REPLY
STUDENT CLASH

TECH
CASE STUDY
POLITECNICO DI TORINO

SUMMARY

LEVEL 1

The Reply Case Study

AGENTIC AI FOR HEALTH & WELLNESS

The healthcare and wellness sector offers countless opportunities for innovation through Agentic AI. From personal health management to medical care coordination, from fitness optimisation to mental wellness support – the possibilities are endless, the choice is yours.
Think creatively about how AI agents can not just respond to health needs, but anticipate and act autonomously to improve wellbeing outcomes.

CHALLENGE

Define a concrete problem scenario related to wellness that
an AI agent could help improve, then design the concept of an AI-based **Wellness Agent** that has a clear goal and can act with autonomy to achieve it.

Agentic AI for Health and Wellness

LEVEL 1
DESCRIPTION

Here are a few suggested directions, but feel free to come up with your own:

HOSPITALS

For example: workflow optimisation, clinical decision support, predictive maintenance, telemedicine management, patient flow coordination, hospital logistics, medical data analysis, resource allocation, and staff scheduling.

PATIENTS

For example: chronic disease management, personalised care plans, digital health coaching, prevention programs, medication reminders, communication with healthcare providers, mental health support, and continuous health monitoring.

WELLNESS

For example: lifestyle improvement, fitness and nutrition guidance, stress reduction, mindfulness coaching, sleep optimisation, holistic health tracking, emotional wellbeing, and integration of wearable and environmental data.

SUGGESTIONS

- You can start from your experience as a student
- You can explore how agents can help with Mental Health. This is a huge concern nowadays.

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Agentic AI for Health and Wellness

LEVEL 1
GOALS

What you need to do:

IDENTIFY A PROBLEM

Choose a relevant issue in the health or wellness space and think about how Agentic AI can introduce smarter, autonomous solutions.

DEVELOP YOUR IDEA

Design a project where AI agents don't just react, they take initiative!

PREPARE YOUR DELIVERABLES

Ensure your submission includes all required components:

✨ **Be bold, be creative, and design a solution that could truly make a difference in people's lives!** ✨

PRO TIP

Consider Safety & ethical concerns: this is a very serious topic to take into consideration, evaluate, including explicit disclaimers

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Agentic AI for Health and Wellness

LEVEL 1
DELIVERABLES

A presentation that includes:

- **Problem Definition & User Need:** A brief description of the chosen wellness issue and why it's relevant and can be solved with the use of an agent.

- **Solution Concept Description:** A clear outline of the proposed agentic AI solution – including the agent's goal, its autonomous behaviours, and how it interacts with the user.

- **User Journey or Scenario:** Show how an AI agent acts, learns, and responds autonomously in the chosen context

- **Mock Scenario or Dialogue (optional):** To show the idea, you provide a **short example of interaction** or a use-case scenario. For instance, a sample dialogue between the user and the AI agent, demonstrating how the agent initiates and responds.

PRO TIP **Evaluate including Design Sketch/Flowchart:** a visual or written **workflow of the agent's decision-making** process, such as a flowchart or storyboard showing how the agent gathers data (inputs), the logic or model it employs to make decisions, and the actions or outputs it provides to the user.

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REPLY

LEVEL 2

Agentic AI for Health and Wellness

LEVEL 2

✨ **Now it's time to bring your idea to life!** ✨

Develop a working prototype that demonstrates the core functionality of the proposed AI agent, based on the Level 1 concept.

In this stage, you will create a simple agent that simulates your chosen use case from Level 1 (or at least part of it). The goal is to demonstrate how an Agentic AI system can function in a real-world context, even in a simplified form.

HNo coding skills are required, but if you enjoy coding, you're welcome to showcase your technical abilities!

You can follow one of two approaches to build your agent: No-Code / Low-Code Approach or Coding Approach.

Regardless of the track, the prototype should be user-interactive and showcase the agent acting autonomously to assist the user in the chosen scenario.

Agentic AI for Health and Wellness

1) NO CODE / LOW CODE APPROACH

PERFECT FOR BEGINNERS OR NON-TECHNICAL PARTICIPANTS.

You can utilise ready-made AI models and simple UI tools to assemble your solution with minimal or no hand-coding to create an interactive chatbot without building a backend from scratch.
Use any Large Language Model (LLM) interface of your choice (for example, ChatGPT)
Design a **structured prompt** that makes the model behave like your intended agent.
Make sure the prompt aligns with the goals and context of your Level 1 idea.

DELIVERABLES FOR NO-CODE / LOW-CODE APPROACH:.

A well-designed **prompt** that makes the LLM act as the agent.
Example interactions showing how the agent responds to different inputs.
(Optional but recommended) **A short demo video** showcasing a live interaction with your agent.
(Optional) **Testing Evidence:** Any proof that the prototype was tested with example inputs. This could be logs or screenshots.

Agentic AI for Health and Wellness

2) CODING APPROACH

Ideal for participants with programming experience **who want to build a more customised solution.**

Write code in any language you desire to simulate your agent or integrate multiple libraries, craft your own decision algorithm, or handle data in more customised ways.

DELIVERABLES FOR CODING APPROACH

- **Technical Documentation (README)**: Brief documentation explaining how to run or interact with the prototype. This should also mention any open-source models or libraries used. If you created custom code, briefly describe the logic.
- A working **script or Notebook** implementing the agent.
- A short **description of the architecture** and how the agent functions.
- **Example interactions** showing how the agent responds to different inputs.
- (Optional but recommended) A simple **interface or frontend,** or a short demo video showcasing a live interaction with your agent
- (Optional) **Testing Evidence**: Any proof that the prototype was tested with example inputs. This could be logs, screenshots, or sample input-output pairs.

Suggestion for Success **Coding Teams**

Manage scope carefully. Implement one core algorithm well rather than many features poorly. Leverage pre-trained weights as you can't train large models from scratch in 6 hours.

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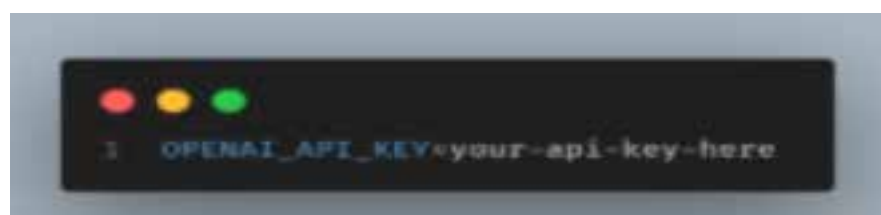**REPLY**

Agentic AI for Health and Wellness

LEVEL 2
RESOURCES AND TOOLS

When using APIs like OpenAI's, you'll be given a secret API key.
This key gives full access, so never hardcode it in your scripts or commit it to GitHub.
Once exposed publicly, keys are automatically revoked, which could prevent you from demoing your work! Instead, you should keep them as environment variables that are not committed to source control. Your program can load them securely at runtime without you having to paste them directly into the file:

1) In your project's root folder, create a file named **.env**:

2) Add .env to your **.gitignore file** so it never gets uploaded to GitHub.

Agentic AI for Health and Wellness

LEVEL 2
RESOURCES AND TOOLS

3) Install a **relevant package** to load the .env vars when your code runs:

a.   Node: npm install dotenv
b.   Python: pip install python-dotenv

4) Import (and initialise) the relevant package in your code:

Node:

```javascript
1   import 'dotenv/config';
2   import OpenAI from "openai";
3
4   const client = new OpenAI({
5     apiKey: process.env.OPENAI_API_KEY,
6   });
```

Python:

```python
1   from dotenv import load_dotenv
2   import os
3   from openai import OpenAI
4
5   load_dotenv()  # loads .env file
6   client = OpenAI(api_key=os.getenv("OPENAI_API_KEY"))
```

LEVEL 3

Agentic AI for Health and Wellness

LEVEL 3
BONUS

This level is not mandatory, but it provides an opportunity to elevate your project to the next level.

In Level 2, you created the first working
(or simulated) version of your agent.
In this advanced level, you are asked to consider how to bring your agent to the next level.

Choose the approach that best suits your solution:

1) IMPROVEMENT APPROACH: Your agent can learn over time, continuously improving through experience, collected data, or feedback from users

2) MULTI AGENTS APPROACH: You can extend the solution into a multi-agent system. You can incorporate multiple AI agents working in coordination, showcasing how different agents with specialised roles can interact to achieve more complex or optimised outcomes in the health & wellness context

Whichever solution you choose, the goal is to transform a static agent into a dynamic, intelligent system capable of adapting and personalising with use.

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Agentic AI for Health and Wellness

LEVEL 3
1. IMPROVEMENT APPROACH

The goal is to transform a static agent into a dynamic, intelligent system capable of adapting and personalising with use.

Try to answer the following questions:

1. Continual Learning: How will your agent learn over time?
- Sources of learning: e.g., user feedback, usage data, new datasets, behavioural patterns
- Learning methods: e.g., incremental updates, feedback loops, simplified reinforcement learning, rule evolution

2. Adaptivity: How will the agent adapt its behaviour?
- What will change as the agent learns?
  e.g., recommendations, responses, planning, personalisation
- How does it adapt to different users or contexts?
  e.g., age, health status, activity level, goals
- How does this adaptation improve effectiveness or user experience?

3. Why is adaptivity important in your use case?
- How does this adaptation improve effectiveness or user experience?
- How does adaptivity add value?
  e.g., better accuracy, engagement, personalisation, health outcomes

Agentic AI for Health and Wellness

DERIVABLE FOR THE
1. IMPROVEMENT APPROACH

Your submission should include:

- Technical Report: answering the questions above
- Before/after examples showing improvement
- Simple metrics to evaluate progress (e.g., improved suggestions, user satisfaction, accuracy)
- (Optional) Functional code simulating learning or adaptation

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LEVEL 3
2. MULTI-AGENT APPROACH

If you choose this approach, your system should involve multiple agents — each with a specific role or skill.

Think of it as a small "digital team" of assistants working together to deliver smarter, more complete experiences

The agents must interact. Interaction can take the form of direct communication or through a shared environment

The goal is to illustrate the concept of agents' reasoning or negotiating with each other.

Agentic AI for Health and Wellness

DERIVABLE FOR THE
2. MULTI-AGENT APPROACH

- **Multi-Agent Architecture Description**: A brief explanation of the roles of each agent introduced and **how they interact.** You should name each agent and describe its role and the knowledge it possesses. Then describe the communication protocol: do they talk in plain language? Do they write to a single file or a single variable? Is one the leader and the other a helper?

- **Extended Prototype/Demo:** An updated version of the prototype that incorporates multi-agent behaviour. It should demonstrate them exchanging at least a couple of turns and reaching a decision or consensus that affects the user's output.

- **Evaluation of Multi-Agent Benefit:** A short reflection or note on what having multiple agents added to the solution.

EVALUATION CRITERIA

40%	**CREATIVITY AND INNOVATION**
20%	**IMPACT**
20%	**TECHNICAL**
20%	**EFFECTIVE PRESENTATION**

PENALTIES

The presentation **must be 5 minutes long**, not more! Make sure to respect this rule; otherwise, your team might get penalised.

Student Clash 2025

HELP YOUR UNIVERSITY WIN THE STUDENT CLASH 2025

25 points — **BEST CASE STUDY - TECH**
Among the winners in each Univeristy

25 points — **BEST CASE STUDY - BIZ**
Among the winners in each Univeristy

20 points — **WINNER OF THE QUIZ**
Play during the Workshop!

15 points — **WINNER OF THE INSTAGRAM BATTLE**
Vote for #Manchester on the @ReplyU Instagram Profile

10 points — **BEST PICS TAKEN DURING THE EVENT**
Showing both the Reply and your University logo. Share it from a public profile on Instagram. Use #StudentClash and tag @ReplyU

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