**3.5 Advantages**   
  
1) KNN is a perfect first step for machine learning beginners as it is very easy to explain, simple to understand, and extremely powerful. It yields highly competitive results, despite its simplicity. A fantastic application of this is the use of KNN in collaborative filtering algorithms for recommender systems. This is the go-to technique behind the screens of Amazon’s Recommender Systems.

2) KNN is a non-parametric algorithm and does not require any assumptions on the data distribution. This gives KNN an extra edge in specific settings where the data is highly unusual. This is the reason for KNN being the first choice when there is no prior knowledge or very little knowledge about the data distribution.

3) It is a versatile supervised machine learning algorithm that can be used for both regression and classification problems and also search.4) This algorithm does not have an explicit training step as it is an instance-based learning algorithm. The training step of KNN is pretty fast as it involves only storing feature vectors and class labels of the training samples. Considering the minimal training time, KNN can be a perfect choice for off-the-bat analysis of a dataset on which you are planning to run complex algorithms.

5) Most of the classification algorithms are by default hardcoded for the binary setting. Using them for multi-class problems requires extension from binary or transformation to binary. KNN easily lends itself with multiclass datasets.

6) Flexible distance criteria to choose from when building a KNN model – Euclidean, Manhattan, and Hamming distance. Each of the distance functions has a different purpose based on the type of dataset. Based on the nature of features, it’s possible to choose the best option -Manhattan and Euclidean for numeric, and Hamming for categorical features.