



The Development of a Board Game Integrating Mathematical Logic and Online Game Mechanics to Enhance Computational and Analytical Thinking

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Abstract

This project aimed to develop an educational card game that integrates propositional logic with gameplay elements inspired by popular online trading card games.

The project began with a comprehensive study of the concepts, mechanics, and gameplay features of online games that emphasize analytical thinking and logical decision-making. The knowledge gained was then applied to the design and development of a logic-based card game consisting of problem cards, truth-value cards, and gameplay mechanics that encourage systematic reasoning. Players are required to analyze logical statements, explain their reasoning, and apply propositional logic concepts through engaging and easy-to-understand gameplay.

To improve the quality of the game, participant satisfaction and qualitative feedback were collected during the testing phase and used to refine subsequent versions of the prototype.

The results indicated that integrating propositional logic with game-based learning principles successfully produced an educational card game that was both enjoyable and well received by participants. Feedback from playtesters also contributed significantly to improving the game's design, clarity, and overall learning experience.

keywords : card game, logic