📑 SECTION 1: BASIC DETAILS

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AI Agent Title / Use Case: AI Agent to help students revise for exams with smart topic quizzing

🧠 SECTION 2: PROBLEM FRAMING

1.1. What problem does your AI Agent solve?
Many students struggle to retain information before exams. This agent provides personalised revision questions on any topic they ask for.

1.2. Why is this agent useful?
It simplifies revision by generating context-aware, engaging quiz questions that can boost recall and confidence.

1.3. Who is the target user?
College or high school students revising for exams.

1.4. What not to include?
No automated grading or deep curriculum mapping—focus is just on question generation.

🧱 SECTION 3: 4-LAYER PROMPT DESIGN

◆ 3.1 INPUT UNDERSTANDING

Prompt:

"Interpret the user's request to identify the subject/topic and preferred question format (MCQ, short answer, etc). Extract these clearly."

Responsible for: Extracting intent and topic
Example Input: "Can you quiz me on organic chemistry with MCQs?"
Output:

- Topic: Organic Chemistry

- Format: MCQ

◆ 3.2 STATE TRACKER

Prompt:

"Maintain a memory of the last 3 topics the user was quizzed on. Use a variable like recentTopics and ensure repetition is avoided."

Memory Strategy: Simulate memory using system messages or context variables (e.g., "recentTopics = [Algebra, World History]").

◆ 3.3 TASK PLANNER

Prompt:

"Based on the extracted topic and format, create 3 quiz questions. If format is not specified, default to short answer. Ensure variety in question complexity."

Planner Role: Breaking task into:

1. Select topic

2. Select format

3. Generate 3 diverse questions

◆ **3.4 OUTPUT GENERATOR**

Prompt:

"Present the quiz questions clearly with markdown formatting. Use bullets or numbering. Keep tone friendly but focused."

Format Example:

Quiz: Organic Chemistry (MCQs)

1. What is the IUPAC name of $CH_3–CH_2–OH$?

   a) Methanol

   b) Ethanol

   c) Propanol

   d) Butanol

🔍 SECTION 4: CHATGPT EXPLORATION LOG

Attempt #	Prompt Variant	What Happened	What You Changed	Why
1	"Generate a quiz on physics"	Gave long answers, not questions	Added "use MCQ format"	Needed more structure
2	"Include an AI API"	Included, but was not giving questions.	Changed the API key and updated the code	To access a free API
3	"I want a quiz on Algebra"	Repeated old questions	Added state tracker: recent Topics	Avoid redundancy
4	"Give 3 MCQs on World War II"	Good, but too easy	Added: "Include one hard question"	To add a challenge
5	"Generate questions of different levels"	It was generated, but was given at a time	Asked to be given separately as per user selection	To make users see the selecting level question only at a time

✏️ SECTION 5: OUTPUT TESTS (Optional but Recommended)

Test 1: Normal input
Input: "Give me a quiz on photosynthesis"
Output:

1. What gas is released during photosynthesis?

2. What pigment is vital for photosynthesis?

3. Write the chemical equation for photosynthesis.

Test 2: Vague input
Input: "Quiz me"
Output:

- Interpreted as defaulting to general science.

- Prompted user: "Please specify a topic like Math, History, or Biology."

Test 3: Invalid input
Input: "????"
Output:
"Sorry, I didn't get that. Can you mention a subject or topic you want help with?"

🔁 SECTION 6: REFLECTION

6.1. Hardest Part: Designing prompts that balance generality with precision, especially input understanding and output generation.

6.2. Most Enjoyed: Watching how better prompts changed the quality of questions and the quality of the project.

6.3. Improvements: Add real-time scoring and explanations for answers to make it better. I also added answers, but scoring should be added to improve it.

6.4. Learning from ChatGPT: It's not just about getting outputs; it's about iterating thoughtfully and prompting it clearly, and understanding how that is working.

6.5. Feeling stuck: Yes, when responses are repeated. Solved by introducing the memory simulation with a state variable, and when the API didn't work, I searched for many other API sources and resolved it.

🧠 SECTION 7: HACK VALUE (Optional)

Simulated context memory (recent Topics): Based on recent topics, it can also suggest a few topics, and the AI agent also understands the pattern of questions and tries to avoid similar ones.

Handled vague user input gracefully: If the user even gives vague inputs like just a word like "motion" or "geometry", the AI agent can still process it and generate a question based on it.