



CASE STUDY ON

BIGBASKET RECOMMENDER SYSTEM

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ABSTRACT

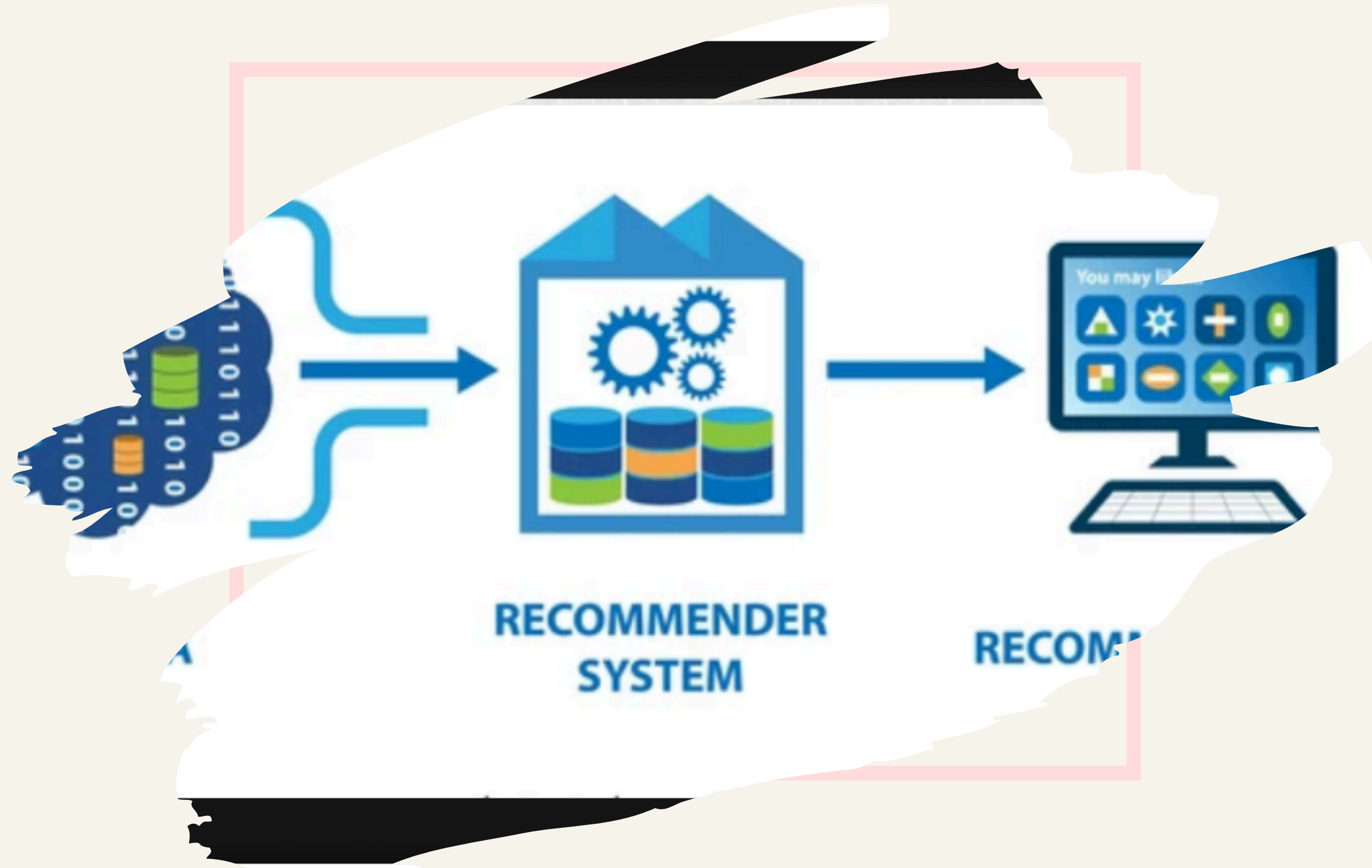
Recommender Systems are algorithms providing personalized suggestions for items that are most relevant to each user. With the massive growth of available online contents, users have been suggested with choices. Recommendation system finds similarity between the product a user clicks on and the other products and then recommends if there is some sustainable similarity.

OVERVIEW

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INTRODUCTION

During the last few decades, with the rise of Youtube, Amazon, Netflix and many other such web services, recommender systems have taken more and more place in our lives. The purpose of a recommender system is to suggest relevant items to users.



