Optimizing product/service recommendations and marketing strategies using market trends

Isaak Van-Deste*, [1, 2], Hélder Pereira[3], Pedro Oliveira[1, 2], Paulo Matos[1, 2]

[1] Research Centre in Digitalization and Intelligent Robotics (CeDRI), Polytechnic University of Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal

[2] Associate Laboratory for Sustainability and Technology in Mountains Regions (SusTEC), Polytechnic University of Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal

[3] Polytechnic University of Bragança

INTRODUCTION & AIM

Recommender systems are nowadays a fundamental part of eCommerce success.

Based on the information available about the user, which may include data about their profile, purchase or search history, affinity with other users, among many other things, recommendation systems try to enhance the opportunities that may exist to take the user to complete the purchase.

In many cases, as happens in the base system for which the solution reported here was created, recommendations must focus on the existing offer, that is, on what suppliers have available or, considering the available offer, what matters most sell.

There is thus a natural discrepancy between what the consumer wants, or what would be most appropriate to be recommended in their interest, and what is available by traders or what they want to sell.

To increase user receptivity, recommendation systems must adjust proposals to what is sought by the user - as far as possible, proposing what is intended or something as close as possible, within the offer made available by retailers.

This work explores web search trends to optimize the recommendation process in light of the offer made available by suppliers.

METHOD

Taking an ordered list of products to recommend as input, the proposed solution optimizes this list by considering trends in web searches.

The solution collects data on web search trends, filters the data to retain only searches related to products and services, identifies the relevant characteristics of these products, and subsequently reorders the recommendation list based on the similarity of these characteristics with the characteristics of the products on the recommendation list. This establishes a relationship between market search trends and the most recommendable products/services from the existing offer.

The solution adopts the power of Google Trends to capture consumer interest across various topics, products, and services—it is assumed that web search trends reflect market trends.

ChatGPT is added to refine the gathered raw trend data by removing noise, contextualizing information and matching it with the attributes of products or services in the recommendation list, ensuring that the trend insights are relevant and actionable.

Finally, it integrates these insights with the user preferences to dynamically reorder the recommendation lists, prioritizing items that are most representative.

RESULTS & CONCLUSIONS

Initial results show its effectiveness in improving the relevance of recommendations by demonstrating its potential as a scalable and automated framework for optimizing digital marketing campaigns to build adaptive recommendation engines.

An empirical analysis of the results shows that the products/services that are available in the merchant's offer and that have an affinity with market research, rise in the ranking of recommendations.
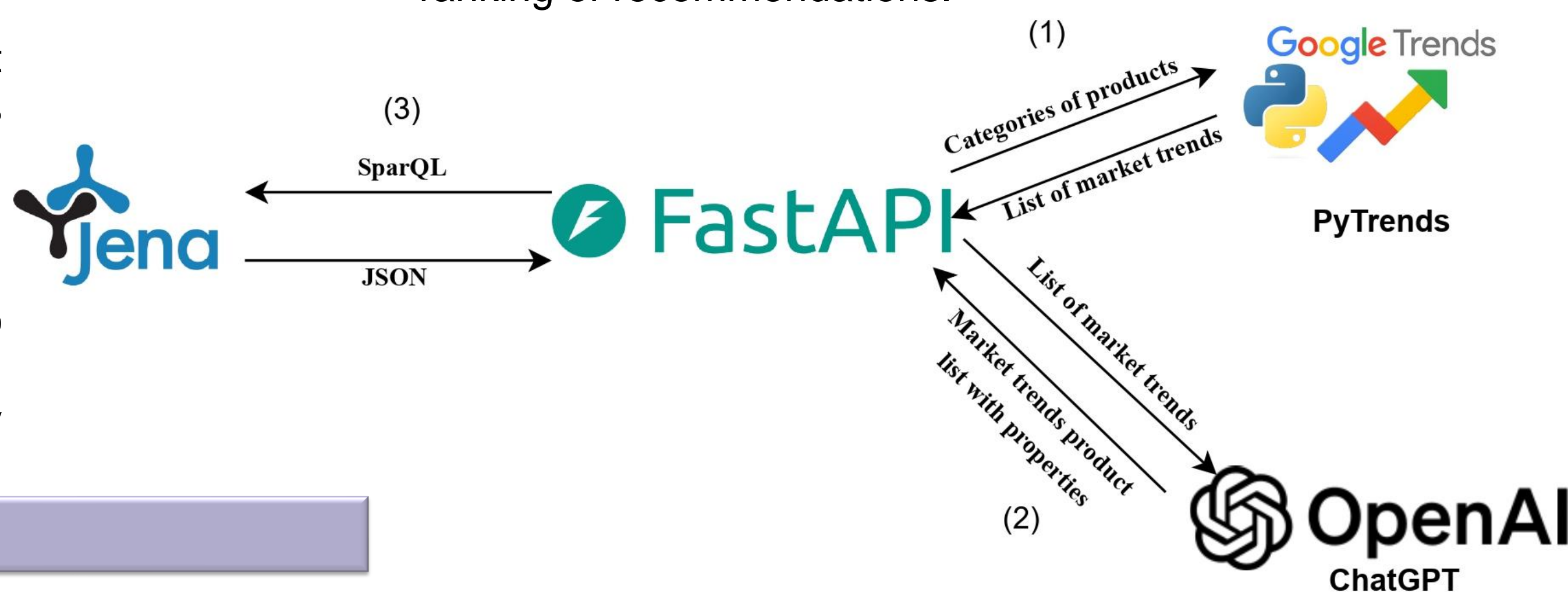
The effective evaluation involves determining the impact of this reordering on the increase in purchases made. However, this is far from easy to assess, given that there are many other variables that influence the increase/decrease in purchases.

Sometimes it only takes a small discrepancy between what the consumer wants and what is available for this not to happen. This phenomenon is clearly visible in the analysis carried out, particularly when it comes to products such as smartphones and, in general, electronic devices and gadgets from well known brands - where characteristics such as the model are critical in leading the consumer to make a purchase.