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Alangilan Campus

Tel Nos.: (+63 43) 425-0139 local 2222 / 2223

E-mail Address: cics.alangilan@g.batstate-u.edu.ph Website Address: http://www.batstate-u.edu.ph

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TAMAD

CS121: ADVANCED COMPUTER PROGRAMMING

Submitted By:

ALCANTARA, HANZEDWARD P.

Lecturer:

REYES, GLYDEL ANN E.

IT - 2101



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I. PROJECT OVERVIEW

The TAMAD system is designed to help you manage your daily tasks in a way that minimizes stress and maximizes productivity. It was created with the goal of providing a tool that simplifies task management without overwhelming you. The name "TAMAD" reflects its core purpose: offering a straightforward, user-friendly to-do list that promotes productivity while reducing the pressure that often comes with complex task management systems. Whether you're juggling school assignments, work tasks, or personal projects, TAMAD allows you to stay organized without the added stress. With its intuitive design and clear functionality, TAMAD ensures that users can track their tasks and progress with ease, making it an ideal solution for anyone looking to stay on top of their day-to-day responsibilities in an efficient, relaxed manner.

Key Features:

Task Management:

- **Add Tasks:** Quickly add new tasks by typing in a description and setting a due date.
- Delete Tasks: Tasks can be removed with a simple confirmation, ensuring you don't accidentally delete important items.

Due Dates:

Set specific deadlines for each task, helping you stay focused and prioritize what needs to be done first.

Progress Bar:

A real-time progress bar visually shows how much of your list you've completed. This instant feedback keeps you motivated throughout the day.

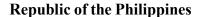
Dark Mode:

Switch between light and dark mode to suit your environment, helping reduce eye strain during late-night or dimly-lit usage.

Minimalist Interface:

The interface is designed to be clean and simple, so you can focus on your tasks without distractions.

Task Checkboxes:



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• Each task comes with a checkbox, allowing you to tick off completed tasks, which updates the progress bar instantly.

Persistent Storage:

• All tasks are stored securely in an SQLite3 database, meaning your tasks remain intact even if you close or restart the app.

Message Notifications:

• Get notified of errors, like missing task descriptions, or be prompted to confirm when you delete tasks, ensuring you stay informed.

Real-Time Updates:

• As soon as a task is added, completed, or deleted, the system reflects those changes immediately, ensuring you always have an up-to-date list.

Easy Task Addition/Deletion:

 Adding and deleting tasks is simple and fast, ensuring minimal steps to manage your daily tasks.

Future Enhancements:

• A **Search Function** is planned for future versions, allowing you to quickly find tasks in longer lists.

Excluded Features:

• TAMAD focuses on simplicity, so it doesn't include complex features like prioritization or advanced planning. It's for people who want a straightforward way to organize daily tasks without overcomplicating things.

TAMAD is all about helping you stay on top of your tasks with as little effort as possible.



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II. PYTHON CONCEPTS AND LIBRARIES

In this section, we'll discuss the key Python concepts and libraries used in the **TAMAD** system, explaining how they work together to provide a functional and user-friendly task management tool.

Python Tkinter (GUI Development)

Tkinter is the standard GUI library for Python and is used extensively throughout **TAMAD** to create a graphical user interface. The system's interface allows users to easily add, delete, and view tasks, and Tkinter enables this by providing various widgets and tools.

Widgets Used:

- Label: Displays static text like titles, instructions, and task names. O Entry: A text box where users can type in the task description. O Button: Allows users to add tasks, delete tasks, and toggle between light and dark modes.
- Checkbutton: Represents each task, enabling users to mark tasks as completed by checking the box.
- o **Listbox**: Used to display the list of tasks dynamically.
- o **Frame**: Used to group widgets logically and ensure a clean layout of the interface.

Tkinter was chosen because of its ease of use for beginners and its ability to create desktop applications without the need for external libraries. Its simplicity allows for quick development while being robust enough to meet the needs of a task management system.

SQLite3 (Database Management)

SQLite3 is a lightweight relational database that is embedded in Python. It is used in **TAMAD** to store user tasks persistently, which means that tasks remain saved even when the application is closed and reopened. This library is ideal for small applications that need to store data locally without requiring a full-fledged database system.

