

RECOMMENDATION ENGINE

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ABSTRACT

Personalized product recommendations are the alternative way of navigating through the online shop. More people find products they need. Even if they didn't think of them. Build a recommendation engine which suggests similar products to the given product in any e-commerce websites ex. Amazon.com, myntra.com etc. The objective of this project is to build a recommendation engine that suggests relevant apparels to the given apparel and also give a flavour of machine learning. The recommendation engine, uses information about 1,80,000 products and each product will have multiple features named 1)Title of the product 2)Brand of the product 3)Color of the product 4)Type of the product 5)Image of the apparel. The data source for this project is amazon.com. The issues covered in this project are directly related to large amount of datasets. The main goal is to generate suggestions based on the data gathered.

Keyword: - recommendation, machine learning.

1. INTRODUCTION

Nowadays in information technology field Big Data topic is considered as one of the most influential. The biggest IT companies like Google, Facebook or Amazon are investing considerable financial resources in the development of Big Data solutions. The issues covered in this article, classified as recommendation systems, are directly associated to the Big Data subject, relating to the operation on a large set of numbers. The recommendation system goal is to generate suggestions based on the data gathered from users. Growing popularity of recommendation systems is directly related to the influence of Internet and progressive consumerism, partially caused by the intensive development of social media portals like Facebook, Twitter etc. . . . Development of recommendation systems is also caused by the expansion of streaming services such as Netflix, Spotify etc.

1.1 REQUIREMENT ANALYSIS

● SOFTWARE REQUIREMENTS:

- PYTHON AND JUPYTER

○ HARDWARE REQUIREMENTS:

- OS: WINDOWS
- HARD DISK:160 GB MINIMUM
- RAM: 512MB MINIMUM

1.2 EXISTING SYSTEM

- 2007, Hybrid collaborative filtering algorithms using a mixture of experts · Incorporating g CF and Content Based Features -AUTHORS: X. Su, R. Greiner, T. M. Khoshgoftaa and X. Zhu.
- 2009 HYDRA-A hybrid recommendation system · Minimize runtime · Choose content accurate content features for accuracy · Apply on different attribute domain and check accuracy AUTHORS: Stephan S.,Jerome Fang L. CNIMK'09

2. PROBLEM DESCRIPTION and SOLUTION

Compare to existing E-Commerce recommendation system, following factors should be taken into account:

- 1) Limited resource. For instance, personal recommendation for limited product with special lowest price in special offer period. Those kinds of products should be recommended with priority, so that customers can buy with pleasure.
- 2) Data valid time. Those records which were recorded long time ago are not allowed to be used for recommendation, because much early records are not accurate anymore.
- 3) Cold start. It's a problem for customer who first time visit the E-Commerce website which are not well solved in existing E-Commerce recommendation system. An effective E-Commerce recommendation system can give out effective recommendations for customers which can be approved by customers as far as possible. Customers can get benefits, at the same time; the trading volume can be enhanced.\

