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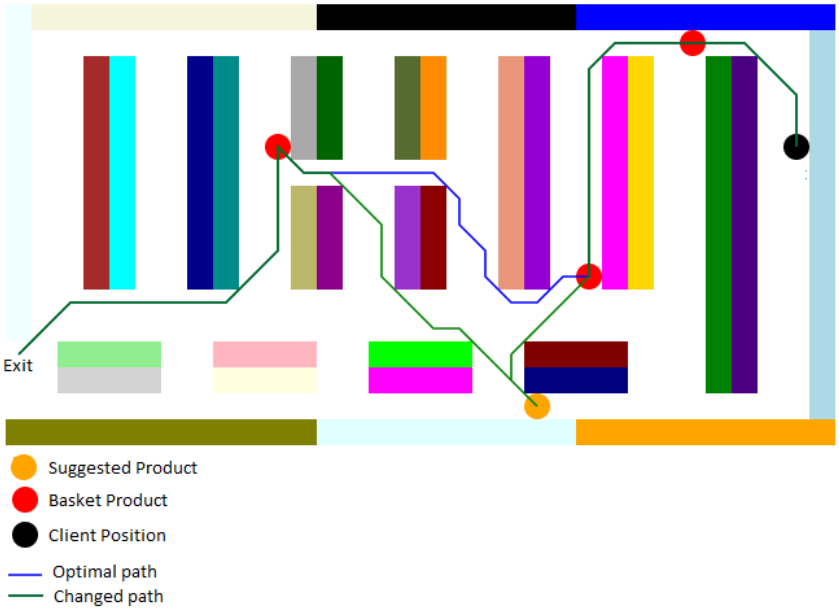

Fig1. Path finding in store floor plan.

LOCREC

LOCATION AWARE PRODUCT RECOMMENDATIONS

Motivation

The fast evolution and development of networking infrastructures boosted e-commerce to new levels of importance. With this growth, a huge quantity of products/services and encompassing information became available to customers. To be able to confront this information overload, recommendation systems are presented as one possible solution.

The main goal of recommender systems is to personalize content in a scalable way, offering alternative products or other options to clients. These options or alternatives depending on the business could be a wide range of services such as grocery, products, friends, music tracks, news, etc.

Leveraging the recent developments in mobile technologies, in particular in the field of indoor location and with the intention of given better more meaningful recommendations, a location aware product recommender was developed.

Challenges

When thinking about how to provide a better recommendation experience to the client, considering his/hers indoor position we face two problems: how to take advantage of this contextual information to generate better recommendations and also what type of recommendations to provide at each context (user location).

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Features

- Path finding algorithm
- Three recommendation strategies
- Recommender system configurability
- Generation of contextual recommendations

Advantages

- Takes into consideration the user's location
- Recommend products target to the user
- Reduce time spent on shopping trip

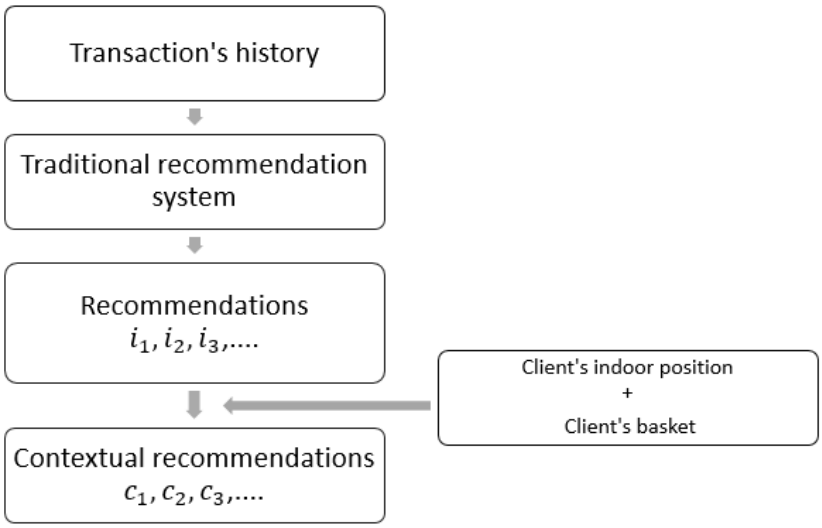

Fig2. Recommendation process.

Solution

The final solution uses the customer's transaction history (products bought) to analyze trends (using Association Rules) and suggest products.

Using trends to recommend products is a good recommendation approach, but in some cases, cannot consider small trends or identify trends for a specific product. To solve this problem other recommendation algorithms, of the collaborative filtering family, were also used to generate recommendations targeted to the user.

After generating recommendations, they should be presented to the user considering his/hers current position. The easy way of sorting recommendations is by calculating the direct distance between the user and the recommended product's location in the store's shelves. In this dissertation, we moved a step forward and sorted recommendations based on the user's already existing path through the store.

An algorithm to generate paths was developed, calculating distances and considering the impact that the new recommendation would have in the optimal course.

Conclusion

In the end, it was possible to recommend products considering not only the client's indoor location but also reduce the time that he/she would have to spend during shopping trips.

The main advantage of this recommendation approach is the personalization that the system can achieve and because it is easily configurable, is also applicable in multiple scenarios, for example, if the user has time limitations the results produced can be adapted taking that into account, if on the other hand he/she wants to receive the most relevant recommendations the system is also able to produce enough good recommendations.