Collaborating Filtering is an approach used by recommender systems. It generates automatic predictions about a user's interests by collecting preference or like data from a large number of users. This study analyzes a variety of collaborative filtering methods, both classic and recently developed state-of-the-art. It is conducted in a variety of experimental situations. Its major goal is to produce findings that determine which algorithm works best in a given circumstance. The research looks into topics including recommendation systems, collaborative filtering, memory-based and model-based CF, and evaluation measures. The experimental research of various CF algorithms is dependent on criteria such as data quantity and density, user count, and others. The experimental testing of various CF approaches are based on data size and density dependencies, user count dependencies, item count dependencies, and multivariate dependencies, including prediction loss.

The experiment then evaluates the algorithms' efficacy in a variety of scenarios using metrics such as accuracy comparison, asymmetry and rank-based metrics, and rank-based assessment measures

Finally, while deciding which strategy to utilize, the experiments consider computational

concerns.

Finally, three significant findings are presented in the study:

• In terms of accuracy prediction, the Matrix Factorization technique exceeds all others.

• Prediction accuracy varies according on the number of users, the number of items, and so

• A complex relationship exists between forecast accuracy, variance, and computation

complexity.

A complicated relationship occurs between prediction accuracy, variance, processing time, and memory use while choosing the optimum recommendation system algorithm.