Usage in TAMAD:

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- **Database Creation**: The sqlite3.connect() method is used to connect to the SQLite database, and if the database doesn't exist, it is automatically created.
- Task Storage: Each task is stored with a unique ID, a description, and a due date (if provided). The database stores this information in a structured format, making it easy to manage tasks.
- SQL Queries:
 - INSERT INTO is used to add new tasks to the database.
 - o DELETE FROM is used to remove tasks that have been completed or deleted by the user.
 - SELECT is used to retrieve tasks for display on the user interface.

Example code:

Using SQLite3 ensures that user data is safely stored and easily retrievable, even if the application is restarted, providing a seamless experience.

MessageBox (User Notifications)

The **MessageBox** module is used in **TAMAD** to alert the user to important information or errors. For example, when a user attempts to delete a task, a confirmation dialog appears asking them to confirm their action.

- Types of Alerts:
 - Error Messages: If a user tries to add a task without entering a name, a message box displays an error: "Please enter a task name."
 - o **Confirmation Dialogs**: When deleting a task, a message box pops up to ask if the user is sure they want to proceed with the deletion.

Example code:

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```
if not selected_task_index:
    messagebox.showwarning("No Task Selected", "Please select a task to mark as done!")
    return
```

The **MessageBox** provides a user-friendly way to communicate important information, preventing accidental actions and guiding the user through the application.

Index (idx)

The **index** is used to track the position of each task in the list, allowing specific actions (such as deletion or updating) to be applied to the correct task. By using an index, the system can identify and modify tasks without ambiguity.

Usage in TAMAD:

- When a user deletes a task, the system uses the index to find the correct task in both the displayed list and the database.
- The same concept applies when updating the state of a checkbox (i.e., marking a task as completed or not).

Example code:

```
for task in tasks:
    task_listbox.insert(tk.END, f"{task[0]} - {task[1]} - {task[2]} - {task[3]}")

ef mark_task_done():
    selected_task_index = task_listbox.curselection()

if not selected_task_index:
    messagebox.showwarning("No Task Selected", "Please select a task to mark as done!")
    return
```

Command = Lambda (Dynamic Event Handling)

In **TAMAD**, **lambda functions** are used to pass arguments to callback functions when certain actions are triggered (e.g., button clicks). Without lambda, it would be difficult to pass parameters such as an index to a function triggered by a GUI event.

Usage:

 The command=lambda allows the system to pass the index of a specific task to the deletion function when the user clicks a delete button next to a task.

Example code:

```
remove_button = tk.Button(button_frame, image=remove_photo, command=remove_task, refler=
history_button = tk.Button(button_frame, image=history_photo, command=lambda: switch_scre
```



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This feature makes the system responsive to user actions and ensures that the correct task is deleted when the user clicks the delete button next to it.

Dark Mode (UI Customization)

A **dark mode** feature has been added to **TAMAD**, allowing users to switch between light and dark themes. This is important for improving user experience, particularly in low-light environments, and reducing eye strain during long periods of use.

Implementation:

- A button allows the user to toggle between dark and light modes, switching the color scheme of the entire interface.
- The background color, text color, button color, and other UI elements dynamically change depending on the selected mode.

Example code:

```
def toggle_mode():
    global is_dark_mode
    if is_dark_mode:
        root.configure(bg="white")
        screen_2.configure(bg="white")
        task_listbox_frame.configure(bg="white", bd=2, relief="solid")
        inner_frame.configure(bg="white", bd=2, relief="solid")
        task_listbox_config(bg="white")
        task_listbox_scrollbar.config(bg="white")
        mark_done_button.config(bg="white")
        remove_button.config(bg="white")
        home_button.config(bg="white")
        button_frame.configure(bg="white")
        tx.label(inner_frame, text="GAWIN MO NA!!", font=("Helvetica", 16, "bold"), fg="black"
        is_dark_mode = False

