

Requirements the Bots / Agents / Assistants

Introduction

Henhouse had an idea about creating a system that uses AI to perform repetitive tasks more efficiently. This would involve deploying AI generative agents capable of handling tasks autonomously. Given the current capabilities of AI, it is feasible to implement such a system. However, for this internship project, I decided to focus on a smaller, manageable component rather than developing the entire system. Diederik suggested a reverse engineering function that breaks down projects into smaller tasks, which can then be executed by AI agents in the future.

The focus of this document is to outline the requirements and criteria for developing two specific bots: the Project Breakdown Bot and the Project Decomposition Guide Bot. These bots are intended to automate the breakdown of projects into actionable tasks, primarily for project management purposes. This approach addresses a key functionality rather than the entire system, making it more feasible within the scope of the internship.

To implement and test these systems, we utilized technologies such as n8n for automation and Notion for the database, along with OpenAI for the AI assistants. n8n was chosen for its ease of use and strong integration capabilities with both Notion and OpenAI, making it an ideal choice for this setup. I will explain later in this document how these technologies were employed.

Why These Requirements?

Henhouse has a complex system with multiple layers of projects and tasks. To simplify, I focused on a few key project details for the bots to understand and break down tasks accurately. Initially, there was an idea to assign roles to these agents and let them work within a business architecture. However, I simplified this to ensure feasibility within the project's scope.

The requirements are designed to ensure that the bots can accurately break down high-level projects. Accuracy is crucial for ensuring that subsequent AI agents can receive and process the tasks effectively. Dependency mapping with indexed tasks helps in demonstrating how different parts of the system interact to complete a project, accounting for limitations and dependencies.

By addressing these requirements, we aim to create a reliable and efficient system that can break down complex projects into manageable tasks, paving the way for future AI-driven task execution.

Requirements for Project Breakdown Bot

1. Input Handling

- Ability to accept high-level project tasks as input and parse them for processing.
- Input should include project objectives, key results, and scope details.

2. Sub-Element Decomposition

- Automated decomposition of high-level tasks into detailed sub-tasks.
- Each sub-task should include specific actions, dependencies, and requirements.

3. Dependency Mapping

- Automatically identify and map dependencies between sub-tasks to ensure proper sequencing and resource allocation.

4. Output Specification

- Generate outputs in **specific format**, ensuring consistency with existing data structures.
- Each sub-element must include:
 - Name
 - Detailed description
 - Scope (inclusions and exclusions)
 - Dependencies (other related sub-tasks)
 - Requirements (knowledge and resources needed, with a limit of 3-5 items)
 - Unique identification index for tracking and reference

5. Performance Requirements

- The bot should process input and produce the output within a reasonable time frame.
- Ensure high accuracy in the decomposition to minimize the need for manual corrections.

Requirements for Project Decomposition Guide Bot

1. Input Processing

- Ability to receive overall project goals and objectives as input.
- Handle multiple inputs simultaneously for complex projects involving various departments or teams.

2. Guided Breakdown

- Systematically break down the overall project into primary actionable steps, indexed logically (e.g., 1.1, 1.2, etc.).
- Each step should clearly define the tasks necessary to achieve specific project milestones.

3. Comprehensive Output Details

- Outputs must be in specific format, compatible with project management tools.
- Each step must include:
 - Step name
 - Detailed description of the task
 - Scope of the step (what is included and what is not)
 - Dependencies on other project steps
 - Specific requirements for completion (limited to a maximum of 5 items)

4. Scalability and Adaptability

- The bot should be scalable to handle projects of varying sizes and complexities without loss of performance.
- Capable of adapting to different project types with minimal configuration changes.

5. Integration Capability

- Ensure seamless integration with existing project management software and tools.
- Support data interchange with other enterprise systems to maintain data consistency and accuracy.

Evaluation Criteria

Project Decomposition Guide Bot

1. Input Processing

- **Criteria:** The bot must handle varied input formats without error and interpret complex multi-component project goals accurately.

2. Guided Breakdown

- **Criteria:** The clarity of the breakdown, correctness of the action steps relative to the overall goal, and logical indexing of each step.

3. Comprehensive Output Details

- **Criteria:** Adherence to specific output specifications, accuracy of detailed descriptions, and completeness of scope and requirement listings. Each element must be clearly defined and match project documentation standards.

4. Scalability and Adaptability

- **Criteria:** The bot should demonstrate efficiency and accuracy across projects of varying sizes and complexities. Test for performance degradation as project size increases.

5. Integration Capability

- **Criteria:** Seamless integration with at least X number of existing project management tools, verified through API connectivity tests and data exchange verification.

6. Security and Compliance

- **Criteria:** Adherence to organizational IT security policies, successful completion of vulnerability assessments, and compliance with data protection regulations.

Sub-Element Breakdown Bot

1. Input Handling

- **Criteria:** Accuracy of input parsing, ability to handle complex project descriptions without errors.

2. Sub-Element Decomposition

- **Criteria:** Completeness of task breakdown, accuracy in maintaining the integrity of the original project scope, and detailed task delineation.

3. Dependency Mapping

- **Criteria:** Correct identification and logical mapping of dependencies that reflect actual project needs and constraints.

4. Output Specification

- **Criteria:** Compliance with the specific format specifications, correctness of data structure, and completeness of each sub-task's details. Ensure all fields are populated according to specifications with no data truncation.

5. Performance Requirements

- **Criteria:** Time efficiency (e.g., the bot must process inputs and generate outputs within X seconds), and reliability (e.g., the bot performs consistently over Y number of cycles without failure).
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