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College of Informatics and Computing Sciences

TAMAD

CS121: ADVANCED COMPUTER PROGRAMMING

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IT – 2101



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I. PROJECT OVERVIEW

The purpose of this system is to help students manage their tasks efficiently by providing a task scheduling interface. The system aims to automate the process of task creation, management, and tracking, offering features like adding tasks, marking them as done, and maintaining a history of removed tasks. This solution supports the user's academic life by ensuring timely task completion and minimizing missed deadlines.

- **Included Features:**

- Adding tasks with subject, description, due date, and time.
- Marking tasks as done.
- Viewing tasks and task history.
- Deleting tasks and archiving them in a history database.
- Light and dark mode toggle.
- Music toggle for background sound during task management.

- **Excluded Features:**

- This system does not support user authentication or multi-user functionality.
- No integration with external calendar applications.
- It does not manage non-task-related features such as notes or reminders outside the context of tasks.

- **Target Users:**

- The intended users are students who need an easy way to track their academic tasks.
- The interface is designed for students at high school or university level, with a user-friendly and simple layout.

- **Specific, Measurable Outcomes:**

- **Specific:** To provide a simple system where students can add, view, and manage tasks.
- **Measurable:** The system will support up to 100 tasks stored in the local database (SQLite) and can be used to handle task reminders.
- **Achievable:** The system will be built using Python Tkinter for the GUI and SQLite for the database, both of which are feasible for this type of application.
- **Relevant:** The system is highly relevant for students who often juggle multiple assignments and deadlines.
- **Time-bound:** The system will be functional and ready for student use within two months from the project start date.



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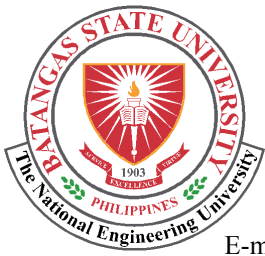
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II. PYTHON CONCEPTS AND LIBRARIES

- **Python Tkinter:**
 - Explanation: Tkinter is the standard Python library for creating graphical user interfaces (GUIs). In this project, Tkinter is used to design the user interface for task management, including text entry boxes, buttons, and listboxes to display tasks. Tkinter allows easy event-driven programming, such as responding to button clicks and updating the GUI based on user actions.
 - Use in the Project: Tkinter is utilized for creating the main windows and interactive elements, such as:
 - The task entry and display forms.
 - Buttons for actions like saving tasks, marking them as done, and removing them.
 - A customizable theme, switching between light and dark modes.
 - **MySQL:**
 - Explanation: MySQL is a popular relational database management system used to store and retrieve data. For this project, however, SQLite was chosen over MySQL for simplicity since it provides a lightweight, file-based database that is easy to set up without the need for a separate database server.
 - Use in the Project:
 - SQLite is used to store task-related information, such as task description, subject, due date, and time, in the `student_tasks` table.
 - A history table is used to store deleted tasks for future reference.
 - Basic SQL operations like INSERT, SELECT, UPDATE, and DELETE are used to manage the tasks and the task history within the SQLite database.
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III. SUSTAINABLE DEVELOPMENT GOALS

The system aims to contribute to the achievement of several Sustainable Development Goals (SDGs), which align with its features and purpose. By automating task management and organizing student workflows efficiently, the system offers the following contributions:

- 1. Goal 4: Quality Education
- Target: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- Contribution: The system provides a platform for students to organize their tasks, manage deadlines, and track progress, promoting better study habits and enhancing learning outcomes. It helps students stay organized, which can directly contribute to academic success and productivity.
- 2. Goal 8: Decent Work and Economic Growth
- Target: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
- Contribution: By streamlining task management, the system reduces inefficiencies, helping students or employees increase productivity. This fosters better time management, which can contribute to improved economic outcomes by supporting work and educational goals.



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IV. PROGRAM/SYSTEM INSTRUCTIONS

TAMAD: Task Management Application

Welcome to TAMAD, a task management application built with Python and Tkinter. This program helps you create and manage your tasks efficiently, with the ability to set due dates and times, mark tasks as done, and view task history. Here's how to use it:

Getting Started:

Launch the Application:

- Upon starting the program, you'll be presented with the main screen where you can add tasks and access the task management screen.

User Interface:

- Main Screen: The home screen contains a welcome message and a button to proceed to the task management screen.
- Task Management Screen (Screen 2): This screen lets you manage your tasks, mark them as done, and remove them.
- History Screen (Screen 3): View deleted tasks with a timestamp of when they were deleted.

Main Screen Instructions:

Subject Entry:

- The entry field allows you to input the subject of your task (e.g., Math, Science, etc.).
- When you click into the field, it will prompt you to enter the subject; it will return to the placeholder text once the field is left empty.

Task Entry:

- In the task entry field, you can enter a description of your task.
- Similar to the subject entry, the field will guide you by showing placeholder text.

Date and Time Selection:

- You can specify the due date and time for your task using the drop-down boxes for day, month, year, and time.
- For example, select a due date like "12/Dec/2024" and a time like "15:30".

Save Task:

- After entering the task and due details, click on the save button (represented by a save icon). This will store the task in the system.
- Saved tasks will be listed in the task management screen under Screen 2.

Play Music:

- The play button at the top will start or stop background music when clicked. The music will continue until manually stopped.

Task Management Screen Instructions:

View Task List:

- The list box displays all saved tasks with their subjects, descriptions, due dates, and times.
- You can scroll through the list to see all tasks.

Mark Task as Done:

- Select a task from the list by clicking on it.



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- Press the Mark as Done button (represented by a checkmark icon) to mark the task as completed. The task text will be updated with a “✓” symbol next to it.

Remove Task:

- If you wish to delete a task, select it from the list.
- Click on the Remove button (represented by a trash bin icon) to delete the task.
- You will be prompted to confirm the deletion.

History:

View deleted tasks in the History screen. These tasks will be shown with their deletion timestamp.

Toggle Mode (Dark/Light):

- Switch between dark mode and light mode by clicking the dark/light toggle button.

Home Button:

- Use the Home Button to return to the main screen from the task management screen.

Menu Button:

- The menu button gives you access to a set of actions like marking a task as done, removing a task, toggling between dark and light mode, and accessing the history.

History Screen Instructions:

View Deleted Tasks:

- In this screen, you can see tasks that have been removed from the active task list.
- Tasks are displayed along with their respective timestamps indicating when they were deleted.

Reset History:

- You can reset (clear) the history by clicking the reset button.
- You will be asked to confirm this action before it's performed.

Go Back to Task Management Screen:

- Use the Back button to return to the task management screen (Screen 2).

Other Features:

Database Management:

- All tasks and task deletions are stored in a local SQLite database (tasks.db).
- The database contains two tables:
 - student_tasks: Stores active tasks.
 - history: Stores tasks that have been deleted.

Error Handling:

- The program ensures that you cannot save an empty task. If you try, an alert will appear prompting you to enter valid data.
 - When marking a task as done, the system will check if it is already marked and notify you if it is.
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