**Input.**

Load the home service data from the CSV file using pandas.

**Begin**

1. **Preprocessing** –
   1. **Data Exploration** - Check for missing values and duplicate using *isnull().sum()*  and *duplicated.sum() and observed the results.*
   2. **Remove Duplicate and Unwanted Data -** Remove duplicate rows from the dataset using *drop\_duplicates().*
2. **Pivot Table Creation** - Create a pivot table (pt) with 'Service Type' as the index, 'User ID' as columns, and 'Rating' as values. Fill NaN values in the pivot table with 0.
3. **Cosine Similarity Calculation** – Use the *cosine\_similarity()* function from *sklearn* to calculate the cosine similarity between services. The resulting similarity\_scoresimilarity\_score matrix represents the similarity between each pair of services.

where . represents the dot product, and ∥*A*∥ and ∥*B*∥ represent the Euclidean norms of vectors *A* and *B* respectively.

1. **Recommendation System Creation** – Find the index of the input service in the pivot table. Calculate the cosine similarity scores between the input service and all other services. Sort the services based on similarity scores in descending order and select the top 5.
2. **Recommend** – Now recommend the top 5 services similar to given service.

**End**