**Steps and Logic used in Step-4:**

**Step 1:** Creating new DF called ‘NeighborDF’ for only those ASIN's present in ‘purchasedAsinNeighbors ‘

**Step 2:** Preprocessing Step 1: Extracting only those data which has 'SalesRank' not equal -1. This is done because all the other columns’ data entry corresponding to -1 ‘SalesRank’ is 0

Preprocessing Step 2: Scaling 'SalesRank' column using MinMaxScaler and naming the new column ‘MMSalesRank’ (Scaling is done on ‘SalesRank’ column so as to bring high ranges of rank between 0 and 1, thus can be utilized in composite score calculation)

**Step 3: Coming up with a Composite Measure:**

Criteria 1: Giving Priorities to those ASIN's (Node) having the best ‘SalesRank’ and best ‘Rating Conversion Rate’

Ex: We want to give priority to those Products where 10 people have rated the product as 4.5, rather than to a product where 1 person has rated it as 5

**Rating Conversion Rate = Total Reviews/ (Avg Ratings+1)**

*\*Note: Add 1 in den to handle 0 Avg Ratings*

Now, Rating conversion Rate that we get form the above formula will be divided with the Scaled SalesRank column i.e. ‘MMSalesRank’ in order to give more priority to nodes based on Best Sales Rank

**Rating Conversion Rate / (MMSalesRank+1)**

*\*Note: Add 1 in den to handle 0 MMSalesRank*

Criteria 2: Selecting only those ASIN's from Criteria 1 based on best Node Centrality Measure

Multiplying Degree of Centrality with the final scores that we received from Criteria 1, in order to give more weightage to nodes which has high Degree of Centrality (Popularity)

Therefore, final Composite measure formula comes out to be:

**Composite Measure= (Rating Conversion Rate/(MMSalesRank+1)) \* Degree of Centrality**

*\*Note: Didn’t consider Clustering coefficient in calculating the composite measure because of its nature of overshadowing nodes with high degree of centrality i.e. Popular nodes Ex: Nodes which are having Degree of centrality as 30, could have Clustering coefficient as 0*

**Step 4:** Sorting DF based on Composite Measure in descending order for making Top 5 recommendations