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Analytical programming II
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Executive Summary: Steam Games II

Purpose & Objective:

This analysis aims to leverage user-generated reviews and advanced data science techniques to gain insights into user-generated data through sentiment and purchasing patterns. This will support Steam Games in refining marketing strategies, enhancing game development, and driving informed decision-making.

The analysis includes sentiment analysis to evaluate user attitudes, web scraping to identify persistent trends in game popularity, predictive modeling with Neural Networks, K-Nearest Neighbors, Decision Trees, and Random Forests to predict purchase likelihood, and feature importance analysis to identify key factors influencing purchases. A K-Means clustering algorithm will group reviews into themes, offering actionable insights for game improvements.

Key Finding & Insights:

The analysis provided key insights into player behavior, purchases, and developer sentiment. Ninja Kiwi ranked highest in sentiment scores at 28%, though with large variation, while the average across top developers was 19.6%. The neural network achieved 78.9% accuracy, predicting 251,689 purchases, validated by a K-Means model that classified 76% of cases and identified 92% of actual purchases. Decision tree analysis showed review length as a key factor, with reviews under 17 characters driving purchases, alongside discounts under 73% and category lengths of 137 characters. Feature importance confirmed review length as the most significant factor (52%), and clustering analysis determined 20 clusters as optimal for grouping review themes. Action, Adventure, Online, and Steam Achievements were determined to be the primary drivers among both current top games and best-sellers. These findings support strategies to improve developer performance, marketing, and player engagement.

Recommendations:

The analysis provides a comprehensive roadmap for enhancing developer performance, improving player satisfaction, and driving business outcomes on Steam. By leveraging sentiment score analysis, Steam can identify and maximize the impact of high-performing developers, address areas of weakness, and foster a stronger, more engaged player community. Using neural network and KNN models, Steam can predict users most likely to purchase games and focus marketing efforts on these individuals through personalized promotions, discounts, and targeted recommendations, ultimately maximizing conversion rates. Feature importance analysis further validates these findings, offering a robust understanding of the key factors driving customer decisions. Web scraping emphasized the need to incorporate versatile gameplay mechanics and enhanced social interaction features. Additionally, by identifying player priorities and concerns, Steam can act on these insights to optimize marketing strategies, refine game recommendations, and support developers in delivering better player experiences.

Business Impact or Value:

This analysis enables Steam to make data-driven decisions that enhance player satisfaction, increase sales, and strengthen developer relationships. By leveraging sentiment analysis, Steam can support high-performing developers and address weaknesses, fostering a more engaged player community. Predictive models help target likely buyers with personalized marketing, maximizing conversions and optimizing marketing spend. Feature importance analysis clarifies key purchase drivers, guiding product improvements and developer support. These insights drive higher customer satisfaction, improve sales performance, and a stronger competitive edge for Steam.