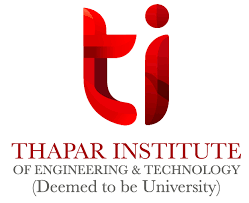
**Book Recommender System**



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**Machine Learning Project**

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1. **Introduction**
   1. **Book Recommendation Dataset**

<https://www.kaggle.com/datasets/arashnic/book-recommendation-dataset>

**1.2 Description**

This project is a Book Recommendation System that uses two techniques: Popularity-Based and Collaborative Filtering.

1. Popularity-Based Recommender: Recommends the top books based on the number of ratings and average rating, focusing on books that are most popular among users.
2. Collaborative Filtering: Recommends books by finding similarities between books based on users’ ratings using cosine similarity.

The system processes the data, calculates similarity scores, and provides book recommendations. It also saves key data using Pickle for future use.

1. **Libraries Used**

* Numpy: for performing efficient numerical operations
* Pandas: for loading, cleaning, and manipulating the dataset, making data exploration and transformation
* Sklearn(cosine\_similarity): used to measure how similar two non-zero vectors are, based on the cosine of the angle between them

Cosine Similarity= (A⋅B) /(∥A∥∥B∥)

* Pickle: to save and load pre-processed data

1. **Algorithm(s) Used**
2. Popularity-Based Recommendation:

This algorithm recommends books based on their overall popularity. Books with more ratings and higher average ratings are considered popular and recommended to all users.

Steps:

1. Merge ratings with book details.
2. Calculate the number of ratings and average rating for each book.
3. Recommend the top books with high ratings and many reviews.
4. Collaborative Filtering (Cosine Similarity):

This method recommends books based on user preferences. It calculates the similarity between books using cosine similarity, which measures the angle between their rating vectors.

Steps:

1. Create a user-item matrix with book ratings.
2. Calculate similarity scores between books using cosine similarity.
3. Recommend the most similar books based on a user’s previous ratings.

Comparison:

The Book Recommender System uses two algorithms:

1. Popularity-Based Recommendation: Recommends books based on the number of ratings and average rating, favoring popular books.
2. Collaborative Filtering (Cosine Similarity): Personalizes recommendations by finding similar books based on user ratings using cosine similarity.
3. **Code and Screenshots**

