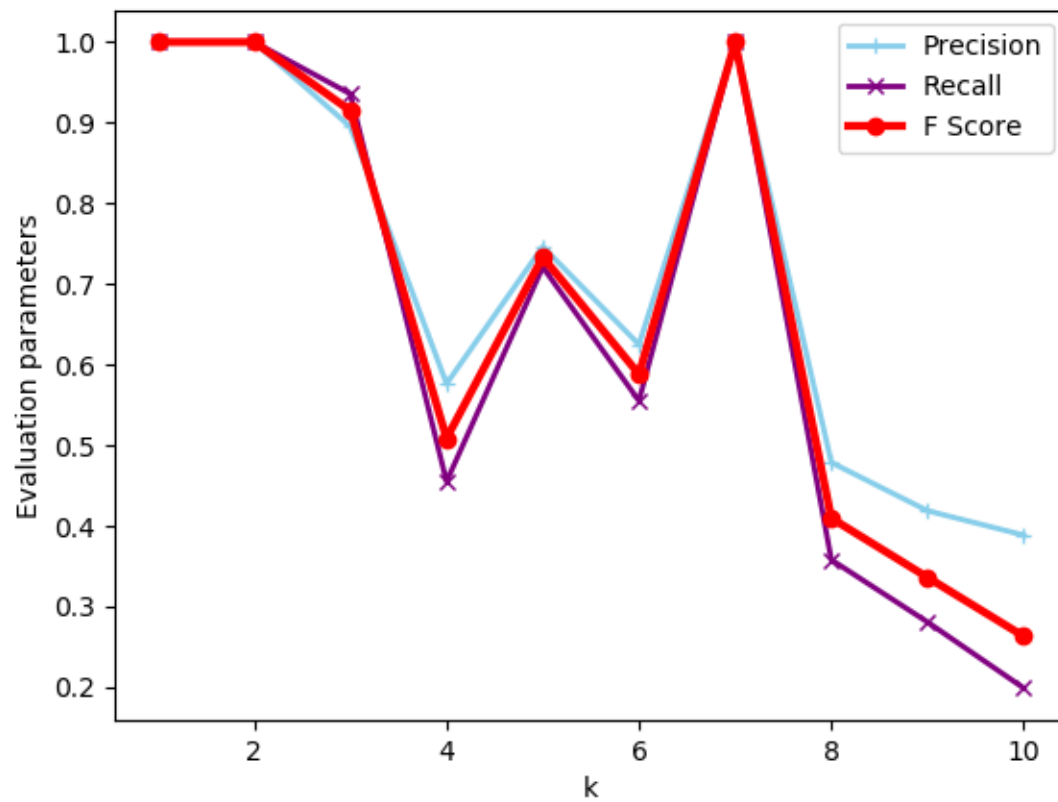
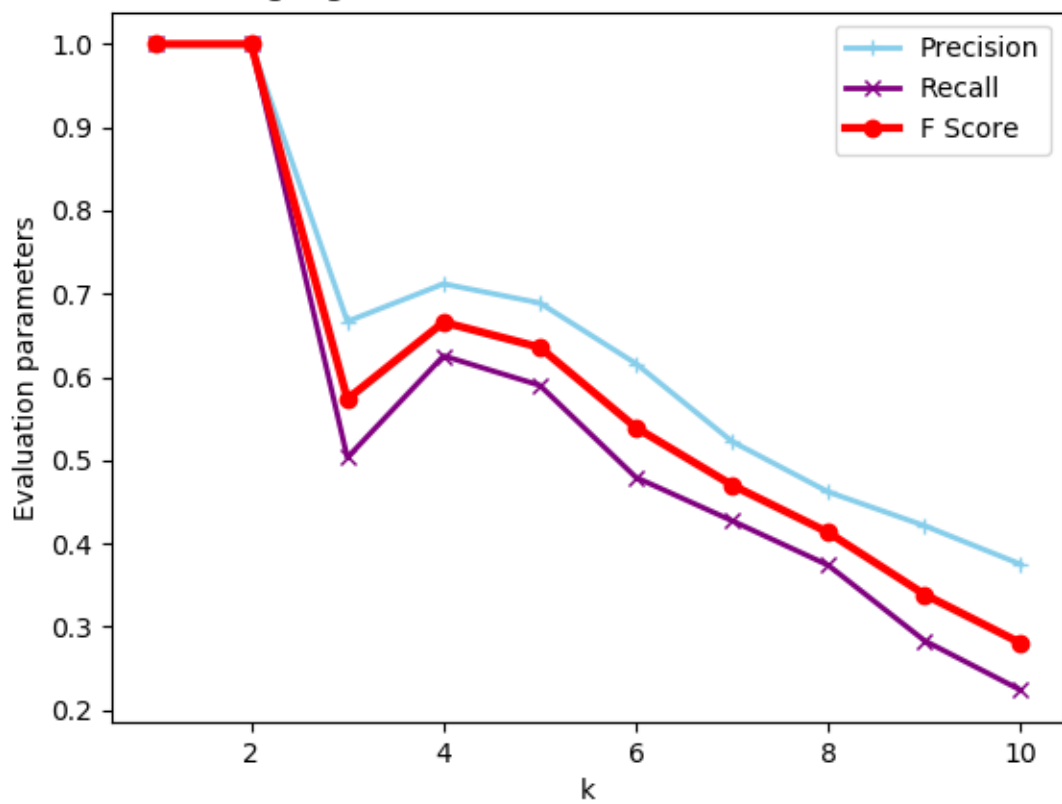