TYPES OF RECOMMENDER SYSTEMS

The types are:

- collaborative filtering
- content-based filtering
- hybrid systems.

collaborative

Collaborative filtering operates by evaluating user interactions and determining similarities between people (user-based) and things (item-based).

content-based

Content-based filtering is a technique used in recommender systems to suggest items that are comparable with an item a user has shown interest in, based on the item's attributes.

BIG BASKET RECOMMENDER SYSTEM

DATA COLLECTION:

BigBasket collects large amounts of data from user interactions, including:

- Browsing history**
- Purchase history**
- Search queries**
- Product ratings and reviews**

CASE STUDY ON BIGBASKET

Personalized Recommendations:

It is based on individual user behavior, such as previously purchased items or frequently viewed products.

Data Preprocessing:

Clean and preprocess the data to handle missing values, normalize text, and convert categorical data into numerical formats. This step is crucial for ensuring the quality of the input data.

Feature Engineering:

Extract relevant features from the data, such as user demographics, product categories, and purchase patterns. These features will be used to train the recommendation model.

Recommendations are seamlessly integrated into the user interface, appearing as:

- "Recommended for You" sections on the homepage.
- "Customers who bought this also bought" suggestions on product pages.
- Personalized emails with product recommendations.

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ALGORITHM FOR BIGBASKET

The BigBasket uses a combination of algorithms to generate recommendations:

1) Collaborative Filtering: This method recommends products based on the behavior of similar users.

For example, if User A and User B have similar purchase histories, products bought by User B but not yet by User A might be recommended to User A. Uses user-item interactions to recommend products. Techniques like Matrix Factorization (e.g., SVD) and Nearest Neighbors are popular.

2) Content-Based Filtering: This method recommends products similar to those the user has shown interest in. For instance, if a user frequently buys organic products, the system will recommend other organic items. Techniques like TF-IDF Vectorization and Cosine Similarity are often used.

3) Hybrid Approach: Here the Combination of both collaborative and content-based filtering to improve recommendation accuracy

Training the Model:

Train the model using historical data. The model learns patterns and relationships between users and products. For example, it might learn that users who buy apples also tend to buy bananas.

Making Recommendations:

Use the trained model to make recommendations. When a user logs in, the system suggests products based on their past behavior and the behavior of similar users. For instance, if a user frequently buys dairy products, the system might recommend new types of cheese or yogurt.

Evaluation:

Evaluate the performance of the recommender system using metrics like precision, recall, and F1-score. This helps ensure the recommendations are accurate and relevant.



EXAMPLE ON BIGBASKET RECOMMENDER SYSTEM

The user sri, who shops on BigBasket every two weeks. She has a history of buying fresh fruits, vegetables, dairy products, and gluten-free items. Her previous purchases and browsing history reveal that she tends to buy groceries on weekends and prefers organic products when available.

Recommender System Goals to:



Increase the user's likelihood of purchasing more items.



Improve user satisfaction by suggesting relevant items.



Encourage cross-selling and up-selling by showing products that complement items in Priya's cart.

It gather data on Sri's purchase history, browsing behavior, and product preferences. This includes:

Items purchased: Fresh fruits, vegetables, dairy products, gluten-free items.

Here The data processing will Clean and preprocess the data to handle missing values and normalize text.

Convert categorical data (e.g., product categories) into numerical formats.Feature Engineering: Extract features relevant to Sri's shopping behavior:

User demographics: Age, location, etc.

Product categories: Fresh fruits, vegetables, dairy, gluten-free, organic.

Purchase patterns: Frequency, timing (weekends), and preferences (organic). And then Choose a recommendation algorithm. For Sri, a hybrid approach combining collaborative filtering and content-based filtering would be effective:

the collaberative filtering will Identify similar users who have purchased similar items and recommend products they have bought.Content-Based Filtering: Recommend products similar to those Sri has purchased, focusing on attributes like organic, gluten-free, and fresh produce and then Train the hybrid model using Sri's data and evaluate its performance. Use metrics like precision, recall, and F1-score to ensure the recommendations are accurate and relevant and then Generate personalized recommendations for Sri based on her shopping history and preferences.

For example:Recommend organic fruits and vegetables available on weekends.

It suggest the dairy products.

CONCLUSION

BigBasket's recommender system has been instrumental in creating a personalized shopping experience for its customers. By leveraging collaborative filtering, content-based filtering, and hybrid models, BigBasket effectively enhances customer engagement, drives sales, and fosters loyalty in a highly competitive market. This case study exemplifies how data-driven personalization can transform the online grocery shopping experience.



THANK YOU

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