

UNIVERSITI TEKNOLOGI MARA

**A MULTICRITERIA AND HYBRID
APPROACH FOR VIDEO GAMES
RECOMMENDER**

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ABSTRACT

This thesis presents a multicriteria and hybrid recommender system for video games. Previous research related to video games recommender system depends on the dataset retrieved from STEAM API. The STEAM API offers many video games attributes, but the only extensively used in the recommender system research was limited to the duration of playtime. In addition, previous research only focuses on one attribute at a time make it difficult to get a clear understanding of why users prefer certain video games. This research aims to identify attributes that are compatible to be loaded into recommender system model and to design and develop a multicriteria and hybrid video games' recommender system that has the ability to utilized more than one types of rating and video games' attributes. Six attributes including playtime, price, genre, topics, published year and friendship was considered in this research. Content-based and Collaborative Filtering with K-Nearest Neighbour algorithm were used in the experiment to find the best combination of the attributes. Later both algorithms were included in the multicriteria and hybrid recommender system to include more than one attributes at a time. The video games recommender system was validated using Mean Absolute Error, Root Mean Squared Error, and Hit Rate. Multicriteria and hybrid video games recommender system which includes play time, price, topics, and years as parameters yield the most accurate rating prediction with Root Mean Squared Error of 0.4171 and Mean Absolute Error of 0. 2047. In addition, highest hit rate, 0.0625 was observed in multicriteria recommender system which includes playtime and price only. In conclusion, it was proven that multicriteria and hybrid approach recommender system gave better performance than single criterion recommender system.

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