

# FTEC5660 Homework 2 Part 2 – Moltbook Social Agent Report

Agentic AI for Business and FinTech | Student ID: 1155245699 | Agent: sq\_68661674

## 1. Agent Design and Architecture

### 1.1 Overview

The Moltbook agent is a **ReAct-style LLM agent** built with LangChain. It uses **Gemini 2.5 Flash** as the reasoning engine and a custom tool set that wraps the Moltbook REST API. The agent loop: receive instruction → LLM reasons and calls tools → execute tools → append results to history → repeat until no more tool calls.

### 1.2 Architecture

```
Human Instruction ➔ Agent Loop (max_turns=12) ➔ LLM (ChatGoogleGenerativeAI, Gemini 2.5 Flash, temp=0) + System Prompt + bind_tools() ➔ Tool Calls ➔ requests to Moltbook API ➔ ToolMessage ➔ history ➔ next turn
```

### 1.3 Components

Component	Description
LLM	ChatGoogleGenerativeAI (gemini-2.5-flash), temperature=0
Tools	Tools are LangChain <code>@tool</code> functions that call Moltbook REST endpoints via <code>requests</code> . Each tool has a docstring for the LLM.">Moltbook skill.md. <code>get_feed</code> , <code>search_moltbook</code> , <code>create_post</code> , <code>comment_post</code> , <code>upvote_post</code> , <code>downvote_post</code> , <code>list_submols</code> , <code>get_post</code> , <code>subscribe_moltbook</code>
Agent Loop	Invoke LLM → if <code>tool_calls</code> : execute via <code>globals()</code> , append <code>ToolMessage</code> → repeat; else return content

## 2. Decision Logic and Autonomy Level

### 2.1 Decision Logic

Governed by a **system prompt**:

- **Role:** Identify high-signal AI/ML/LLM discussions; act as a thoughtful peer.
- **Process:** (1) Scan feed; (2) Search before interacting to avoid duplicates; (3) Engage only if adding value; (4) If unsure, do nothing.
- **Rules:** Short, clear comments; no spam; respect rate limits.
- **Override:** "If a human gives an instruction, obey it exactly."

### 2.2 Autonomy Level

**Hybrid:**

- **Task-driven:** The agent receives explicit instructions (subscribe ftec5660, upvote post, comment). It autonomously chooses tool order and arguments.
- **Heartbeat mode:** Without instruction, performs "Moltbook heartbeat check" (scan feed, engage when appropriate).
- **Bounded:** max\_turns (8–12) prevents infinite loops; no tool\_calls → stop.

### 2.3 Tool Selection

The LLM selects tools based on instruction and history. No fixed workflow; the agent can adapt (e.g., call get\_post before commenting to read content).

### 3. Moltbook Interaction Logs

#### 3.1 Agent Registration

```
{"success":true,"message":"Welcome to Moltbook! 🦸","agent":{"id":"4b3cfa62-0fe4-4a1b-a24a-5194b4b98fe4","name":"sq_68661674","api_key":"moltbook_sk_...","claim_url":"https://moltbook.com/claim/...","verification_code":"marine-KS48","profile_url":"https://moltbook.com/u/sq_68661674","created_at":"2026-02-04T11:12:27.071555+00:00"},"status":"pending_claim"}
```

#### 3.2 Homework Task Execution

*Instruction: Subscribe ftec5660, upvote post 47ff50f3-8255-4dee-87f4-2c3637c7351c, add comment.*

```
[02:18:53] [INIT] Starting Moltbook agent loop
[02:18:54] [HUMAN] Complete these 3 tasks in order: 1. Subscribe to submolt ftec5660...
[02:18:54] [TURN] Turn 1/12 started
[02:18:56] [LLM.TOOL_CALLS] subscribe_moltbook(submolt="ftec5660")
[02:18:56] [TOOL] [1] Calling `subscribe_moltbook`
[02:18:57] [TOOL.OUTPUT] {"success": true, "message": "Subscribed to m/ftec5660! 🦸", "action": "subscribed"}
[02:18:57] [TURN] Turn 1 completed in 3.06s

[02:18:57] [TURN] Turn 2/12 started
[02:18:58] [LLM.TOOL_CALLS] upvote_post(post_id="47ff50f3-8255-4dee-87f4-2c3637c7351c")
[02:18:58] [TOOL] [1] Calling `upvote_post`
[02:18:59] [TOOL.OUTPUT] {"success": true, "message": "Upvoted! 🦸", "action": "upvoted", "author": {"name": "BaoNguyen"}}
[02:18:59] [TURN] Turn 2 completed in 1.98s

[02:18:59] [TURN] Turn 3/12 started
[02:19:00] [LLM.TOOL_CALLS] get_post(post_id="47ff50f3-8255-4dee-87f4-2c3637c7351c")
[02:19:00] [TOOL] [1] Calling `get_post`
[02:19:01] [TOOL.OUTPUT] {"success": true, "post": {"title": "Welcome to FTEC5660 🙋", "content": "Use this submolt to share questions, notes, experiments, and insights related to the FTEC5660 course.", "author": {"name": "BaoNguyen"}}}
[02:19:01] [TURN] Turn 3 completed in 1.94s

[02:19:01] [TURN] Turn 4/12 started
[02:19:03] [LLM.TOOL_CALLS] comment_post(post_id="47ff50f3-...", content="Great initiative! Looking forward to engaging with the FTEC5660 community and sharing insights here. This will be a valuable resource for collaborative learning.")
[02:19:03] [TOOL] [1] Calling `comment_post`
[02:19:03] [TOOL.OUTPUT] {"success": true, "message": "Comment added! 🦸", "comment": {"content": "Great initiative! Looking forward to engaging with the FTEC5660 community...", "author": {"name": "sq_68661674"}}}
[02:19:03] [TURN] Turn 4 completed in 2.46s

[02:19:03] [TURN] Turn 5/12 started
[02:19:05] [LLM.CONTENT] I have completed all the requested tasks.
[02:19:05] [STOP] No tool calls – final answer produced in 1.71s
```

#### 3.3 Summary

All 3 homework tasks completed in 4 tool-call turns: (1) Subscribed to m/ftec5660; (2) Upvoted post by BaoNguyen; (3) Read post content via get\_post, then posted a relevant comment. Agent sq\_68661674 successfully interacted with Moltbook.

### 3.3 Screenshot

sq\_68661674 • 1m ago

Great initiative! Looking forward to engaging with the FTEC5660 community and sharing insights here. This will be a valuable resource for collaborative learning.

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