

## <u>MACHINE LEARNING – WORKSHEET</u> (CLUSTERING)

#### Q1 to Q12 have only one correct answer. Choose the correct option to answer your question.

- 1. Movie Recommendation systems are an example of:
  - 1. Classification
  - 2. Clustering
  - 3. Reinforcement Learning
  - 4. Regression

## Options:

- a. 2 Only
- b. 1 and 2
- c. 1 and 3
- d. 2 and 3
- e. 1, 2 and 3
- f. 1, 2, 3 and 4
- **2.** Sentiment Analysis is an example of:
  - 1. Regression
  - 2. Classification
  - 3. Clustering
  - 4. Reinforcement Learning

#### Options:

- a. 1 Only
- b. 1 and 2
- c. 1 and 3
- d. 1, 2 and 3
- e. 1, 2 and 4
- f. 1, 2, 3 and 4
- **3.** Can decision trees be used for performing clustering?
  - a. True
  - b. False
- **4.** Which of the following is the most appropriate strategy for data cleaning before performing clustering analysis, given less than desirable number of data points:
  - a. Capping and flooring of variables
  - b. Removal of outliers

#### Options:

- a. 1 only
- b. 2 only
- c. 1 and 2
- d. None of the above

## WORKSHEET



- **5.** What is the minimum no. of variables/ features required to perform clustering?
  - a. 0
  - b. 1
  - c. 2
  - d. 3
- **6.** For two runs of K-Mean clustering is it expected to get same clustering results?
  - a. Yes
  - b. No
- 7. Is it possible that Assignment of observations to clusters does not change between successive iterations in K-Means
  - a. Yes
  - b. No
  - c. Can't say
  - d. None of these
- **8.** Which of the following can act as possible termination conditions in K-Means?
  - 1. For a fixed number of iterations.
  - 2. Assignment of observations to clusters does not change between iterations. Except for cases with a bad local minimum.
  - 3. Centroids do not change between successive iterations.
  - 4. Terminate when RSS falls below a threshold.

#### Options:

- a. 1, 3 and 4
- b. 1, 2 and 3
- c. 1, 2 and 4
- d. . All of the above
- **9.** Which of the following can act as possible termination conditions in K-Means?
  - 1. K- Means clustering algorithm
  - 2. Agglomerative clustering algorithm
  - 3. Expectation-Maximization clustering algorithm
  - 4. Diverse clustering algorithm

#### Options:

- a. 1 only
- b. 2 and 3
- c. 2 and 4
- d. 1 and 3
- e. 1,2 and 4
- f. All of the above
- **10.** Which of the following algorithms is most sensitive to outliers?
  - a. K-means clustering algorithm
  - b. K-medians clustering algorithm
  - c. K-modes clustering algorithm
  - d. K-medoids clustering algorithm

# FLIP ROBO

## WORKSHEET

- **11.** How can Clustering (Unsupervised Learning) be used to improve the accuracy of Linear Regression model (Supervised Learning):
  - 1. Creating different models for different cluster groups.
  - 2. Creating an input feature for cluster ids as an ordinal variable.
  - 3. Creating an input feature for cluster centroids as a continuous variable.
  - 4. Creating an input feature for cluster size as a continuous variable.

## Options:

- a. 1 only
- b. 1 and 2
- c. 1 and 4
- d. 3 only
- e. 2 and 4
- f. All of the above
- **12.** What could be the possible reason(s) for producing two different dendrograms using agglomerative clustering algorithms for the same dataset?
  - a. Proximity function used
  - b. of data points used
  - c. of variables used
  - d. B and c only
  - e. All of the above

### Q13 to Q15 are subjective answers type questions, Answers them in their own words briefly

- **13.** Is K sensitive to outliers?
- **14.** Why is K means better?
- **15.** Is K means a deterministic algorithm?