**1. Introduction**

A convenience store did some analytics on the products its customers were purchasing. They analyzed thousands of transactions and observed an interesting thing. At a certain time of the day, when people shop between 6pm and 9 pm, people who buy diapers also buy beers. A plausible explanation to this observation was that when a family runs out of diapers, usually the husband has to go get them from the store. And since 6pm – 9pm is usually after work, the husband fancies a beer. Based on this observation, the store can arrange products in order to maximize its sales.

Another interesting observation that can me made is related to bread and milk. Bread and milk are usually bought together. In most cases, bread and milk are kept far apart from each other. By doing this, the customer has to walk through the entire store to get bread and milk and therefore he comes across different products and is more likely to pick up an additional product apart from bread and milk.

**2. Apriori**

Apriori is about people who bought something also bought something. The Apriori algorithm is made up of three parts – Support, Confidence, Lift.

**2.1 Support**

Example: Out of 100 people, 10 people watched the movie *Avengers.* Therefore,

*Support(Avengers) = 10/100 = 10%*

**2.2 Confidence**

Example: Lets say 40 people out of 100 watched *Avengers.* Out of those 40, only 7 people have watched *Interstellar.* Therefore,

**2.3 Lift**

**2.4 Algorithm**

Step 1: Set a minimum support and confidence

Step 2: Take all the subsets in transactions having higher support than minimum support

Step 3: Take all the rules of these subsets having higher confidence than minimum confidence

Step 4: Sort rules by decreasing lift

**3. Eclat**

The ECLAT algorithm stands for Equivalence Class Clustering and bottom-up Lattice Traversal. This approach is faster than the Apriori algorithm.

**3.1 Support**

Example: Out of 100 people, 10 people watched the movie *Avengers.* Therefore,

*Support(Avengers) = 10/100 = 10%*

***M*** in the above stands for a set of items and not just a single item. Thus, M could be a set of more than one movie.

**3.2 Algorithm**

Step 1: Set a minimum support

Step 2: Take all the subsets in transactions having higher support than minimum support

Step 3: Sort these subsets by decreasing support