

Recommendation System

❖ Introduction:

1. Problem Definition:

Recommendation systems are software tools or knowledge discovery techniques that provide suggestions for items to a user. Items can be products, music, books, movies, people or social groups. The aim of these systems is to recommend items that a user is likely to be interested in and learn more about user preferences and constraints. This project is based on improving the existing recommendation systems and generating more accurate recommendations for products with large number of users.

2. Purpose:

This document provides a detailed description of Software Requirements Specification (SRS) for Recommendation System. The Software Requirements Specification (SRS) document is intended to provide the requirements of the Recommender System project and the expectations of the stakeholders. The document includes the project perspective, data model and constraints of the overall system.

3. Overview:

This document includes six chapters:

- Overall description
- Specific requirements
- Data Model and Description
- Behavioural Model and Description
- Planning
- Conclusion

❖ Overall Description:

A Recommender System predicts the likelihood that a user would prefer an item. Based on previous user interaction with the data source that the system takes the information from, the system is capable of recommending an item to a user. The data may be from other users, or historical trends. Recommendation system is used by various websites.

Example: Product recommendation (Amazon), Movie recommendation (Netflix), Friend recommendation (Facebook), Job recommendation (Linkedin) etc.

Here we build a product based recommendation system that prefer the list of product that user may like on the basis of his previous interest, situation, trends etc.

❖ Specific requirements:

➤ Functional Requirements:

The functions that have to be performed by the proposed system are listed below:

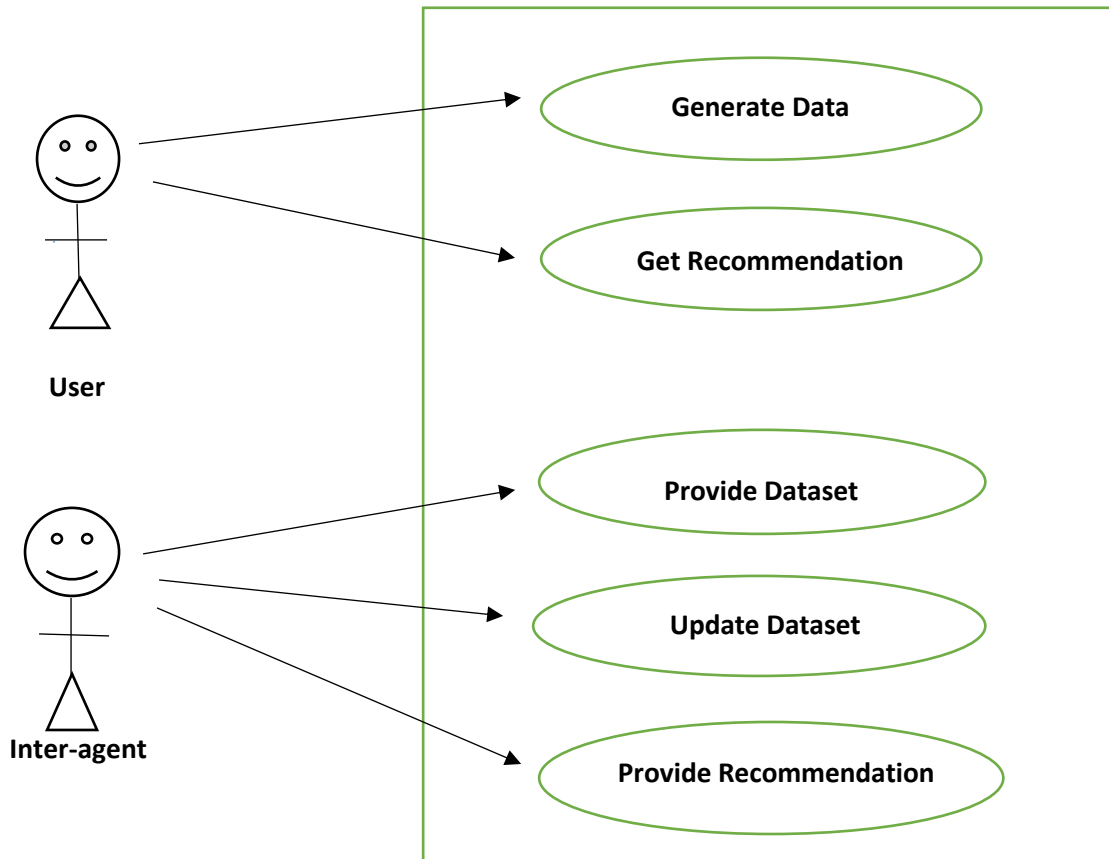
The main use of Collaborative Filtering recommendation algorithm is to predict the products depending upon the item-ratings of items that the user has already rated.

Similarity computation is the bottleneck in a collaborative filtering system. There are several ways of doing it. One of the most popular ways of computing similarity is by using Pearson Correlation co-efficient (PCC) & adjusted cosine similarity.

Neighbours are selected based on the similarity with the current user. Threshold based selection is a technique in which a user is considered to be the neighbour of the current user if the similarity exceeds a threshold value.

Once comparisons between the user and the rest of the community of recommenders (regardless of the method applied) are complete, predicted ratings of unrated content can be computed. As above, there are a number of means of computing these predictions.

This section encapsulates the major software functions and data flow among the participants of the system. The participants include the user and the inter-agent. The overall use case diagram is illustrated below.



Use-case Diagram

➤ Non-functional Requirements:

Following are Non-functional requirements:

- ◆ **Performance:** The software should use very less amount of memory. The processor must be used efficiently by the process. User must complete the operations in a short interval of time.
- ◆ **Reliability:** When user calls a software over a specific period of time, the software must deliver the expected services. If the product provides wrong services the product is not reliable.
- ◆ **Availability:** The software must provide proper service to the user when it is run. The requested services should be delivered in time.
- ◆ **Portability:** It is portable it can be use any system where the specified requirements are satisfied.

➤ System Requirements:

Below are the specifications of software and hardware needed for the execution of the project.

◆ Software Requirements:

The software needed for the demonstration of the project are:

- Operating System : Windows, Linux.
- Language : Python.
- Tools Used : Anaconda, Jupyter Note Book.

◆ Hardware Requirements:

The hardware requirements for the project are:

- Processor : Intel i5
- RAM : 2GB
- HardDisk : 100GB