else:
    root.configure(bg="black")
        screen_2.configure(bg="black")
        task_listbox_frame.configure(bg="black", bd=2, relief="solid")
        inner_frame.configure(bg="black", bd=2, relief="solid")
        task_listbox_scrollbar.config(bg="black")
        mark_done_button.config(bg="black")
        mark_done_button.config(bg="black")
        home_button.config(bg="black")
        button_frame.configure(bg="black")
        tk.Label(inner_frame, text="GAWIN MO NA!!", font=("Helvetica", 16, "bold"), fg="white")
        is_dark_mode = True
```

This feature adds personalization and enhances the user experience, particularly in environments with low ambient light.

Listbox and Scrollbar (Task Management)

To display tasks efficiently, **TAMAD** uses a **Listbox** widget. This allows multiple tasks to be shown on the screen, and a **Scrollbar** is added to manage long lists of tasks. The scrollbar allows users to easily scroll through a large number of tasks without cluttering the interface.

Usage:



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 The Listbox dynamically displays tasks, and the Scrollbar provides smooth navigation through long lists.

```
task_listbox = tk.Listbox(inner_frame, width=60, height=16, font=("Arial", 12), selectmode=tk.SINGLE)
task_listbox.grid(row=1, column=0, sticky="nsew", padx=0, pady=0)
task_listbox_scrollbar = tk.Scrollbar(inner_frame, orient="vertical", command=task_listbox.yview)
task_listbox_scrollbar.grid(row=1, column=1, sticky="ns", padx=0)
task_listbox.config(yscrollcommand=task_listbox_scrollbar.set)
task_listbox_xscrollbar = tk.Scrollbar(task_listbox_frame, orient="horizontal", command=task_listbox.xview)
task_listbox_xscrollbar.grid(row=2, column=0, sticky="ew", padx=10)
task_listbox.config(xscrollcommand=task_listbox_xscrollbar.set)
```

