Design Document

AI Task Assistant

1. Introduction:

This document describes the design and implementation details of the AI Task Assistant
project. The system is a command-line based application developed using Python and
implements a rule-based intelligent agent for task management.

2. System Architecture:

The system follows a modular architecture with separation of concerns. It consists of
three main components:
- main.py: Handles user interaction and application flow.
- agent.py: Implements the AI decision-making logic.
- storage.py: Manages persistent storage using JSON files.

3. AI Agent Design:

The AI agent is implemented as a rule-based intelligent system. It analyzes natural
language task descriptions provided by the user and performs the following actions:
- Keyword-based task classification.
- Priority assignment (High, Medium, Low).
- Category identification (Study, Work, Personal, General).
- Explainable decision output.

4. Decision Logic:

The agent uses predefined rules to detect keywords such as "exam", "project", "meeting",
and time-related expressions like "today" or "tomorrow" to adjust task priority dynamically.

5. Data Storage:

Tasks are stored persistently in a local JSON file (tasks.json). Each task contains:
- Task description
- Priority
- Category
- AI explanation

6. Libraries and Tools:

-Python 3
-JSON for data storage No external third-party libraries are required.

7. Limitations and Future Improvements:

The current system uses rule-based logic. In the future, it can be extended using machine
learning or NLP models for more advanced task understanding.