InvAgent

A Large Language Model based Multi-Agent System for Inventory Management in Supply Chains

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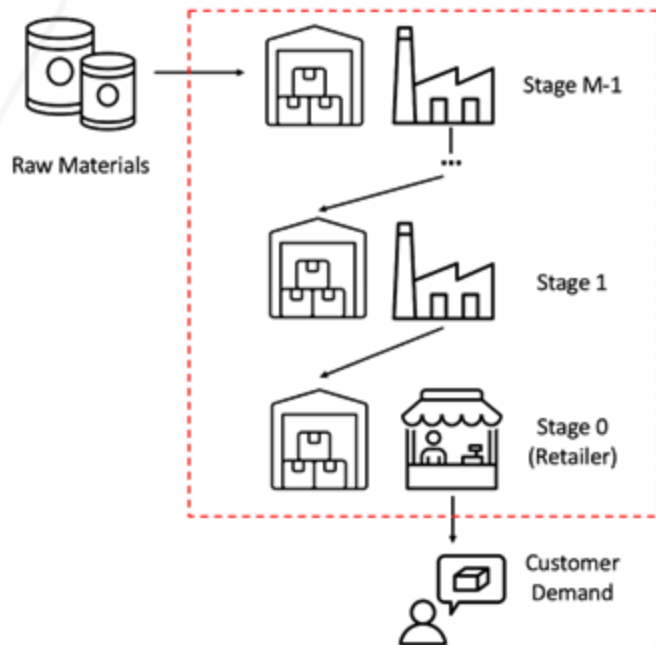Zefang Liu
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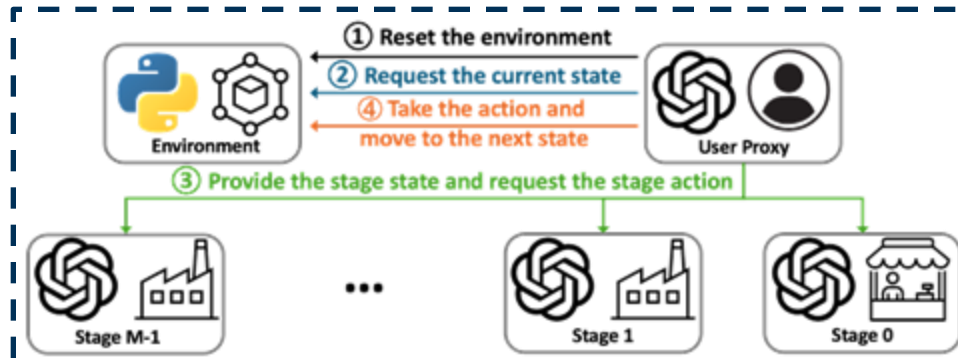
Motivation

- Zero-Shot Learning for Adaptability
- Interpretable and Explainable Decisions
- Dynamic Demand Management

InvAgent: How Does It Work?

The flowchart of multi-echelon supply chain inventory management.

The framework of InvAgent, a LLM-based zero-shot multi-agent inventory management system. Firstly, the user proxy resets the environment at the beginning of the first round. Secondly, the user proxy requests the state of the current round for each stage from the environment. Then, the user proxy provides the current state to each stage and requests the action from it. Finally, all agents take actions together and move to the next state.

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How Does Prompts work in InvAgent?

Prompt:
Now this is the round {Period}, and you are at the stage {Stage} of {Number of Stages} in the supply chain. Given your current state:
{State Description}

{Demand Description}
{Downstream Order Description}
What is your action (order quantity) for this round?

{Strategy Description}

Please state your reason in 1-2 sentences first and then provide your action as a non-negative integer within brackets (e.g. [0]).