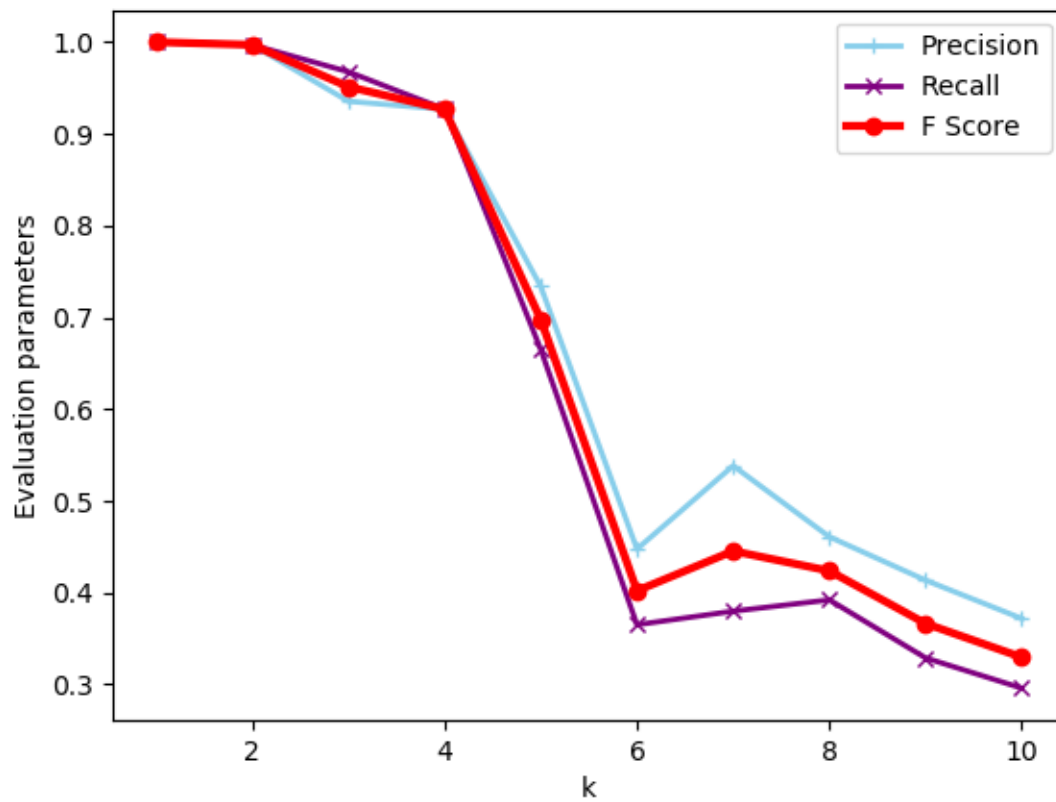
K-means clustering algorithm with Euclidean distance.



