**MACHINE-LEARNING-WORKSHEET-2**

Solution:1 D

Solution:2 E

Solution:3 A

Solution:4 A

Solution:5 B

Solution:6 B

Solution:7 A

Solution:8 D

Solution:9 F

Solution:10 A

Solution:11 F

Solution:12 E

**Solution:13** Yes, K is sensitive to outliers. Because K includes the mean and the mean score is affected by the outliers. The k-means algorithm updates the cluster centers by taking the average of all the data points that are closer to each cluster center. When all the points are packed nicely together, the average makes sense. However, when you have outliers, this can affect the average calculation of the whole cluster. As a result, this will push your cluster center closer to the outlier.

**Solution:14** Other clustering algorithms with better features tend to be more expensive. In this case, k-means becomes a great solution for pre-clustering, reducing the space into disjoint smaller sub-spaces where other clustering algorithms can be applied. Following are the advantages of the k-means:

1.Relatively simple to implement.

2.Scales to large data sets.

3.Guarantees convergence.

4.Can warm-start the positions of centroids.

5.Easily adapts to new examples.

6.Generalizes to clusters of different shapes and sizes, such as elliptical clusters.

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**Solution:15** No, K-means is not a deterministic algorithm. K-means is a non- deterministic algorithm. This means that running the algorithm several times on the same data, could give different results.