

MAVEN

Multi-Agent Value Exploration Network

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Abstract

MAVEN (Multi-Agent Value Exploration Network) is an AI-driven framework designed to maximize consumer value in online shopping through intelligent, autonomous decision-making. It uses a network of specialized agents that scan, analyze, and evaluate real-time data across digital marketplaces to identify the most cost-effective and high-quality purchasing options

Problem

- Consumers must search across multiple websites to compare prices, reviews, and product quality.
- The same product varies widely in price and reliability across platforms.
- Manual comparison is tedious and inefficient, often leading to suboptimal purchasing decisions.
- Users face information overload, making it difficult to identify real value.

Existing Solutions

- Users can't choose or inspect which AI model powers the results everything runs on closed systems.
- Other than ManusAI, there's no dedicated system for in-depth shopping research.
- **NO OPEN-SOURCE ALTERNATIVE** where user can plug and play local models or a model provider that they would like.

Solution Outline

MAVEN provides an AI-driven solution that automates the process of online product research and comparison.

- Scan internet for best fit product.
- Scan multiple e-commerce platforms in real time
- Compare product quality, price, and reliability
- Deliver the most value-optimized purchasing options instantly

Agentic Workflow

Manager / Central Coordinator

- Oversees the entire multi-agent system and initializes research tasks.

Primary Researcher Agent

- Identifies the top 5 best-fit products for the user's query and delegates each to a specialized agent.

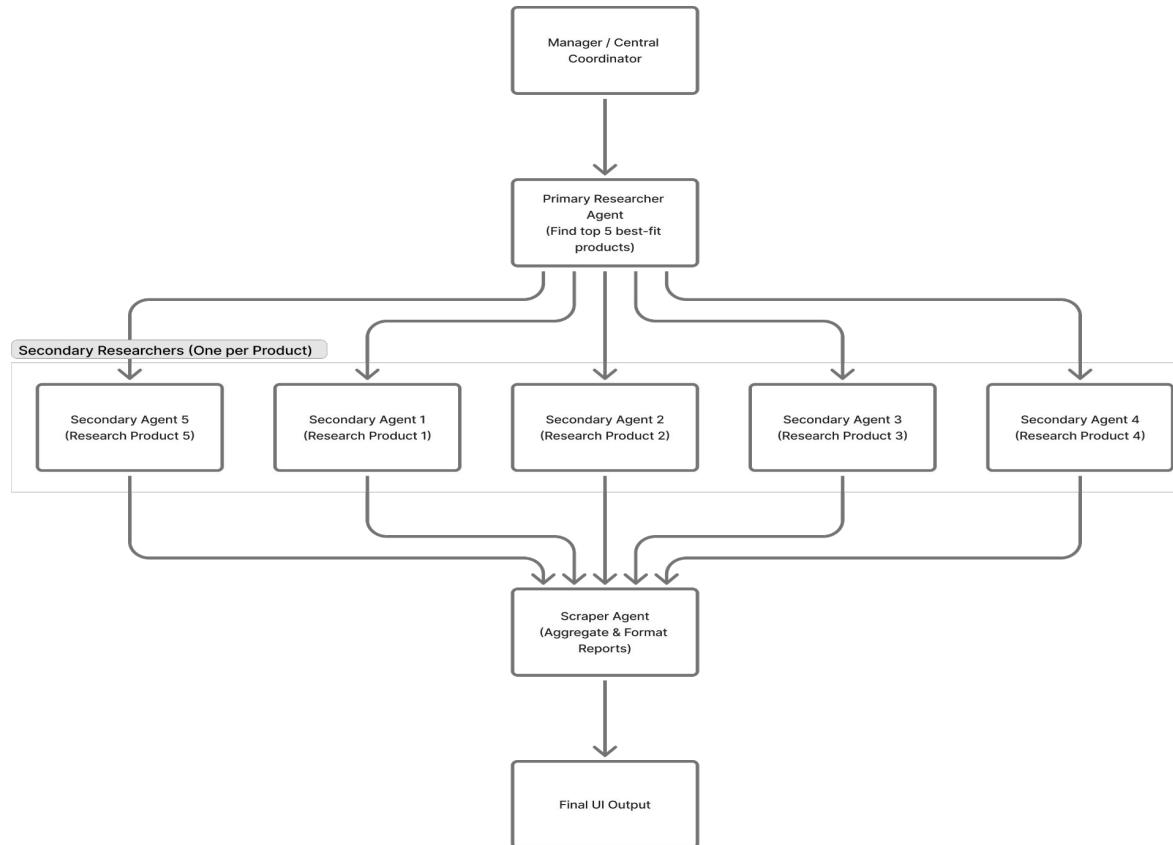
Secondary Research Agents (One per Product)

