The time complexity of the algorithm used is O(n^2) where n is the number of sentences in the input. This is due to the necessity to compare every sentence in the input to every other sentence. The algorithm is optimized by checking each pair of sentences only once.
The space complexity of the algorithm is O(n) due to the storage of each sentence of the input.

One of the main downfalls of the algorithm used is that although it is relatively efficient for one set of provided data, it would require recomputing sentence distances for any new data points provided after the initial data has been analyzed. With another week I would work to apply a clustering algorithm like k-means, which would be more computationally expensive for clustering initial input data, but would provide a classifier that would allow for quick insertion of new data points into appropriate clusters.