With these libraries and concepts, **TAMAD** has been designed to be a simple, yet powerful tool for task management. The combination of **Tkinter**, **SQLite3**, and other Python modules ensures a smooth and user-friendly experience, while features like dark mode, progress tracking, and persistent data storage make it an effective solution for everyday productivity.

III. SUSTAINABLE DEVELOPMENT GOALS

The TAMAD system is aligned with several of the United Nations' Sustainable Development Goals (SDGs), particularly in the areas of improving productivity, enhancing quality education, and fostering innovation. In this section, we'll explore how TAMAD supports SDG 4 (Quality Education) and SDG 9 (Industry, Innovation, and Infrastructure) SDG 3(Good Health and Well-Being) and SDG 8 (Decent Work and Economic Growth), as well as its broader impact on users' lives and well-being.

SDG 4: Quality Education

TAMAD directly contributes to SDG 4: Quality Education by helping users, especially students, manage their academic responsibilities more effectively. Education thrives when students can organize their time and tasks well. By using TAMAD, students can stay on top of assignments, project deadlines, and study schedules. Its task organization features—like adding, editing, and checking off tasks—create a structured approach that makes it easier to balance academic demands and stay focused.

Enhancing Productivity in Education:

- **Better Time Management:** With the ability to prioritize and track tasks, students can avoid lastminute cramming, leading to better academic outcomes.
- **Streamlined Task Handling:** TAMAD helps students break down large tasks into manageable steps, reducing the stress of handling multiple responsibilities at once.



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- **Progress Tracking:** The Progress Bar feature motivates students by visually tracking their progress, making it easier to stay on track and feel accomplished as they complete tasks.
- **Self-Paced Learning:** TAMAD supports students who prefer to learn at their own pace, giving them the flexibility to schedule study sessions according to their needs.

