Ideation Phase
Brainstorm & Idea Prioritization

Date	1 February 2026
Team ID	LTVIP2026TMIDS62350
Project Name	Civil Engineering Insight Studio
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization:

Project: Civil Engineering Insight Studio

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Team Collaboration Process

The team conducted a structured brainstorming session to identify real-world applications of Generative AI in engineering domains. The focus was on solving practical industry problems where AI could reduce manual effort and improve documentation accuracy.

Discussion Areas Explored:

- AI-based academic content generator
- AI travel itinerary planner
- AI fitness plan creator
- AI recipe blog generator
- AI-powered civil structure analysis tool
- AI-based construction progress documentation system

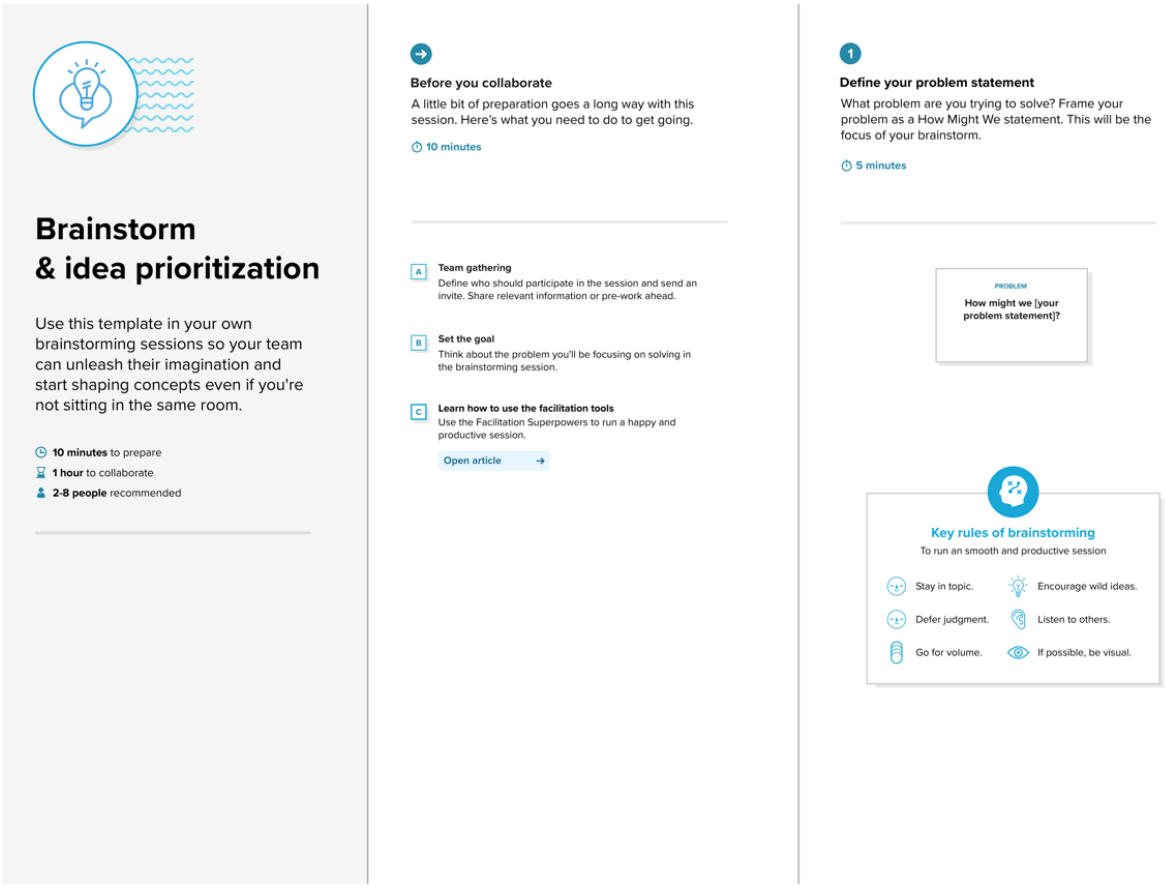
After evaluating feasibility, implementation complexity, and available APIs, the team selected a domain that:

1. Allows structured content generation.
2. Demonstrates clear AI capability.
3. Is easy to evaluate and test.
4. Has practical real-world relevance.