3. ARCHITECTURE AND DATAFLOW

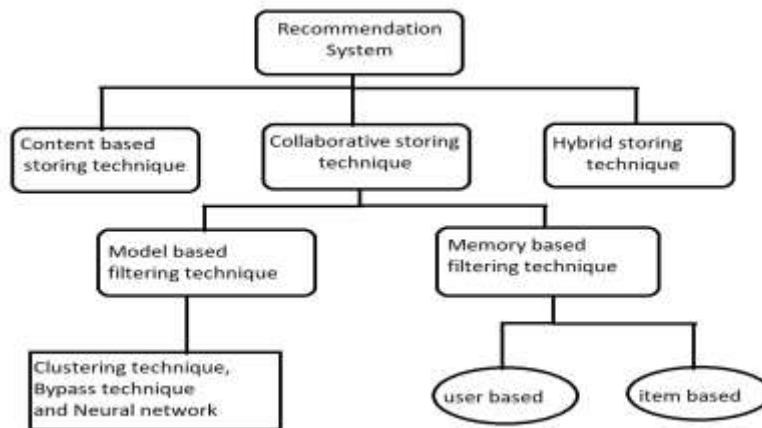


Fig -1: System Architecture

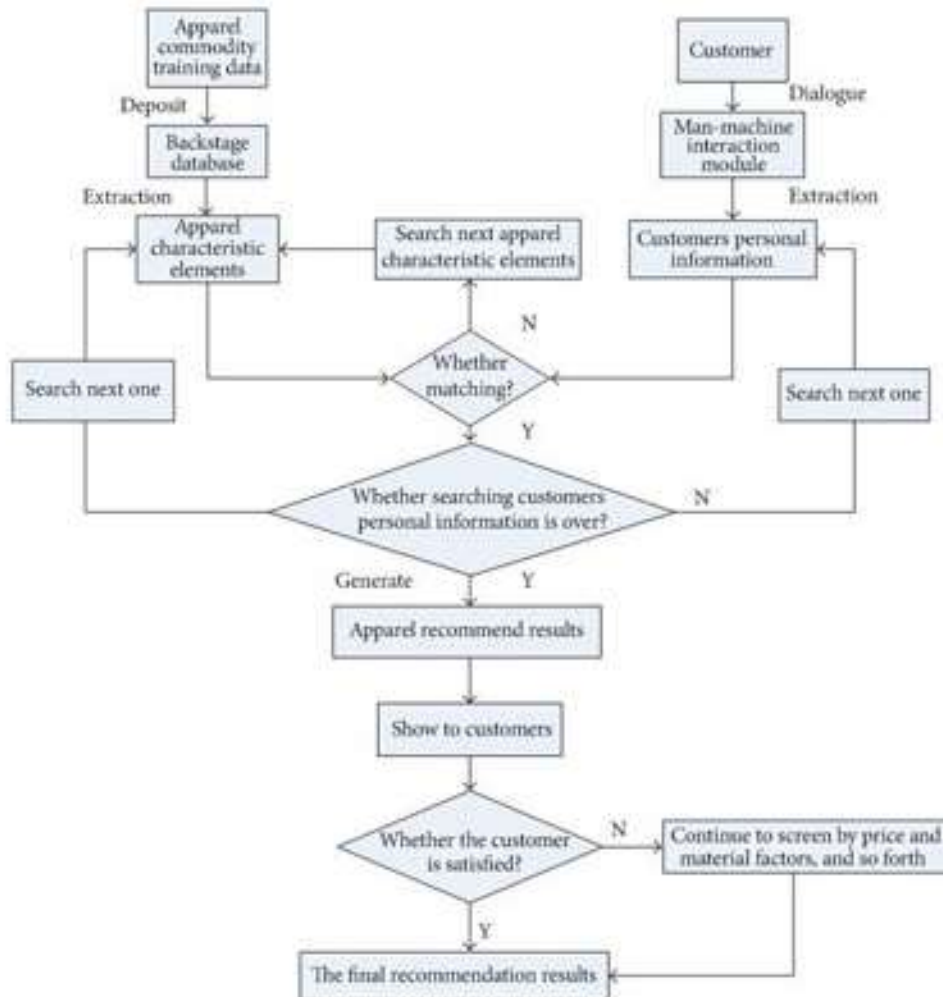


Fig -2: Data Flow diagram

3. MODULE DESCRIPTION

1. Model based filtering

- Clustering technique
- Bypass technique
- Neural network

2. Memory based filtering technique

- User based
- Item based

4. CONCLUSIONS

Using Python language, Jupyter , Model based technique and memory based technique could be implemented. Thus it was possible to achieve the expected result by using the actual data of Amazon.com provided by keggel. By analyzing various different statistical methods, this project proves that due to the lack of sufficient amount of the categorical variables and the overwhelming dominance of numerical variables, with no linear pattern, the best solution is to apply, Model based technique and memory based technique methods for data prediction on the tremendous database as that given by Amazon. To obtain better results it will be necessary to apply some database

pre-processing in order to create special sub-categories with some level of similarity. In that case, the other mathematical methods, like linear regression, decision trees or Naive Bayes classification could be applied.

5. ACKNOWLEDGEMENT

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6. REFERENCES

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