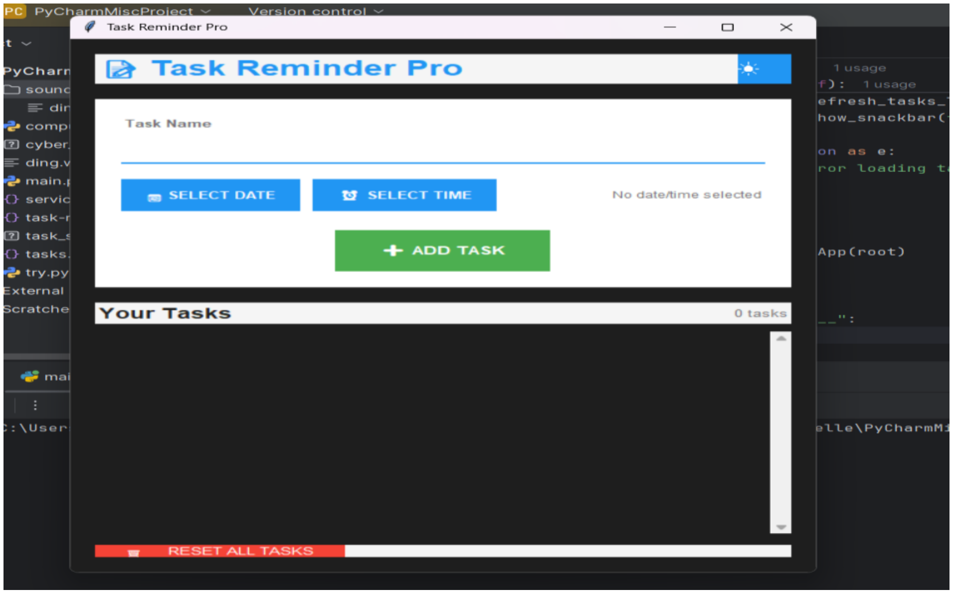
Storage:

- Local JSON file (tasks.json) for storing all application data.

## 4. Procedure

The setup and execution process for Task Reminder Pro begins with ensuring Python 3 is installed on the system, with no additional packages required since Tkinter comes included with the standard library. To launch the application, users simply save the provided code into a single file such as task_reminder_pro.py and run it from the terminal or command prompt using python task_reminder_pro.py. For daily usage, adding a new task involves typing the task name into the "Task Name" field, clicking the "📅 Select Date & Time" button, and sequentially entering the date in YYYY-MM-DD format and time in HH:MM format through dialog boxes before finally saving with the "➕ Add Task" button. Managing active tasks is straightforward through the scrollable task list where each task appears on a visual card displaying its name and due datetime, with individual tasks removable by clicking their "🗑" button. The application features an instant theme toggle between light and dark modes via the "🌙"/"☀" button in the header, which automatically saves the preference. When tasks become due, the system triggers a prominent message box popup reminder, while bulk management is possible through the "🗑 Reset All Tasks" button at the bottom of the interface, which includes a confirmation dialog to prevent accidental data loss.

