Kasparro – Applied AI Engineer Challenge: Multi-Agent Content Generation System

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🎯 Objective

Design and implement a **modular agentic automation system** that takes a small product dataset and automatically generates structured, machine-readable content pages.

This assignment evaluates your ability to design:

- multi-agent workflows
- automation graphs
- reusable content logic
- template-based generation
- structured JSON output
- system abstraction & documentation

You are **NOT** being tested on domain expertise — only engineering and design ability.

📦 Product Data (The Only Input)

Use **ONLY** this JSON-like dataset:

- **Product Name:** GlowBoost Vitamin C Serum
- **Concentration:** 10% Vitamin C
- **Skin Type:** Oily, Combination
- **Key Ingredients:** Vitamin C, Hyaluronic Acid
- **Benefits:** Brightening, Fades dark spots
- **How to Use:** Apply 2–3 drops in the morning before sunscreen
- **Side Effects:** Mild tingling for sensitive skin
- **Price:** ₹699

You may not add new facts or research externally.
Your system must be able to operate on **this data type of data**.

🧪 Assignment Requirements

Design a **modular agentic system** (not a monolith) that can:

✔ 1. Parse & understand the product data

Convert it into a clean internal model.

✔ 2. Automatically generate at least 15 categorized user questions

Categories can include: Informational, Safety, Usage, Purchase, Comparison, etc.

✔ 3. Define & implement your own templates

You must create templates for:

- FAQ Page
- Product Description Page
- Comparison Page

✔ 4. Create reusable “content logic blocks”

These are functions/modules that apply rules to transform data into copy.

✔ 5. Assemble 3 pages using your system

Your agents must autonomously produce:

- **FAQ Page** (5 Q&As minimum)
- **Product Page**
- **Comparison Page** (GlowBoost vs fictional Product B)

  Product B must be fictional but structured (name, ingredients, benefits, price).

✔ 6. Output each page as clean, machine-readable JSON

Examples:

- faq.json

- product_page.json
- comparison_page.json

✔ 7. The entire pipeline must run via agents

Not a single-script GPT wrapper.

🚫 What This Assignment Is NOT

To avoid misunderstandings:

- ❌ This is **not** a prompting assignment
- ❌ This is **not** a "one big function that calls GPT thrice"
- ❌ This is **not** a content writing test
- ❌ This is **not** a UI/website challenge

This is a **systems design + automation + agent orchestration** challenge.

🏗️ System Requirements

Your architecture **must** demonstrate:

1. Clear Agent Boundaries

Each agent should have:

- a single responsibility
- defined input/output
- no hidden global state

2. An Automation Flow / Orchestration Graph

Examples:

- DAG
- step pipeline
- state machine

- message-passing
- orchestrator -> worker nodes

3. Reusable Logic Blocks

Examples:

- “generate-benefits-block”
- “extract-usage-block”
- “compare-ingredients-block”

4. Template Engine of Your Own Design

Template = a structured definition of:

- fields
- rules
- formatting
- dependencies on blocks

5. Machine-Readable Output

All final pages must be JSON, not free text.

📁 Repository Requirements

Your GitHub repo name:

> **kasparro-ai-agentic-content-generation-system-<first_name-last_name>**

Repo must include:

```
None
docs/
    projectdocumentation.md
```

`docs/projectdocumentation.md` must include:

- Problem Statement
- Solution Overview
- Scopes & Assumptions
- **System Design (mandatory — most important)**
- Optional: diagrams, flowcharts, sequence diagrams

Do **not** include per-file explanations or folder walkthroughs.

📥 Submission

Share the GitHub repo link.

🧮 Evaluation Criteria

1. Agentic System Design (45%)

- clear responsibilities
- modularity
- extensibility
- correctness of flow

2. Types & Quality of Agents (25%)

- meaningful roles
- appropriate boundaries
- input/output correctness

3. Content System Engineering (20%)

- quality of templates
- quality of content blocks
- composability

4. Data & Output Structure (10%)

- JSON correctness
- clean mapping from data → logic → output

🧠 Purpose

This assignment measures your ability to design **production-style agentic systems**, the same kind we build at Kasparro.