Supporting Personal Growth:

 Beyond improving academic performance, TAMAD fosters personal responsibility and discipline—key aspects of lifelong learning. By organizing tasks and managing time efficiently, students develop habits that will help them throughout their educational journey and beyond.

Through these features, TAMAD supports SDG 4's commitment to providing inclusive and equitable quality education by making learning more organized, efficient, and stress-free.

SDG 9: Industry, Innovation, and Infrastructure

TAMAD also aligns with SDG 9: Industry, Innovation, and Infrastructure by embracing modern digital tools to enhance personal productivity. As the world becomes increasingly digital, TAMAD contributes to the development of the digital infrastructure that supports a more efficient and productive society.

Innovation in Task Management:

- Task Management Innovation: TAMAD is a unique, innovative solution to time management. Features like dark mode, a Progress Bar, and persistent data storage through SQLite represent how small, well-designed tools can drastically improve productivity.
- Encouraging Digital Literacy: TAMAD helps users, especially those unfamiliar with technology, incorporate digital tools into their daily lives. This promotes digital literacy, an essential skill in today's world.

Fostering Digital Transformation:

- **User-Friendly Interface:** By integrating a simple graphical interface using Tkinter, TAMAD makes it easier for users to adopt and benefit from digital task management, reducing barriers to technology adoption.
- Efficient Data Management: The use of SQLite for managing user data is an innovative way to store information reliably without needing complex infrastructure, making it more accessible to a wide range of users.

Infrastructure Development:

On a broader scale, systems like TAMAD contribute to the digital infrastructure that enhances
productivity in educational and workplace environments. By helping users manage tasks