## 5. Output

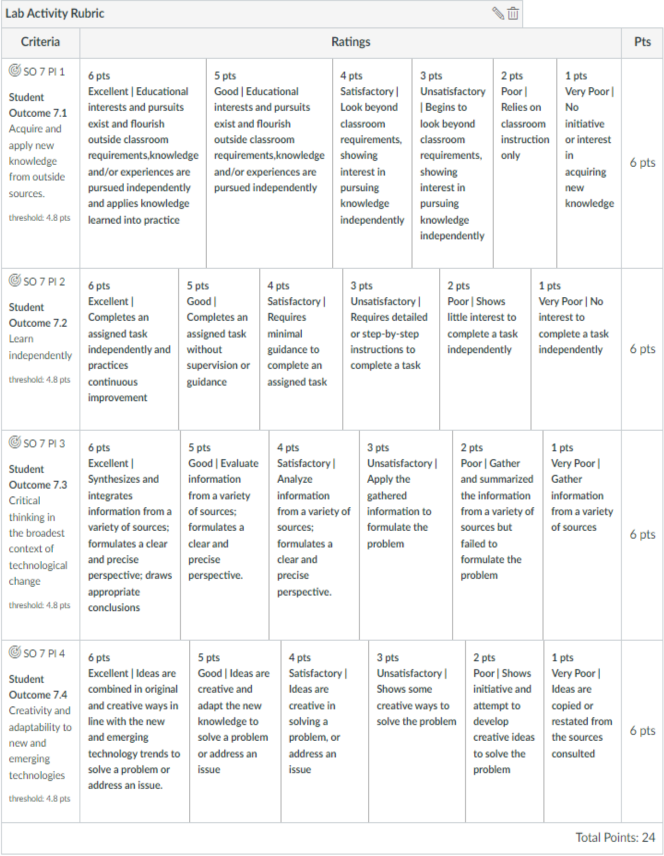


## 6. Conclusion

The progression from the Universal Task Scheduler to Task Reminder Pro marks a pivotal point in the project's lifecycle, showcasing a successful application of the "simplify and refine" philosophy. This new iteration effectively addresses the core need for a reliable, easy-to-use desktop reminder application by shedding the complexity of its mobile-focused predecessor.

The decision to utilize Tkinter and JSON resulted in a dramatically more compact and maintainable codebase without sacrificing the essential user experience. Key successes of this phase include the implementation of a responsive and aesthetically pleasing GUI, a reliable background reminder thread, and a persistent data storage system—all within a single Python script. The addition of a real-time theme switcher adds a layer of polish that enhances user satisfaction.

This project solidifies the understanding that the best tool must be chosen for the target platform. While the initial Kivy version was a valuable exploration into cross-platform development, this Tkinter version is a superior product for the desktop environment. Future work could explore reintegrating optional sound notifications for desktop or adding task categories, but the current version of Task Reminder Pro stands as a complete, functional, and user-friendly application that successfully fulfills its purpose.



Lab Activity Rubric

| Criteria | Ratings | | | | | | Pts |
|---|---|---|---|---|---|---|---|
| SO 7 PI 1<br>**Student Outcome 7.1** Acquire and apply new knowledge from outside sources.<br>threshold: 4.8 pts | 6 pts<br>Excellent \| Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice | 5 pts<br>Good \| Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently | 4 pts<br>Satisfactory \| Look beyond classroom requirements, showing interest in pursuing knowledge independently | 3 pts<br>Unsatisfactory \| Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently | 2 pts<br>Poor \| Relies on classroom instruction only | 1 pts<br>Very Poor \| No initiative or interest in acquiring new knowledge | 6 pts |
| SO 7 PI 2<br>**Student Outcome 7.2** Learn independently<br>threshold: 4.8 pts | 6 pts<br>Excellent \| Completes an assigned task independently and practices continuous improvement | 5 pts<br>Good \| Completes an assigned task without supervision or guidance | 4 pts<br>Satisfactory \| Requires minimal guidance to complete an assigned task | 3 pts<br>Unsatisfactory \| Requires detailed or step-by-step instructions to complete a task | 2 pts<br>Poor \| Shows little interest to complete a task independently | 1 pts<br>Very Poor \| No interest to complete a task independently | 6 pts |
| SO 7 PI 3<br>**Student Outcome 7.3** Critical thinking in the broadest context of technological change<br>threshold: 4.8 pts | 6 pts<br>Excellent \| Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions | 5 pts<br>Good \| Evaluate information from a variety of sources; formulates a clear and precise perspective. | 4 pts<br>Satisfactory \| Analyze information from a variety of sources; formulates a clear and precise perspective. | 3 pts<br>Unsatisfactory \| Apply the gathered information to formulate the problem | 2 pts<br>Poor \| Gather and summarized the information from a variety of sources but failed to formulate the problem | 1 pts<br>Very Poor \| Gather information from a variety of sources | 6 pts |
| SO 7 PI 4<br>**Student Outcome 7.4** Creativity and adaptability to new and emerging technologies<br>threshold: 4.8 pts | 6 pts<br>Excellent \| Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue. | 5 pts<br>Good \| Ideas are creative and adapt the new knowledge to solve a problem or address an issue | 4 pts<br>Satisfactory \| Ideas are creative in solving a problem, or address an issue | 3 pts<br>Unsatisfactory \| Shows some creative ways to solve the problem | 2 pts<br>Poor \| Shows initiative and attempt to develop creative ideas to solve the problem | 1 pts<br>Very Poor \| Ideas are copied or restated from the sources consulted | 6 pts |
| | | | | | | | Total Points: 24 |