Developing a Framework for Economy-Based Game Simulations: Laying the Groundwork for Future Player Engagement Studies

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Introduction:

- "Stock & Shop" is a scalable game framework developed to simulate retail-based economies. This poster presents an overview of the framework's development process, challenges faced, theoretical insights, and proposed improvements.

Methods:

Development Process:
- Utilisation of Unity and C# for framework development.
- Iterative testing and optimisation of data management algorithms.

Testing Methodologies:
- Single-user testing for performance evaluation.
- Scalability testing to assess framework's ability to handle increased activity.

Challenges and Solutions:

Data Management and Performance Optimization:
- Utilisation of Unity's built-in data structures for efficient inventory management.
- Testing focused on single-user scenarios to ensure system performance under intensive interactions.

Scalability Testing Outcomes:
- Confirmation of framework's functionality, stability, and scalability under varied operational stresses.
- Performance optimisations based on insights from iterative testing phases.

Future Scalability Plans:
- Integration of cloud-based technologies and machine learning algorithms for enhanced scalability and adaptability.

Results:

Performance Optimisations:
- Refinement of data handling algorithms for efficient inventory management.
- Enhancement of system response efficiency under peak load conditions.

Theoretical Insights:
- High level of player engagement driven by dynamic economic system and AI interactions.
- Potential improvements identified for enhancing economic transparency and AI behaviour.

Discussion/Conclusion:

Significance of "Stock & Shop":
- Contribution to game development field with a scalable framework for retail-based economy simulations.
- Importance of player engagement in enhancing gameplay experience.

Reflections and Future Directions:
- Acknowledgment of strengths and areas for improvement.
- Recommendations for future research and practical applications of the framework.
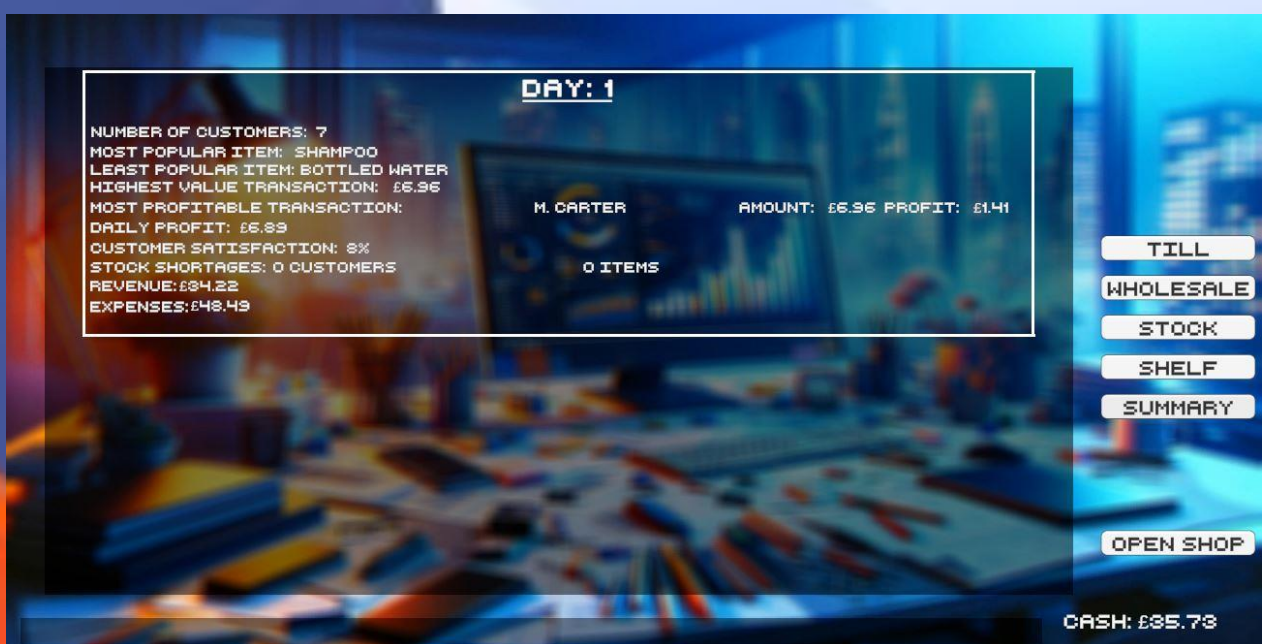
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