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An Efficient Aspect-Based Sentiment Analysis Framework for Esports Game Reviews

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This dissertation introduces an innovative framework for analyzing player feedback in esports games, with a focus on advanced data analysis to understand player emotions and game dynamics. The study begins with a comprehensive background, theoretical models, and empirical research on the proposed framework, introducing key concepts and terminology related to esports and player feedback analysis.

Initially, the research presents a thorough data analysis framework aimed at addressing the complex issues in esports player feedback. Utilizing a large dataset of approximately eight million reviews from major esports games on Steam and Google Play, including titles like PUBG, Dota2, CS:GO, and PUBG Mobile, the study offers a comprehensive analysis of player feedback. We enhance the topic modeling and sentiment analysis in this framework with the power of Transformer architecture, significantly improving the accuracy in interpreting player emotions and game dynamics. This method provides a novel approach to player feedback analysis, consistent with the statistical interpretation used in traditional data analysis.

The research also involves comparative analyses with existing models using popular evaluation methods in machine learning. The experimental results reveal that game optimization, server connectivity, anti-cheat mechanisms, and game updates are the top priorities for esports players currently. Generally, the insights not only demonstrate the ability of the enhanced topic modeling to reveal themes and sentiment analysis to uncover player emotions within the noisy feedback but also further illustrate the framework's completeness and the indispensable nature of each of its components. They are crucial for identifying common issues that resonate across different player groups, and invaluable for strategizing around game updates, community engagement, and player-centric approaches in game development. The adaptability and scalability of the framework make it an essential tool for the success of esports games.

Finally, the dissertation lays the foundation for future esports analytics research. It emphasizes the importance of advanced and detailed analytical tools in the evolving esports industry and their role in strengthening the symbiotic relationship between game developers and player communities. The research has been rigorously tested on various benchmarks, outperforming existing analytical models in efficiency, scalability, and depth of analysis. In summary, this dissertation provides a comprehensive and effective tool for analyzing player feedback in esports games, making a significant contribution to the field of esports analytics.

Keywords: Esports Gaming, Novice Player Experience, Player Feedback Analysis, Topic Modeling, Sentiment Analysis