Final Problem Statement

Problem:
Civil engineers manually describe structures based on site images. Generating detailed documentation including materials, structural components, construction methods, and progress status is time-consuming and subjective.

Selected Solution: Develop an AI-powered web application using Google Gemini Vision API and Streamlit to analyze civil engineering structure images and generate professional structural documentation



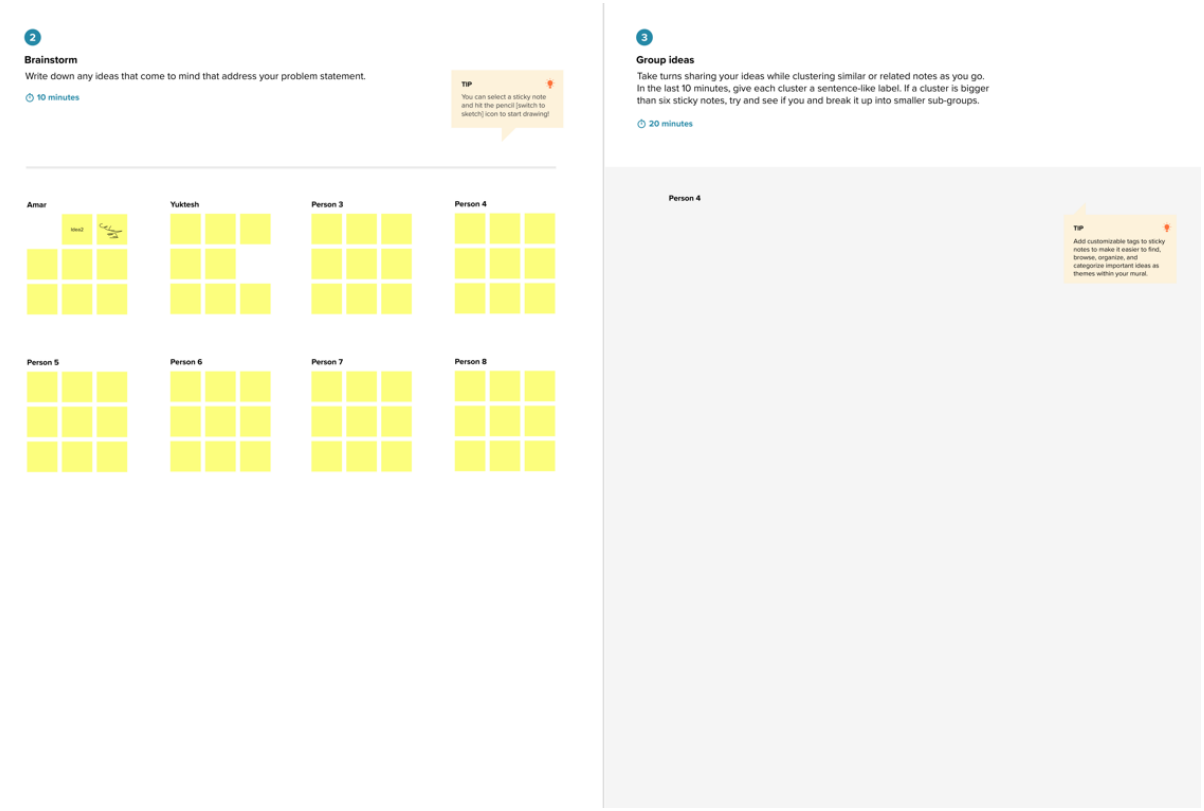
Step-2: Brainstorm, Idea Listing and Grouping

During ideation, multiple feature ideas were generated. The focus was on quantity first, filtering later.

Idea Listing

Raw Ideas Generated:

- Detect construction materials (concrete, steel, bricks)
- Identify structural components (beams, columns, slabs, trusses)
- Detect construction stage (foundation, framing, finishing)
- Generate professional engineering report format
- Highlight possible structural risks
- Count visible material elements
- Compare two site images for progress tracking
- Download structural report as PDF
- Add safety observation detection
- Multi-language report generation
- Dark mode UI



Step-3: Idea Prioritization

A prioritization matrix was applied using two key factors: Impact (Value to Civil Engineers) and Effort (Development Complexity).

High Impact – Low Effort (Selected for Implementation)

- AI-powered image + text structural analysis
- Material identification
- Structural component identification
- Professional engineering documentation format
- Streamlit-based interactive UI
- Google Gemini Vision integration

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Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes