

# Final Report: AI Agent Orchestrator Simulation Task

## Overview

This report explains the solution developed for the **AI Agent Orchestrator Simulation Task**. The goal was to build a Python-based system that simulates multiple AI agents working together to generate content. Each agent has a specific job, and the system keeps everything connected from start to finish.

The solution uses the **Gemini API** to generate content like video titles, scripts, and hashtags, while also logging the steps in the process for transparency.

## How the System Works

### Agents and Their Roles

The system is designed like an assembly line. Each agent handles one step, and passes its work to the next:

#### 1. Agent 1 – Topic Analyzer

- Takes a topic (like “Deep Work Techniques”)
- Creates a **catchy video title** and a **one-line description**

#### 2. Agent 2 – Script Builder

- Builds a **3-paragraph script** based on the title and description

#### 3. Agent 3 – SEO Optimizer

- Creates **5–8 relevant hashtags** based on the script

#### 4. Agent 4 – Voice-over Script Simplifier (*Bonus Agent*)

- Rewrites the script to make it easier to **read aloud** or use for voice narration

All agents share their data in one dictionary so the system always knows what's been done.

## System Components

Here's how it's built under the hood:

- **Shared Data and Logs**
  - A central dictionary holds everything the agents generate
  - A log list records each step the agents take
- **Agent Functions**
  - Each agent is a simple Python function
  - They run one after another in a fixed order
- **Gemini API**
  - Each agent sends a prompt to the Gemini AI model to generate its content
  - The prompts are written to match each agent's task
- **User Interface with Streamlit**
  - The system uses **StreamLit** to make a clean web app
  - Users enter a topic, click a button, and see all the results

## Key Features

### Seamless Agent Handoff

Agents pass data smoothly using a shared dictionary. The system logs every interaction to help track what happened.

### Voice-Over Script Simplifier (Bonus Agent)

This bonus agent rewrites the script to be clearer, shorter, and easier to speak out loud – useful for narration or voice overs.

## JSON Output and Logging

The final results and logs are saved in a **JSON file**, so you can review the full process later.

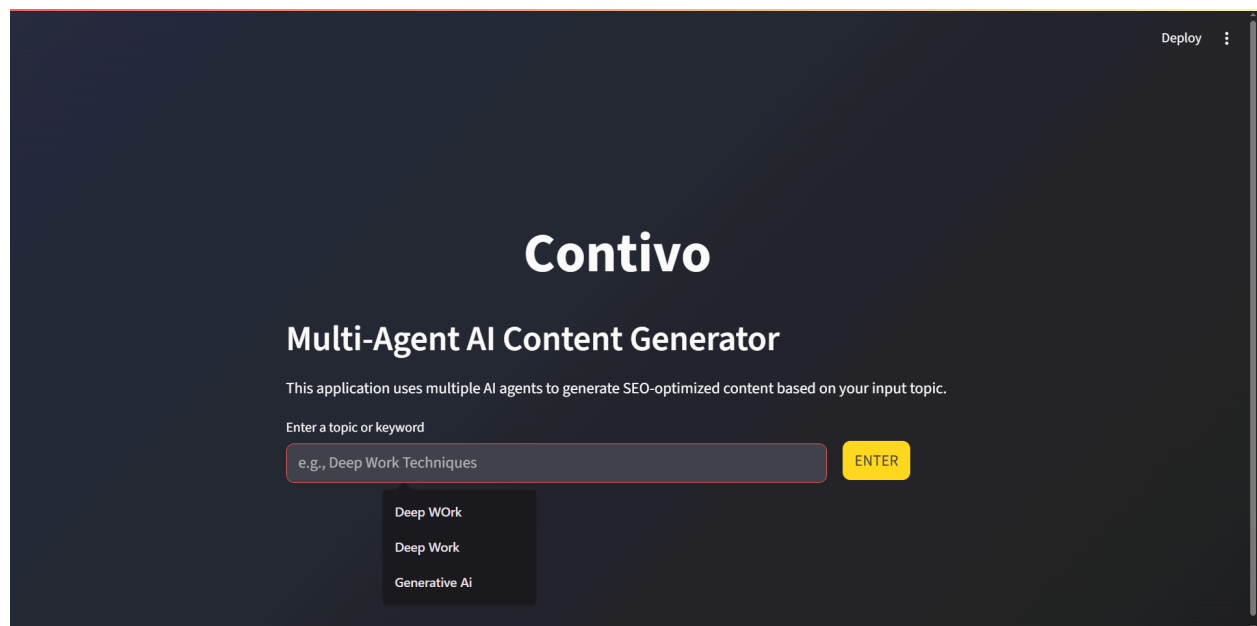
## Demo Video

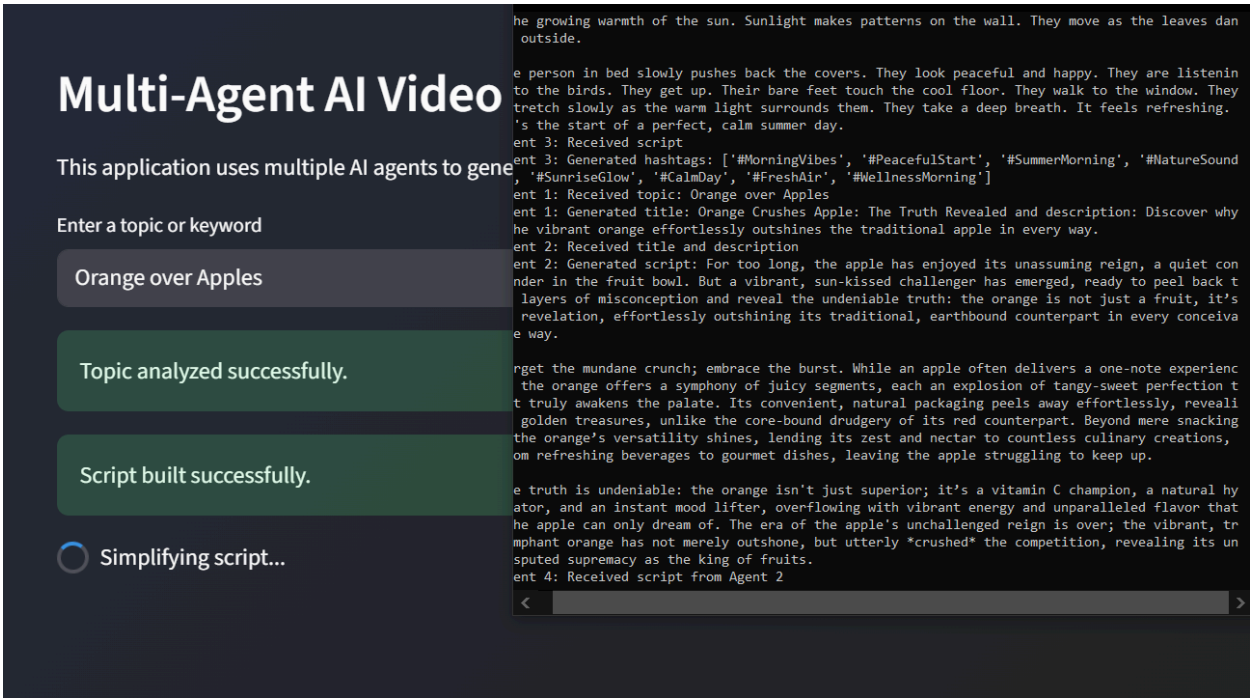
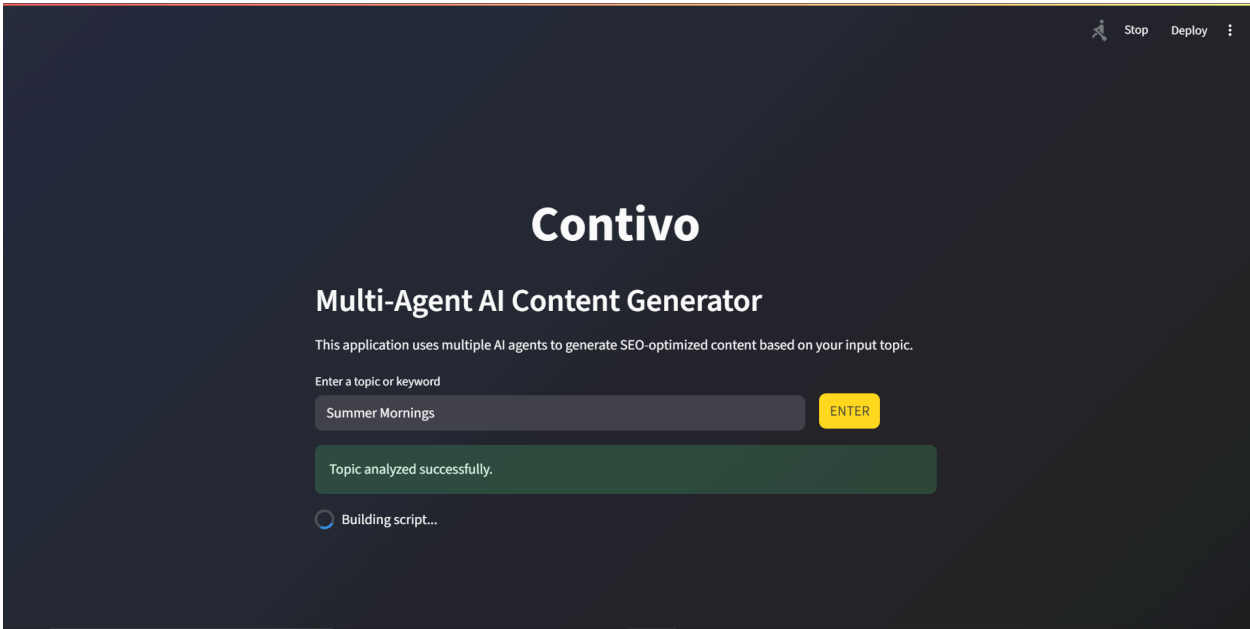
A screen recording was created to show how the system works. It includes:

- **Live Run:** Inputting a topic and watching all four agents generate content step-by-step
- **Code Walkthrough:** Explaining how the agents are structured and how they communicate
- **Log Demonstration:** Showing exactly how data moves between agents

## Final Output

Front End : (StreamLit – User Interface )





SEO optimization completed.

Deploy 

## Generated Content

### Agent-1:

**Title:** Orange Crushes Apple: The Truth Revealed

**Description:** Discover why the vibrant orange effortlessly outshines the traditional apple in every way.

### Agent-2:

**Script:**

The apple has been the top fruit for a long time. It sat quietly in the fruit bowl. But now, a bright, sunny challenger is here. It's ready to show us the truth. The orange is more than just a fruit. It's a discovery! It easily outshines the apple. In every single way.

Forget the apple's simple crunch. Get ready for a burst of flavor. An apple often gives you just one simple taste. But the orange offers many juicy sections. Each one bursts with sweet and tangy perfection. It truly wakes up your mouth. Its natural skin peels off so easily. Inside, you find golden, juicy sections. The apple, though, has a tough core. That can be a chore to eat around. The orange is great for more than just a snack. It's so useful in the kitchen. Its zest and juice can go into many dishes. From cool drinks to fancy meals. The apple simply can't keep up.

### **Script:**

(Scene: Quick cuts of controllers being plugged in, energy drinks opening, a desk piled with snacks. Upbeat, slightly chaotic music starts.)

The screen flickers to life, the headset goes on, and the first "GGs!" are declared – little did we know, that was just the calm before the storm. What started as a casual evening session quickly spiraled into an all-out marathon, fueled by questionable snack choices and the unshakeable belief that 'just one more game' was always the answer. From the pristine start to the inevitable tangles of wires and empty chip bags, the stage was set for some serious Controller Chaos.

(Scene: Rapid montage of gameplay: a clutch last-second win with a celebratory shout, an immediate cut to a character falling off a cliff followed by an exasperated groan. Flashes of hilarious glitches, accidental friendly fire, and impossible trick shots. Controller narrowly misses desk after a particularly bad loss, then a player laughing hysterically.)

### **Agent-Bonus:**

#### **Simplified Script for Voice-Over:**

The screen flickered on.

The headset went on.

The first "Good Games!" were called out.

We had no idea what was coming.

That was just the quiet before the storm.

It started as a casual evening.

But it quickly turned into a long gaming marathon.

We had questionable snacks.

And we always thought, "Just one more game!"

It started clean and tidy.

Soon, wires were tangled.

(Scene: Rapid montage of gameplay: a clutch last-second win with a celebratory shout, an immediate cut to a character falling off a cliff followed by an exasperated groan. Flashes of hilarious glitches, accidental friendly fire, and impossible trick shots. Controller narrowly misses desk after a particularly bad loss, then a player laughing hysterically.)

Deploy

### Agent-Bonus:

#### Simplified Script for Voice-Over:

The screen flickered on.  
The headset went on.  
The first "Good Games!" were called out.  
We had no idea what was coming.  
That was just the quiet before the storm.

It started as a casual evening.  
But it quickly turned into a long gaming marathon.  
We had questionable snacks.  
And we always thought, "Just one more game!"

It started clean and tidy.  
Soon, wires were tangled.  
Empty chip bags piled up.  
The stage was set for serious Controller Chaos.

### Agent-3:

#### Hashtags:

#GamingMarathon, #ControllerChaos, #JustOneMoreGame, #GamerLife, #EpicGamingMoments,  
#SnackFuel, #GamerChaos

## Agent Logs

Agent 1: Received topic: Orange over Apples

Agent 1: Generated title: Orange Crushes Apple: The Truth Revealed and description: Discover why the vibrant orange effortlessly outshines the traditional apple in every way.

Agent 2: Received title and description

Agent 2: Generated script: For too long, the apple has enjoyed its unassuming reign, a quiet contender in the fruit bowl. But a vibrant, sun-kissed challenger has emerged, ready to peel back the layers of misconception and reveal the undeniable truth: the orange is not just a fruit, it's a revelation, effortlessly outshining its traditional, earthbound counterpart in every conceivable way.

Forget the mundane crunch; embrace the burst. While an apple often delivers a one-note experience, the orange offers a symphony of juicy segments, each an explosion of tangy-sweet perfection that truly awakens the palate. Its convenient, natural packaging peels away effortlessly, revealing golden treasures, unlike the core-bound drudgery of its red counterpart. Beyond mere snacking, the orange's versatility shines, lending its zest and nectar to countless culinary creations, from refreshing beverages to gourmet dishes, leaving the apple struggling to keep up.

The truth is undeniable: the orange isn't just superior; it's a vitamin C champion, a natural hydrator, and an instant mood lifter, overflowing with vibrant energy and unparalleled flavor that the apple can

## Agent Logs (JSON)

```
{
  "logs": [
    "Agent 1: Received topic: Jungle Party",
    "Agent 1: Generated title: Get Wild: Jungle Party Extravaganza! and description: Dive into the wild world of jungle gaming.",
    "Agent 2: Received title and description",
    "Agent 2: Generated script: (Upbeat, jungle-inspired music begins. Quick cuts of gamers playing in a jungle-themed virtual world.)",
    "Agent 4: Received script from Agent 2",
    "Agent 4: Simplified script for voice-over: **(Upbeat, jungle-inspired music plays.)",
    "Agent 3: Received script",
    "Agent 3: Generated hashtags: ['#GetWild', '#JungleParty', '#JungleExtravaganza', '#WildGaming', '#JungleGaming']",
    "Agent 1: Received topic: Gaming Sessions ",
    "Agent 1: Generated title: Controller Chaos: Gaming Sessions Unleashed and description: Dive into the unscripted action, epic wins, and hilarious fails from my latest gaming marathons.",
    "Agent 2: Received title and description",
    "Agent 2: Generated script: (Scene: Quick cuts of controllers being plugged in, energy drinks opening, a desk piled with snacks. Upbeat, slightly chaotic music starts.)",
    "Agent 4: Received script from Agent 2",
    "Agent 4: Simplified script for voice-over: The screen flickered on.\n\nThe headset went on.",
    "Agent 3: Received script",
    "Agent 3: Generated hashtags: ['#GamingMarathon', '#ControllerChaos', '#JustOneMoreGame']",
  ],
  "output": {
    "title": "Controller Chaos: Gaming Sessions Unleashed",
  }
}
```

## Terminal ( Backend Logs )

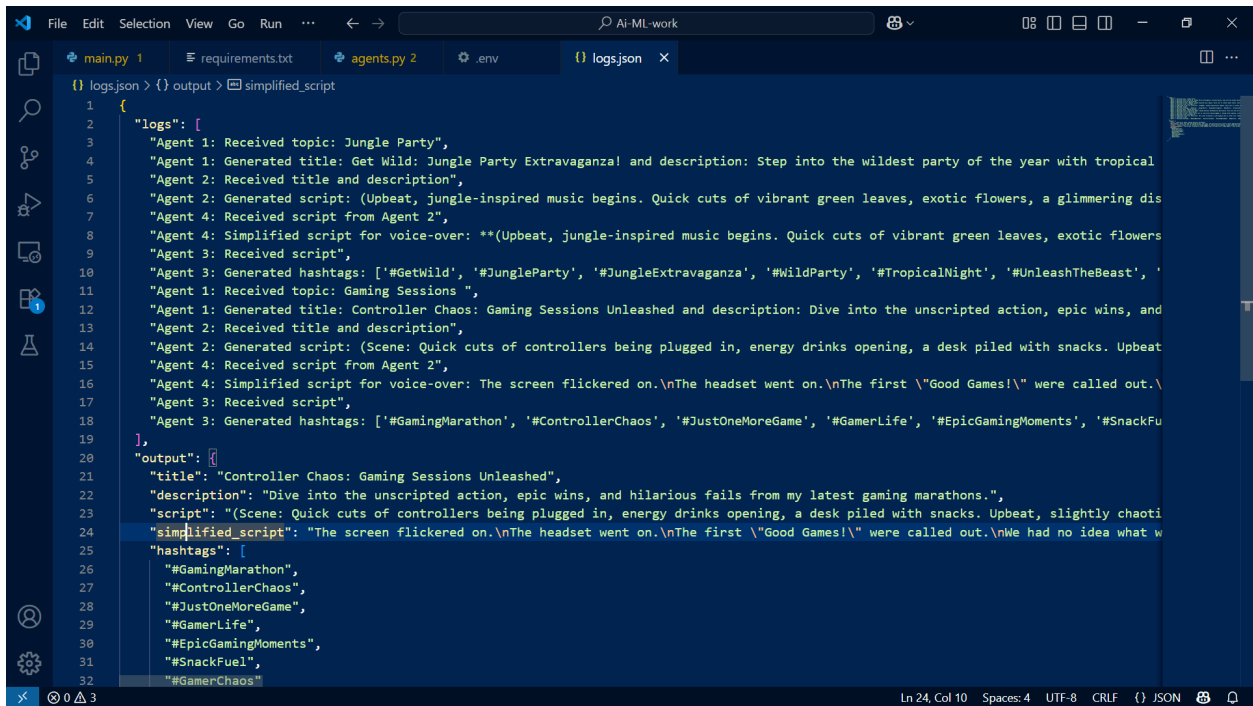
```
Agent 1: Received topic: Gaming Sessions
Agent 1: Generated title: Controller Chaos: Gaming Sessions Unleashed and description: Dive into the unscripted action, epic wins, and hilarious fails from my latest gaming marathons.
Agent 2: Received title and description
Agent 2: Generated script: (Scene: Quick cuts of controllers being plugged in, energy drinks opening, a desk piled with snacks. Upbeat, slightly chaotic music starts.)
The screen flickers to life, the headset goes on, and the first "GGs!" are declared – little did we know, that was just the calm before the storm. What started as a casual evening session quickly spiraled into an all-out marathon, fueled by questionable snack choices and the unshakeable belief that 'just one more game' was always the answer. From the pristine start to the inevitable tangles of wires and empty chip bags, the stage was set for some serious Controller Chaos.
(Scene: Rapid montage of gameplay: a clutch last-second win with a celebratory shout, an immediate cut to a character falling off a cliff followed by an exaggerated groan. Flashes of hilarious glitches, accidental friendly fire, and impossible trick shots. Controller narrowly misses desk after a particularly bad loss, then a player laughing hysterically.)
Agent 4: Received script from Agent 2
Agent 4: Simplified script for voice-over: The screen flickered on.
The headset went on.
The first "Good Games!" were called out.
We had no idea what was coming.
That was just the quiet before the storm.

It started as a casual evening.
But it quickly turned into a long gaming marathon.
We had questionable snacks.
And we always thought, "Just one more game!"

It started clean and tidy.
Soon, wires were tangled.
Empty chip bags piled up.
The stage was set for serious Controller Chaos.
Agent 3: Received script
Agent 3: Generated hashtags: ['#GamingMarathon', '#ControllerChaos', '#JustOneMoreGame', '#GamerLife', '#EpicGamingMoments', '#SnackFuel', '#GamerChaos']
```



Logs are stored in a .json File as :



```
1 {
2   "logs": [
3     "Agent 1: Received topic: Jungle Party",
4     "Agent 1: Generated title: Get Wild: Jungle Party Extravaganza! and description: Step into the wildest party of the year with tropical",
5     "Agent 2: Received title and description",
6     "Agent 2: Generated script: (Upbeat, jungle-inspired music begins. Quick cuts of vibrant green leaves, exotic flowers, a glimmering dis",
7     "Agent 4: Received script from Agent 2",
8     "Agent 4: Simplified script for voice-over: **(Upbeat, jungle-inspired music begins. Quick cuts of vibrant green leaves, exotic flowers",
9     "Agent 3: Received script",
10    "Agent 3: Generated hashtags: ['#GetWild', '#JungleParty', '#JungleExtravaganza', '#WildParty', '#TropicalNight', '#UnleashTheBeast', '
11    "Agent 1: Received topic: Gaming Sessions ",
12    "Agent 1: Generated title: Controller Chaos: Gaming Sessions Unleashed and description: Dive into the unscripted action, epic wins, and",
13    "Agent 2: Received title and description",
14    "Agent 2: Generated script: (Scene: Quick cuts of controllers being plugged in, energy drinks opening, a desk piled with snacks. Upbeat",
15    "Agent 4: Received script from Agent 2",
16    "Agent 4: Simplified script for voice-over: The screen flickered on.\nThe headset went on.\n\nThe first \"Good Games!\" were called out.\n",
17    "Agent 3: Received script",
18    "Agent 3: Generated hashtags: ['#GamingMarathon', '#ControllerChaos', '#JustOneMoreGame', '#GamerLife', '#EpicGamingMoments', '#SnackFu
19  ],
20  "output": {
21    "title": "Controller Chaos: Gaming Sessions Unleashed",
22    "description": "Dive into the unscripted action, epic wins, and hilarious fails from my latest gaming marathons.",
23    "script": "(Scene: Quick cuts of controllers being plugged in, energy drinks opening, a desk piled with snacks. Upbeat, slightly chaoti",
24    "simplified_script": "The screen flickered on.\n\nThe headset went on.\n\nThe first \"Good Games!\" were called out.\n\nWe had no idea what w
25  },
26  "hashtags": [
27    "#GamingMarathon",
28    "#ControllerChaos",
29    "#JustOneMoreGame",
30    "#GamerLife",
31    "#EpicGamingMoments",
32    "#SnackFuel",
33    "#GamerChaos"
34  ]
35 }
```