**AI Agent Assignment Submission – Vishwas**

**💾 SECTION 1: BASIC DETAILS**

* **Name:** Vishwas
* **AI Agent Title / Use Case:** AI Study Buddy – An AI agent that helps students revise topics by generating quiz questions and quick summaries.

**🧠 SECTION 2: PROBLEM FRAMING**

**2.1 What problem does your AI Agent solve?**  
Students often struggle with revising large amounts of information efficiently before exams. Manually creating quizzes or summaries takes time and effort, especially when under pressure.

**2.2 Why is this agent useful?**  
The AI Study Buddy makes revision interactive and quick. It can instantly generate custom quiz questions, summaries, or explain tricky concepts, helping students retain information more effectively.

**2.3 Who is the target user?**  
College students who are preparing for exams and want a faster, smarter way to revise and test themselves.

**2.4 What not to include?**  
The agent does not give full lecture notes or replace classroom teaching. It also avoids long explanations unless asked, focusing instead on quiz-style, revision-ready content.

**🛠️ SECTION 3: 4-LAYER PROMPT DESIGN**

**✩ 3.1 INPUT UNDERSTANDING**

* **Prompt:**  
  "You are a helpful AI study assistant. Read the user's message and identify what they want — a quiz, a summary, or a concept explanation. Return the intent and any key topic or subject mentioned."
* **What is this prompt responsible for?**  
  To detect what kind of help the student needs and the specific topic.
* **Example:**  
  Input: "Give me a quiz on photosynthesis"  
  Output: Intent = Quiz; Topic = Photosynthesis

**✩ 3.2 STATE TRACKER**

* **Prompt:**  
  "Remember the last topic the user studied. If the user doesn’t mention a topic in the next input, assume they are referring to the most recent one. Store and update the current topic."
* **How does this help the agent “remember”?**  
  It maintains topic continuity across multiple user messages.
* **Memory Simulation:**  
  Variable like current\_topic = "Photosynthesis" is maintained and updated.

**✩ 3.3 TASK PLANNER**

* **Prompt:**  
  "Based on the detected intent, follow one of the three internal plans:
  + If intent is 'Quiz', generate 5 MCQs with options and answers.
  + If intent is 'Summary', write a 5-bullet concise summary of the topic.
  + If intent is 'Explanation', provide a short, clear explanation with an example."
* **What steps does your agent take?**  
  Intent detection → Choose internal plan → Apply to topic → Generate output

**✩ 3.4 OUTPUT GENERATOR**

* **Prompt:**  
  "Present the response clearly. Use formatting like:
  + For quizzes: 'Q1: …' with options A/B/C/D
  + For summaries: bullet points
  + For explanations: under 100 words, simple tone."
* **Special behavior:**  
  Uses Markdown formatting; friendly, clear tone.

**🔍 SECTION 4: CHATGPT EXPLORATION LOG**

| **Attempt #** | **Prompt Variant** | **What Happened** | **What You Changed** | **Why You Changed It** |
| --- | --- | --- | --- | --- |
| 1 | "Generate a quiz on photosynthesis" | ChatGPT gave 5 questions, but options were too easy | Asked for "challenging MCQs with explanations" | To increase difficulty and learning value |
| 2 | "Create 5 MCQs on photosynthesis for college-level biology, each with 4 options and short explanations" | Better questions, poor formatting | Added "Use Markdown formatting" | To improve readability |
| 3 | "Give 5 well-formatted MCQs on photosynthesis, mark the correct answer in bold, and explain each answer" | Output was clean and effective | Finalized prompt | Balanced clarity and usefulness |

**🧪 SECTION 5: OUTPUT TESTS**

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

Q1: What is the main product of photosynthesis?

A. Oxygen

B. Carbon dioxide

\*\*C. Glucose\*\*

D. Water

Explanation: Photosynthesis converts carbon dioxide and water into glucose and oxygen using sunlight.

**Test 2: Vague input**  
**Input:** "Give me a quiz"  
**Output:** Continues with "Photosynthesis" as the topic using memory.

**Test 3: Invalid input**  
**Input:** ""  
**Output:** "Sorry, I didn’t understand. Please mention a topic or intent."

**🔄 SECTION 6: REFLECTION**

**6.1 What was the hardest part of this assignment?**  
The hardest part was designing clear and modular prompts that work well for different types of user inputs.

**6.2 What part did you enjoy the most?**  
Experimenting with prompt iterations and watching how the responses improved with small tweaks.

**6.3 If given more time, what would you improve or add?**  
I'd add more specific behavior based on subjects and explore multi-turn conversations with better memory.

**6.4 What did you learn about ChatGPT or prompt design?**  
Prompt quality directly affects output. Structure and clarity lead to much better performance.

**6.5 Did you ever feel stuck? How did you handle it?**  
Yes, especially when the questions were too simple. I asked ChatGPT itself how to improve the prompts.

**🧠 SECTION 7: HACK VALUE**

I added simulated memory so that the agent could carry forward the previous topic even if not mentioned again.

✅ **Submission Complete** – AI Study Buddy by Vishwas.