

Smartphone Recommendation System using 91 Mobiles Rating with YouTube Reviews

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Abstract:

The project aims to develop a sophisticated smartphone recommendation system that integrates comprehensive data from the 91mobiles website and YouTube review videos. This system is designed to provide users with detailed and accurate ratings for various smartphones, ensuring they can make well-informed purchasing decisions. The methodology involves several key components: web scraping, API utilization, data normalization, machine learning, and web development. Firstly, the system employs web scraping techniques to extract detailed specifications and expert ratings of smartphones from the 91mobiles website. This website is a well-known source for smartphone reviews, offering extensive information on various models. By leveraging web scraping, the system can compile up-to-date and detailed data on numerous smartphones, including their features, performance, and expert reviews. These ratings reflect the professional opinions of technology experts, providing a solid foundation for evaluating each smartphone. In addition to expert reviews, the system integrates user feedback from YouTube review videos. The YouTube API is utilized to collect metadata from these videos, including the number of likes and views. This data is crucial in understanding the public's reception of different smartphones. To quantify this feedback, a unique YouTube rating is calculated. This rating is derived by taking the ratio of likes to views, multiplying by 10, and normalizing the result to a scale of 10. This metric ensures that the popularity and positive reception of the smartphone are accurately represented. The final rating for each smartphone is a weighted sum of the 91mobiles rating and the YouTube rating. Specifically, the 91mobiles rating contributes 70% to the final score, while the YouTube rating contributes 30%. This approach ensures a balanced consideration of both expert opinions and popular user feedback, providing a well-rounded evaluation of each smartphone. To recommend the best-rated smartphones based on user-specified criteria, the system employs a machine learning model using the Random Forest classifier. This model is trained to predict the highest-rated smartphones by analyzing input specifications provided by the user. The Random Forest classifier is chosen for its ability to handle the complexity of the input features and their interactions effectively. It enhances the prediction accuracy by considering multiple decision trees and averaging their results, making it robust against overfitting and capable of managing large datasets with numerous variables. The entire system is implemented as a web application using Flask, a popular web framework for Python. This implementation enables users to interact with the recommendation engine through a user-friendly interface. The web application simplifies the process of finding the best smartphones by allowing users to input their

preferences and receive tailored recommendations quickly. The interface is designed to be intuitive, ensuring that even users with limited technical knowledge can easily navigate and utilize the recommendation system. By combining data from professional reviews and popular opinion, the platform provides a holistic view of smartphone ratings. This integration of diverse sources of information ensures that users receive recommendations that are both reliable and accurate. The robust data analysis and machine learning techniques underpinning the system guarantee that the recommendations are based on a comprehensive evaluation of each smartphone's merits. In summary, this project delivers a powerful tool for smartphone shoppers, aggregating expert reviews and user feedback to present well-rounded, data-driven recommendations. The use of web scraping, YouTube API, and Random Forest classifier, coupled with a user-friendly Flask web application, ensures that users can make informed decisions with ease. By offering a balanced perspective that considers both expert and user opinions, the system stands out as a reliable and accurate smartphone recommendation engine tailored to user preferences.

Keywords:

Smartphone recommendation system, 91mobiles website, Web scraping, YouTube API, 91mobiles rating, YouTube rating, Final rating, Machine learning model, Random Forest classifier, Flask.