**Recommendation Engine**

**Recommendation Engine:**

It works based on *Collaborative Filtering*

**How Collaborative Filtering Works:**

Step 1: Pre-processing before building matrix

Step 2: Build a matrix between customers and products

Step 3: Find similarity between customers

We have 2 methods:

1. Cosine based similarity

cos(A,B) = A.B / (|A|.|B|)

2. Correlation based similarity

corr(A,B) = Covariance(A,B)/(std(A)\*std(B))

Step 4: once we find similarity items will be recommended

**Negatives of Collaborative Filtering:**

1. Memory based - as it needs a huge amount of matrix with data
2. As big matrix computationally heavy

**How to reduce Computation**

1. Randomly sample customers
2. Discard infrequent buyers
3. Discard items that are very popular or unpopular
4. clustering can decrease number of rows
5. PCA can reduce number of columns

**Data used:**

1. Movies recommendation is done using Movie dataset
2. Book Recommendation is done using Book data set
3. Anime Recommendation is done using Anime dataset

**Programming:**

Python

The Code regarding *Movie recommendation, Book recommendation, Anime Recommendation* and its datasets are present in this Repository in detail