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**ABSTRACT**

* **availability of web services Personalized preferences.** [Personalization](https://www.optimizely.com/products/personalization/) is by no means a new concept. Waiters will often greet repeat customers and refer to them by name, even knowing what their “usual order.
* **decision making.** Do decisions for the customers or help them to decide.
* **Information filtering technique**. a system that removes [redundant](https://en.wikipedia.org/wiki/Redundancy_(information_theory)) or unwanted [information](https://en.wikipedia.org/wiki/Information_technology) from an information stream
* **Applications:** selecting books and newspaper, best hotel and its location, ticket bookings like movies, flights, buses, trains

Recommendation system can be used for items, for friends also on social sites, for selecting of hotels, music, book, application etc. here selection is difficult because number of data is available

* **works as** suggestion, customization, learning, administration and this all provides user for the items suggestion and decision making.
* algorithms like **k-mean clustering, collaborative filtering** are used for the information suggestion

INTRODUCTION

* Why this system?

We have **lot of choices** in the real world and selecting one out of many is the biggest problem. We always take help from some or the other person in choosing the one amongst many. Our family members, friends who have same preference like us suggest us.

In virtual world?

But if the same thing happens in virtual world then there **selection of interested** item is based on recommender system,

A recommender system is the **system of intelligence** which is helpful for user in getting interested items

* Use of this system

Through recommender system people can share preferences and most preferred items are offered among them to user from which he can select the interested one.

* **Aim** solve information overload problem.
* **Our system:** Book recommendation is created and deployed in this approach of work, which helps in recommending books. Recommendation achieved by the users **feedbacks and rating**, this is the online which analyze the **ratings, comments and reviews of user, negative positive nature of comments using opinion mining**.
* **How it works:** User searching for the interested book will be displayed in top list and also can read feedback given by people about the book or any searched items
* **Why?** Whenever user search for any book from the large data available, he gets confused from the number of displayed item, which one to choose. In that case recommendation helps and displays on the interested items.
* **services of cloud using collaborative filtering.** Set of user requirements are searched in cloud services.

**METHODOLOGY**

technologies are collaborative filtering and K-mean clustering algorithm.

|  |  |
| --- | --- |
| **COLLABORATIVE FILTERING** | **K-MEAN CLUSTERING ALGORITHM** |
| It is most successful algorithm used in the recommender system is the Collaborative Filtering. | A clustering approach is used in our work, clustering is based on similarity where similar elements are kept in a single group. |
| Collaborative filtering is based on the technique of **information filtering and data mining** | Likewise similar element, the irrelevant elements are also reside in a group, which is another group, based on similarity value or maximum size of cluster. |
| It suggest users on the basis of neighbor's preferences. | It is the unsupervised and simplest learning algorithm, which simplifies mining work by grouping similar elements forming cluster. T |
| It suffers with parameter like deficient scalability and low accuracy | This is done using a parameter called Kcentroids. |
| This method **matches the people of similar taste** and then on the basis of personalized recommendation, recommend the user. | Distance between each element is calculated for checking the similarity and forming a single cluster to reside the similar elements, after comparing with K-centroid parameter. |
|  | K-mean clustering is used for the categorization of user on the basis of interest. |
| his algorithm is classified into two entities, the user entity and the item entity. | This algorithm works as selection of k objects which is the initial cluster center. Distance between each cluster center and object are calculated and is assign to nearest cluster. Average of all cluster is updated and the process repeats until starts functioning |
| The user entity works on the basis of rating; they rate the item according to their opinion about that item.  Recommender system mainly uses collaborative filtering or the combination of it with other algorithm. It mainly focuses on user with same preference and taste and suggest items to them on the basis of selection of items by those users. | K-mean clustering is described as :- Input data : database, N = { x1, x2, x3, …...., xn} n data objects and k number of cluster, Output :- 1. From N datasets, k objects are randomly selected and cluster center (m1, m2, m3,......., mk), 2. Distance between each object and cluster center is calculated and then each object is assigned to the nearest cluster |
| works on the basis of similarities in users choice |  |
| Recommendation is produced on the basis of neighbor's choices and taste. The neighbors are similar to the users which are the active user. This algorithm has two major step. In the first step computation is done between the similarities of active user and the most similar user and also the users in database. In second step recommendation is developed for those active users of first step |  |
| Memory based and model-based are the two main types of this algorithm. |  |
| Where, techniques of machine learning like Neural network and Bayesian network etc are used in Model-based algorithm. |  |
| Memory based algorithm generates recommendation using database of user-items. Each user has neighbor, and this neighbors are group of people with same taste. After it, prediction is generated for the items which are not rated by user. This algorithm mainly use two users or two items for the computation of similarities between them, after it recommendation for active user id generated |  |
|  |  |

Proposed Work Our proposed work involves working steps, which is **as Data collected and preparation, clustering approach and recommendation approach.**

**Data Collection:**

Primary data collection is done by survey and secondary data collection is from existing system or datasets. This data consists of different categories and attributes. So here

**data cleaning**. After it **lemmatization module** is developed and by using stop **word removal** quality of data source is improved. To break the entire work into a single value some schemes such as **Tokenization and abbreviation removal** is used, extraction is also done to get more accurate value.