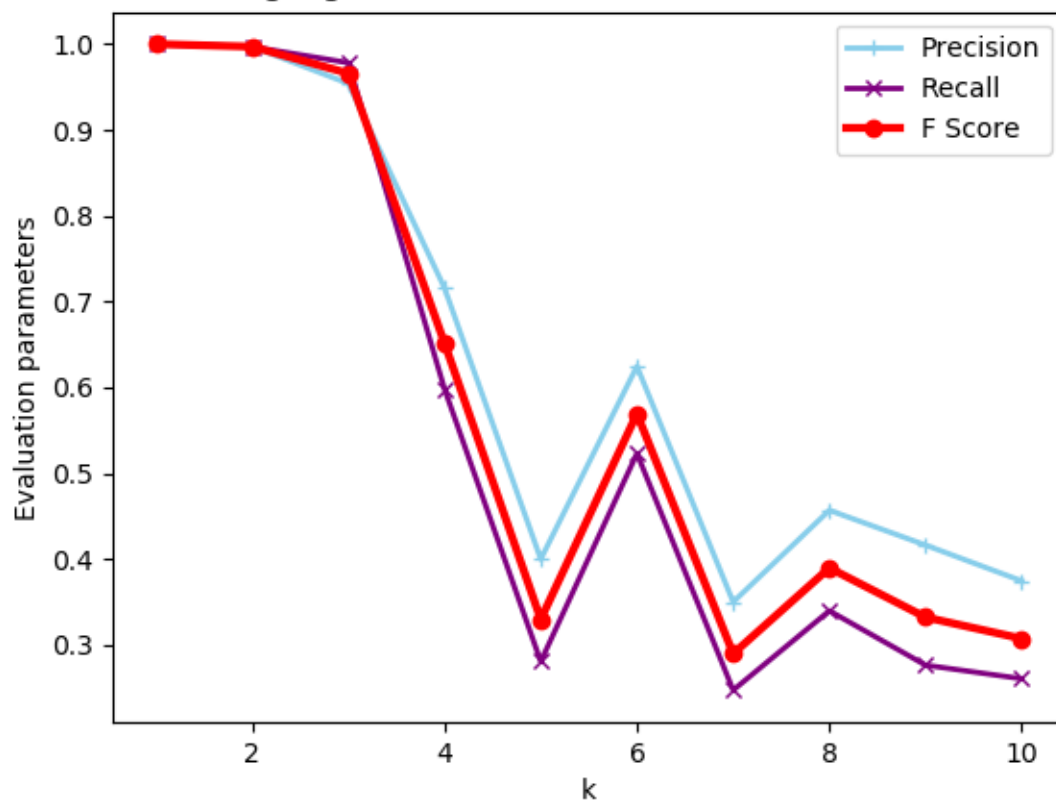
K-means clustering algorithm with Euclidean distance and L2 normalization

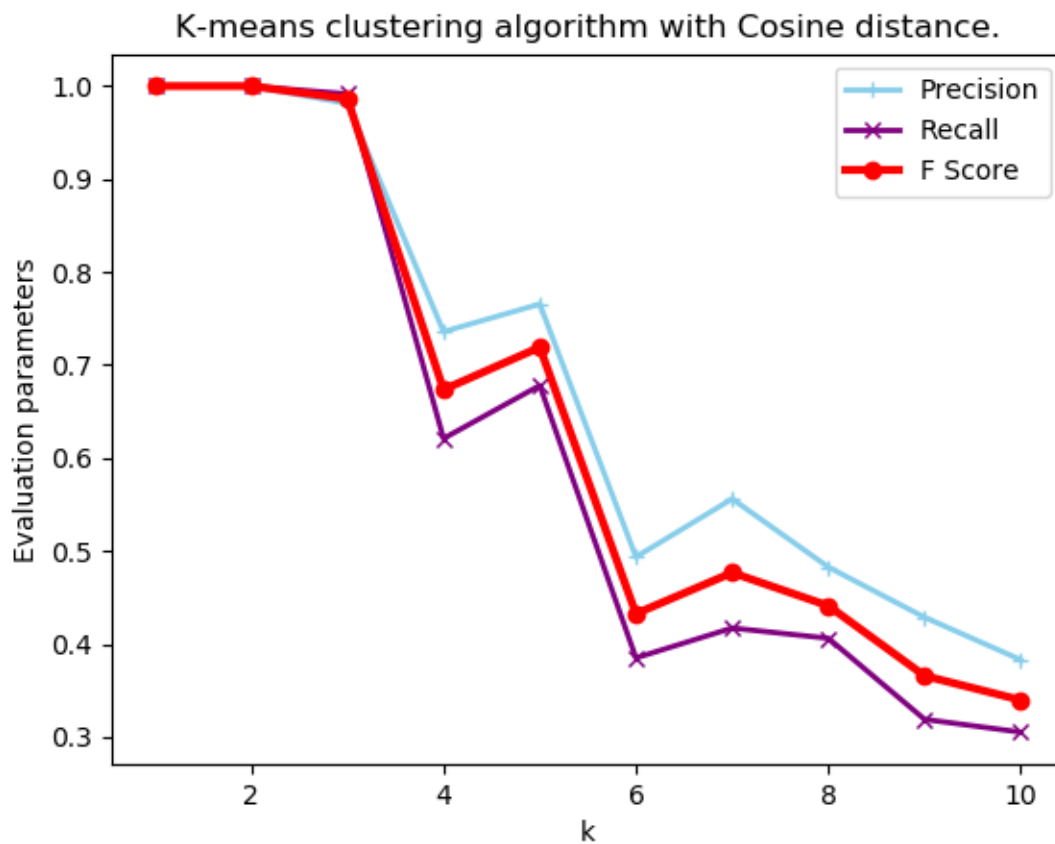


K-means clustering algorithm with Manhattan distance.



K-means clustering algorithm with Manhattan distance with L2 normalization





Summary

Since we have priori knowledge that the data contains 4 categories, the value $k=4$ is our main focus in determining which algorithm was best suited for the job.

From the graphs above, the graph titled "K-means clustering algorithm with Manhattan distance." Shows the highest values for Precision, Recall and F Score when $k=4$.

I therefore concluded that carrying out K-means with Manhattan Distance and no normalization of data was the best suited method for maximum results.