efficiently, TAMAD supports the development of more productive and organized workplaces,
which is critical for driving innovation across industries.

Through its focus on simplicity and accessibility, TAMAD plays a role in the broader development of digital infrastructure and productivity tools, which are vital for future innovation.

SDG 3: Good Health and Well-Being (Indirect Contribution)



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While TAMAD primarily focuses on improving task management, it also has a positive impact on users' mental health and well-being. By providing structure and clarity, TAMAD helps reduce the stress that often comes with managing overwhelming responsibilities.

Stress Reduction:

- Task Visualization: The ability to break large tasks into smaller, manageable chunks and track progress can significantly reduce feelings of overwhelm. This leads to a calmer, more focused approach to work.
- Sense of Accomplishment: The Progress Bar feature provides real-time feedback, promoting a sense of achievement as users check off completed tasks, reducing anxiety about unfinished work.

Improved Work-Life Balance:

 By helping users organize their day and stay on top of tasks, TAMAD encourages a healthier balance between work, study, and personal life. This can lead to better mental well-being and overall life satisfaction, indirectly supporting better health outcomes.

SDG 8: Decent Work and Economic Growth (Indirect Contribution)

TAMAD indirectly supports SDG 8: Decent Work and Economic Growth by helping users—whether students, office workers, or entrepreneurs—boost their productivity. A more organized and efficient workforce is key to economic growth, and TAMAD provides the tools to help users manage their time and tasks effectively.

Boosting Workplace Productivity:

- **Simple, Intuitive Design:** TAMAD's clean interface allows office workers, entrepreneurs, and freelancers to stay organized without getting bogged down in complicated systems, improving work efficiency and performance.
