AI-Powered Brainstorming Board - Task

Objective

Build a Trello/Notion-style brainstorming board where users can add idea cards, organize them, and use AI to enhance creativity through idea suggestions, clustering, and summaries.

This assignment tests your ability to build a modern web app while integrating AI features in a meaningful way.

Core Requirements

1. User Sessions

- **Simple authentication (can be username-based or email login).**
- **Each user has their own board.**

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2. Board Features

- **Users can:**
  - **Add/edit/delete idea cards.**
  - **Drag & drop cards between columns (like Trello).**
  - **Persist board state in a database (PostgreSQL/MongoDB/SQLite).**
- **On refresh, the user should see their last saved board.**

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3. AI Features (Core Focus)

(a) Idea Suggestions

- **When a user adds a new card, the system uses an AI API to:**

    - Suggest 2–3 related ideas.
    - Show them below the card (user can choose to add them).

(b) Clustering Ideas

- The app should group cards into clusters/topics using AI embeddings.
- Example: Cards about “climate” automatically cluster together.
- Show clusters visually (colored groups or labeled sections).

(c) Board Summarization

- One-click button → AI generates a summary of the board:
    - Key themes.
    - Top ideas.
    - Possible next steps.

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4. UI/UX

- Clean, drag-drop board (like Trello/Notion).
- Left toolbar: add card, cluster, summarize.
- Right panel: AI summary + suggested ideas log.

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5. Deployment

- Provide demo video link + GitHub repo.

Bonus (Optional, for Extra Points)

- Multi-user boards (shared brainstorming session).
- Export board as Markdown/PDF with AI-generated summary.
- Add “mood analysis” → AI labels cards as positive/neutral/negative.

- **Use embeddings to search within board ideas.**

Deliverables(both required)

- **GitHub repository with:**
  - **Clear commit history.**
  - **`README.md` with setup instructions + APIs used.**
- **Working demo video link.**

Evaluation Criteria

- **Functionality → Drag-drop UI, persistence, smooth flow.**
- **AI Integration → Quality of suggestions, clustering, and summarization.**
- **Creativity → How AI is used beyond a raw API call.**
- **Code Quality → Clean, modular, maintainable code.**
- **UX/UI → Intuitive, responsive, polished design.**
- **Bonus → Extra AI features beyond requirements.**

AI-Powered Brainstorming Board – Evaluation Scorecard

1. Core Functionality (40 pts)

- **Add/Edit/Delete idea cards** → 10 pts
- **Drag-and-drop cards between columns** → 10 pts
- **Persistence in DB (board reload shows last saved state)** → 10 pts
- **Smooth flow and responsiveness** → 10 pts

2. AI Features (30 pts)

- **Idea Suggestions** (2–3 related ideas per card, optional addition) → 10 pts

- **Clustering of ideas** (cards grouped into topics using AI embeddings, visual representation) → 10 pts
- **Board Summarization** (AI-generated summary: key themes, top ideas, next steps) → 10 pts

3. Code Quality (10 pts)

- Clean, modular, readable code → 5 pts
- Logical project structure, maintainable architecture → 5 pts

4. UX/UI (10 pts)

- Intuitive, drag-and-drop UI → 5 pts
- Polished, responsive design → 5 pts

5. Bonus Features (up to 10 pts)

- Multi-user boards (shared brainstorming session) → +3 pts
- Export board as Markdown/PDF with AI summary → +3 pts
- Mood analysis (AI labels cards as positive/neutral/negative) → +2 pts
- AI-powered search within board ideas → +2 pts