- Each secondary agent performs in-depth product analysis, including reviews, pricing, and reliability metrics.

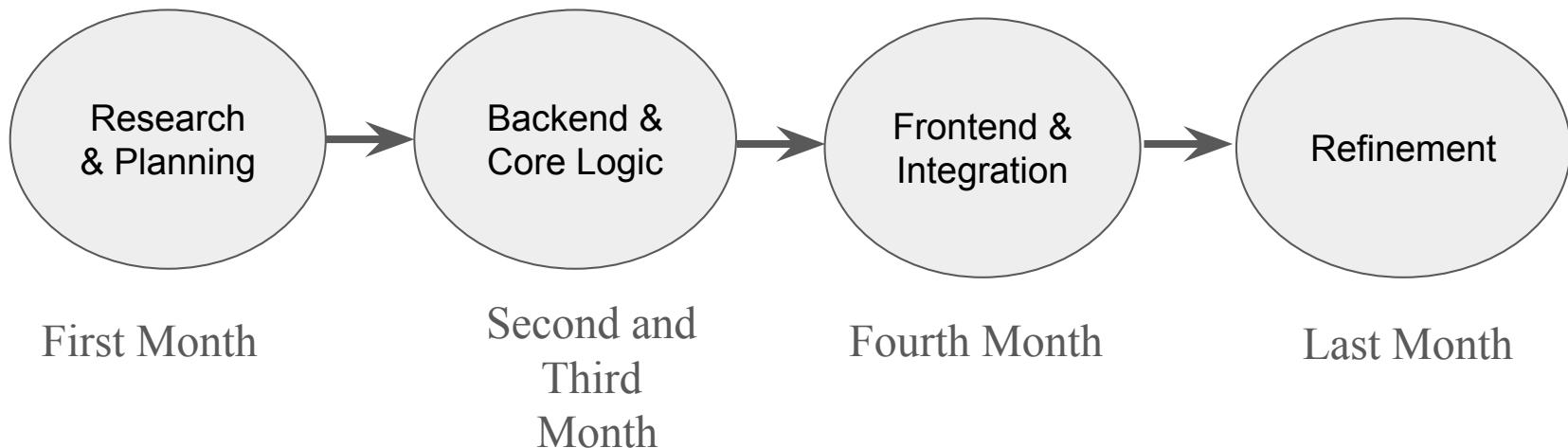
Scraper Agent

- Aggregates, cleans, and formats all research reports into a unified data output.

Agentic Workflow Diagram



Timeline



Conclusion

Manual scrolling through endless shopping pages is inefficient and overwhelming. MAVEN solves this by automating deep product research and comparisons, delivering clear, data-backed recommendations instantly.

References

- 1) Zhang, X. et al. “A Survey of Multi-AI Agent Collaboration: Theories, Models, and Applications.” (2025)
- 2) Doorenbos, R. B., Etzioni, O., Weld, D. S., & others. (2001). A Scalable Comparison-Shopping Agent for the World-Wide Web (ShopBot). University of Washington
- 3) Agent0 authors. (2025). Agent0: Leveraging LLM Agents to Discover Multi-value Workflows. arXiv:2507.18993; see also industry coverage of Manus’ “wide research” launch (VentureBeat, 2025) as an example of commercial multi-agent research systems