- Task Prioritization: By helping users track and prioritize tasks, TAMAD enables better time
 management, ultimately leading to higher productivity, better job performance, and stronger
 economic growth.

In sum, TAMAD's ability to enhance personal productivity plays a crucial role in supporting economic growth by helping individuals in both educational and professional settings work more efficiently. This, in turn, contributes to the broader goals of SDG 8.

Through its ability to improve time management, enhance productivity, and foster digital adoption, TAMAD supports multiple Sustainable Development Goals, ultimately helping users lead more organized, efficient, and balanced lives.



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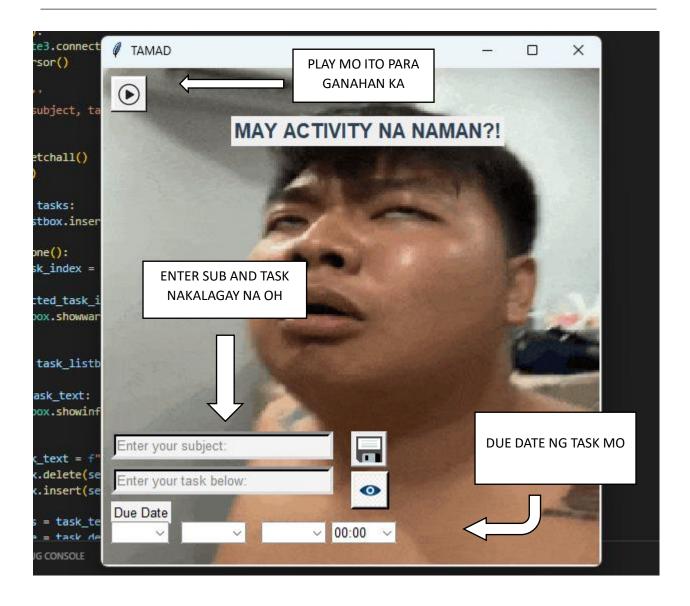
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IV. PROGRAM/SYSTEM INSTRUCTIONS





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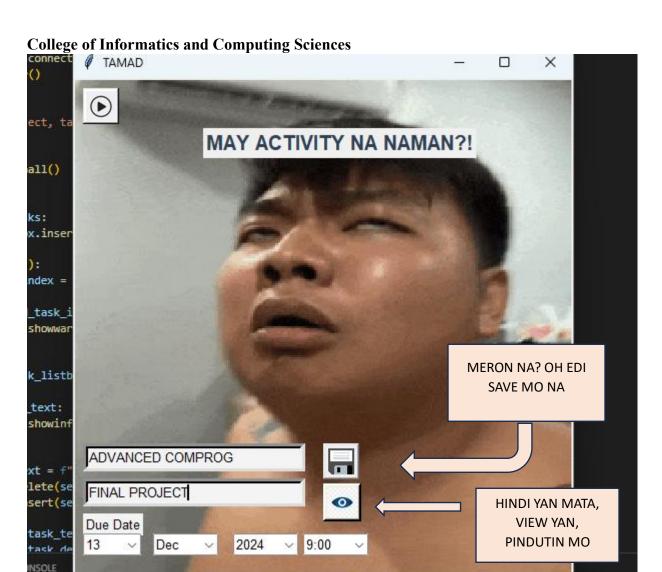
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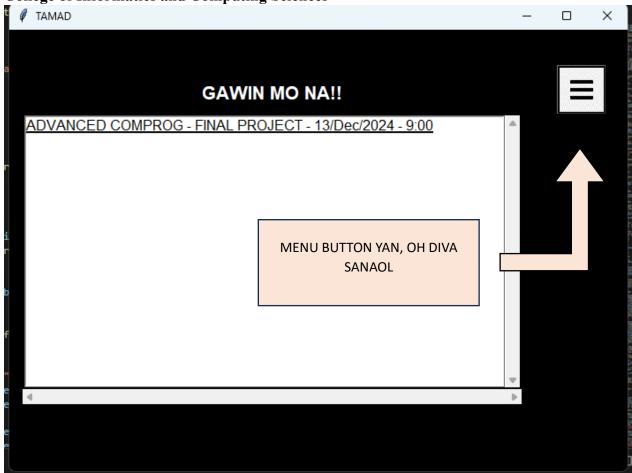
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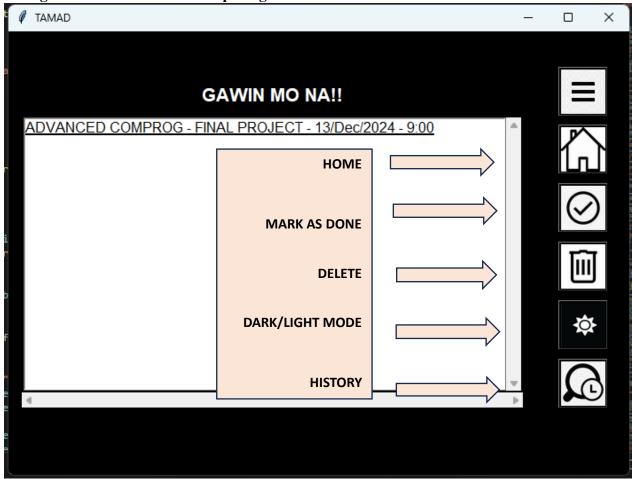
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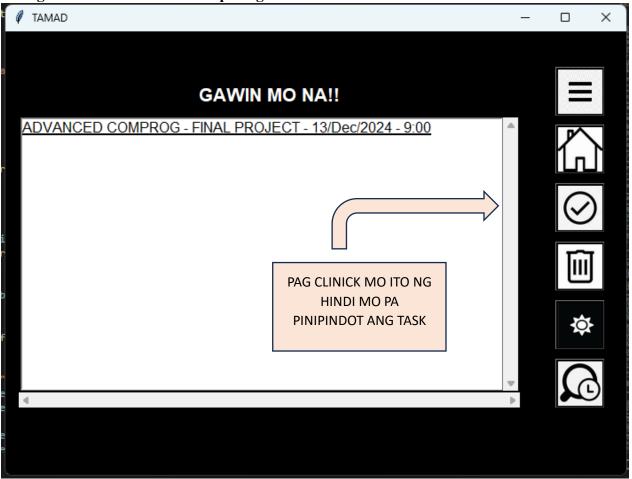
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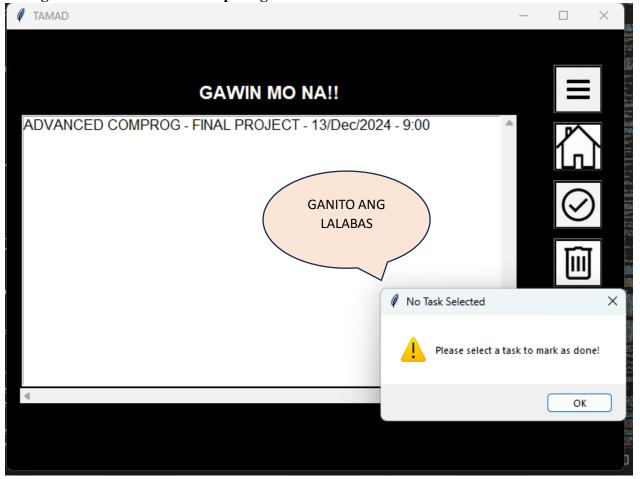
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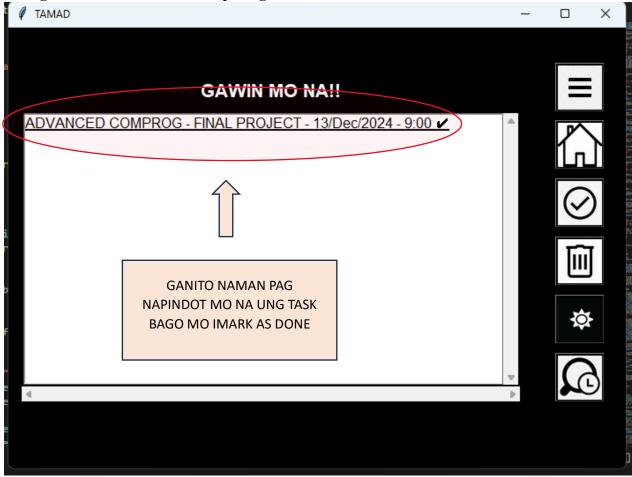
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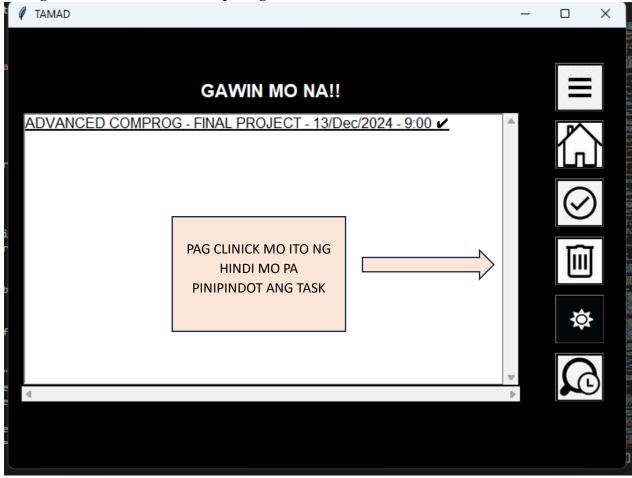
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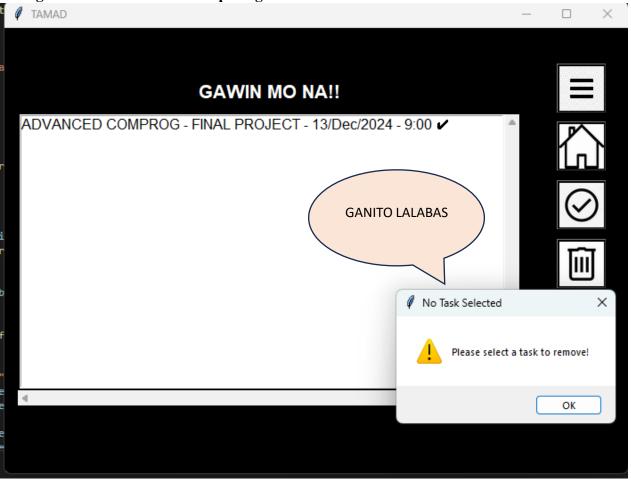
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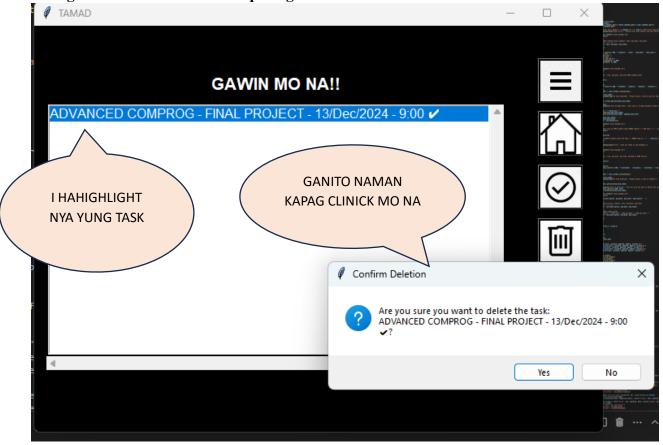
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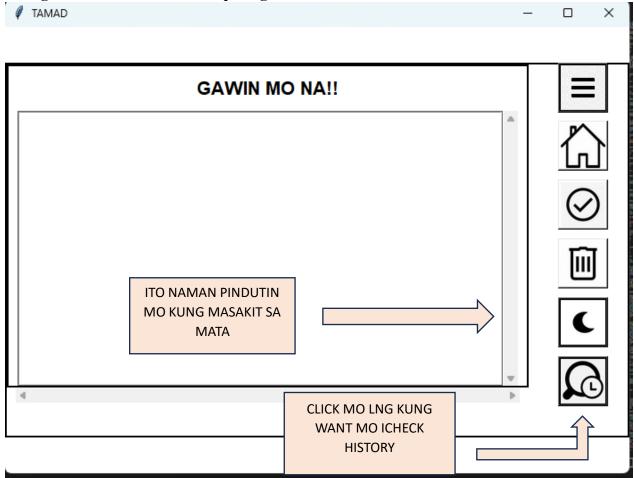
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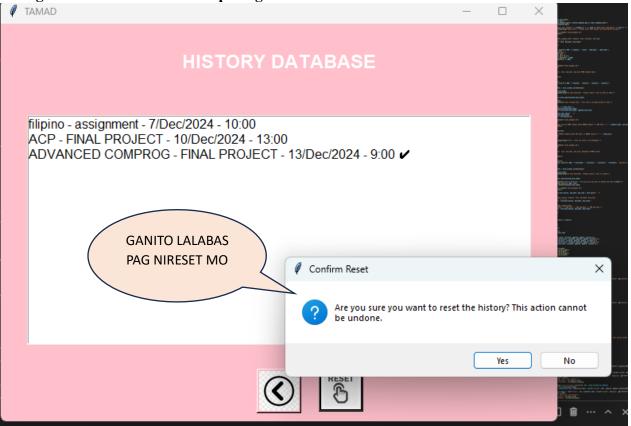
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