**Task Manager System**

**Overview**

The Task Manager System is designed to help users manage their tasks efficiently. It allows users to register, log in, add tasks, view tasks, mark tasks as completed, and delete tasks. The system ensures that each user's tasks are private and can only be accessed and modified by the respective user.

**Components**

1. **\*\*User Management\*\***: Handles user registration and login.

2. **\*\*Task Management\*\***: Allows users to add, view, mark as completed, and delete tasks.

3. **\*\*Interactive Menu\*\***: Provides a user-friendly interface for interacting with the system.

**Class Diagram**

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| TaskManager |

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| - USER\_DATA\_FILE: str |

| - TASK\_DATA\_FILE: str |

| - logged\_in\_user: str |

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| + \_\_init\_\_() |

| + hash\_password(password: str) -> str |

| + register\_user() |

| + login\_user() -> bool |

| + add\_task() |

| + view\_tasks() |

| + mark\_task\_completed() |

| + delete\_task() |

| + interactive\_menu() |

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**Flowchart**

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| Start |

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| Display Main Menu|

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| User Choice |

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| 1. Register |----->| Register User |

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| 2. Login |----->| Login User |

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| 3. Exit |----->| Exit Program |

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| Interactive Menu |

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| Task Choice |----->| 1. Add Task |

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| 2. View Tasks |----->| Display Tasks |

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| 3. Mark Completed|----->| Mark Task |

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| 4. Delete Task |----->| Delete Task |

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| 5. Logout |----->| Logout User |

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| End |

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**User Management**

- **\*\*Register User\*\***: Prompts the user to enter a username and password, hashes the password, and stores the user data in a JSON file.

- **\*\*Login User\*\***: Prompts the user to enter a username and password, verifies the credentials, and sets the logged-in user.

**Task Management**

- **\*\*Add Task\*\***: Prompts the user to enter a task description and stores the task in a JSON file.

- **\*\*View Tasks\*\***: Displays all tasks for the logged-in user.

- **\*\*Mark Task Completed\*\***: Prompts the user to enter a task ID and marks the task as completed.

- **\*\*Delete Task\*\***: Prompts the user to enter a task ID and deletes the task.

**Interactive Menu**

- Provides options for adding tasks, viewing tasks, marking tasks as completed, deleting tasks, and logging out.

**Running Environment**

To run the Task Manager System, ensure you have the following environment set up:

1. **\*\*Python 3.x\*\***: Make sure you have Python 3.x installed on your system.

2. **\*\*Required Libraries\*\***: Install the required libraries using pip:

```bash

pip install json

```

**Running the Task Manager System Locally**

To run the Task Manager System locally, execute the following steps:

1. Open a terminal or command prompt.

2. Navigate to the directory where your `TaskManager` script is located.

3. Run the script using Python:

```bash

python task\_manager.py

```

This will start the Task Manager System, and you will be presented with the main menu to register, log in, and manage your tasks.

**Running the Task Manager System in a Cloud Jupyter Notebook**

To run the Task Manager System in a cloud-based Jupyter Notebook, follow these steps:

1. Ensure your Jupyter Notebook environment has Python 3.x installed.

2. Install the required libraries using pip within a notebook cell:

```python

!pip install json

```

3. Copy the `TaskManager` class and any other necessary code into a cell in your Jupyter Notebook.

4. Create an instance of the `TaskManager` class and call the main loop in another cell:

```python

manager = TaskManager()

while True:

print("\n1. Register")

print("2. Login")

print("3. Exit")

choice = input("Enter your choice: ")

if choice == '1':

manager.register\_user()

elif choice == '2':

if manager.login\_user():

manager.interactive\_menu()

elif choice == '3':

break

else:

print("Invalid choice. Please try again.")

```