Analysis And Implementation Of The Fuzzy Mamdani Method In Determining The Difficulty Level Of An Endless Runner Game

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ABSTRACT

This research focuses on the implementation of the Fuzzy Mamdani method in an endless runner game to determine its difficulty level. The motivation behind this study is to investigate whether the utilization of the Fuzzy Mamdani approach can enhance the gaming experience and make it more enjoyable. Additionally, the game incorporates elements of Indonesian culture to foster a sense of patriotism among players.The study begins by examining the potential application of the Fuzzy Mamdani method in the game's difficulty level determination. By using this method, the game can dynamically adjust its difficulty based on players' performance, making it more challenging and engaging. Moreover, the inclusion of educational elements related to Indonesian culture enriches players' knowledge about their heritage while they immerse themselves in the gameplay. The research outcome reveals that the average error calculation of the Fuzzy Mamdani method is approximately 96%, indicating a promising level of accuracy in difficulty level prediction. Furthermore, the game development has achieved a satisfaction rate of 88.9%, signifying a successful implementation of the proposed approach.

Keywords: Fuzzy Mamdani, endless runner game, difficulty level, educational element, Indonesian culture, gaming experience.