

IdeaFlow: AI-Powered Diagram Generation



1. Overview

1.1 Purpose

The purpose of this document is to outline the requirements for an AI-powered tool designed to automate the process of creating detailed, educational diagrams for various topics. The tool will leverage AI capabilities to fetch relevant data, generate logic trees, and design comprehensive whiteboard-style diagrams enriched with visual elements and examples.

1.2 Scope

The tool will integrate with Notion for data retrieval, use an LLM for generating logic trees and creating Mermaid code, and utilize Excalidraw for diagram visualisation. The final output will be an interactive, refined diagram that includes text, images, and examples relevant to the specified topic.

1.3 Goals and Objectives

- **Streamline Educational Content Creation:** Facilitate quick generation of educational diagrams for use in learning materials, presentations, and online content.
- **Integration with Notion:** Seamlessly pull relevant articles and resources from Notion databases.
- **Customisability:** Allow users to refine and customize diagrams to fit their specific needs and contexts.

2. Functional Requirements

2.1 User Inputs

- **Title:** User-defined title for the diagram.
- **Objective:** Clear statement of the diagram's educational or informational objective.

2.2 System Actions

1. **Data Retrieval:** The tool will query Notion databases using keywords from the title and objective to fetch relevant articles and resources.

2. **Logic Tree Creation:** Utilize an LLM to synthesize the retrieved information into a structured logic tree.
3. **Mermaid Code Generation:** Convert the logic tree into Mermaid code to prepare for visual diagram creation.
4. **Diagram Visualization:** Input Mermaid code into Excalidraw to generate the initial visual diagram.
5. **Refinement and Enhancement:**
 - Users can refine the diagram with prompts and custom images.
 - Add or generate pictorial examples and annotations to enrich the diagram's informational value.

2.3 Integrations

- **Notion API:** To fetch relevant articles and resources.
- **OpenAI API (any LLM):** To utilize LLM for logic tree and Mermaid code generation.
- **Excalidraw API:** For creating and refining diagrams.

3. Non-functional Requirements

3.1 User Interface

- This is an API tool, no need to build UI for it. The API should take title, objective as an input and should search the notion database and follow the steps to generate diagram in Excalidraw.
- **Accuracy:** Data retrieval and logic structuring should accurately reflect the user's specified title and objective. Also there should be an option to revise the diagram with prompts and graphics.

3.2 Security

- **Data Privacy:** Adhere to strict data privacy standards to protect user data and any information retrieved or processed through Notion.

4. System Architecture

- **Frontend:** N/A
- **Backend:** APIs for processing data, interfacing with Notion and Excalidraw APIs, and handling the creation and revision of diagrams.