
Boarding House Recommendation with Collaborative Filtering Using the Generative Adversarial Networks (GANs) Method

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(Article received: date; Revision: date; published: date)

Abstract

This research represents a concerted effort to tackle the pressing challenge of facilitating a personalized and efficient boarding house recommendation system tailored to individual user preferences, particularly among students. The overarching objective is to streamline and simplify the often arduous task of locating suitable accommodations by harnessing the potential of Collaborative Filtering. The deliberate selection of Collaborative Filtering as the cornerstone of this recommendation system stems from its proven efficacy in scrutinizing intricate user behavior patterns and deriving precise, tailored recommendations. Leveraging historical boarding house data, this methodology meticulously identifies patterns and similarities among users to offer suggestions finely aligned with their specific preferences. Integral to this research methodology is the concurrent utilization of Generative Adversarial Networks (GANs), serving a pivotal role in evaluating the system's accuracy. This dual-pronged approach, amalgamating Collaborative Filtering for recommendation generation and GANs for accuracy assessment, aims to ensure the system's efficacy in delivering precise, individualized suggestions. The findings of this study underscore a promising outcome – a system proficient in furnishing boarding house recommendations remarkably attuned to user preferences. This system's potential transcends the realm of student housing, presenting opportunities for broader applications across diverse fields requiring personalized recommendation systems. Crucially, the study's meticulous optimization of the GANs model, involving meticulous parameter adjustments including epoch count, optimizer selection (Adam), employment of mean absolute error (MAE) function, and fine-tuning a learning rate of 0.002, culminated in an outstanding achievement. The resultant MAE value of 0.0180 denotes minimal prediction errors, signifying estimations remarkably proximate to actual test data values, thus solidifying the system's reliability and precision. Ultimately, the successful development and evaluation of this boarding house recommendation system hold profound implications, promising to significantly enhance student experiences in discovering accommodations aligned with their preferences. Furthermore, this study's methodological approach paves the way for future research and wider applications in diverse domains seeking effective, personalized recommendation systems.

Keywords: *boarding house, collaborative filtering, GANs, system recommendation*
