MACHINE LEARNING

Q1 to Q11 have only one correct answer. Choose the correct option to answer your question.

1. Movie Recommendation systems are an example of:
   i) Classification
   ii) Clustering
   iii) Regression
      Options:
   a) 2 Only
   b) 1 and 2
   c) 1 and 3
   d) 2 and 3
   Answer:d]2 and 3

2. Sentiment Analysis is an example of:
   i) Regression
   ii) Classification
   iii) Clustering
   iv) Reinforcement
      Options:
   a) 1 Only
   b) 1 and 2
   c) 1 and 3
   d) 1, 2 and 4
   Answer:d]1,2 and 4

3. Can decision trees be used for performing clustering?
   a) True
   b) False
   Answer:a]True

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:
   i) Capping and flooring of variables
   ii) Removal of outliers
      Options:
   a) 1 only
   b) 2 only
   c) 1 and 2
   d) None of the above
   Answer:a] 1 only

5. What is the minimum no. of variables/ features required to perform clustering?
   a) 0
   b) 1
   c) 2
   d) 3
   Answer:b]1

6. For two runs of K-Mean clustering is it expected to get same clustering results?
   a) Yes
   b) No
   Answer:b]No

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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
   Answer:a]Yes

8. Which of the following can act as possible termination conditions in K-Means?
   i) For a fixed number of iterations.
   ii) Assignment of observations to clusters does not change between iterations. Except for cases witha bad local minimum.
   iii) Centroids do not change between successive iterations.
   iv) 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
   Answer:d]All of the above

9. 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
   Answer:K-means clustering algorithm

10. How can Clustering (Unsupervised Learning) be used to improve the accuracy of Linear Regression model (Supervised Learning):
    i) Creating different models for different cluster groups.
    ii) Creating an input feature for cluster ids as an ordinal variable.
    iii) Creating an input feature for cluster centroids as a continuous variable.
    iv) Creating an input feature for cluster size as a continuousvariable.
    Options:
    a) 1 only
    b) 2 only
    c) 3 and 4
    d) All of the above
    Answer:d]All of the above

11. 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) All of the above
    Answer:d]All of the above

FLIP ROBO

MACHINE LEARNING

Q12 to Q14 are subjective answers type questions, Answers them in their own words briefly

12. Is K sensitive to outliers?

Answer:The k-means clustering algorithm is sensitive to outliers,because a mean is easily influenced by extreme value.K-medoids clustering is a variant of K-means that is more robust to noises and outliers.

13. Why is K means better?

Answer:K-means clustering is a form of unsupervised learning,which means that it does not require training data.It guarantees convergence.It Can warm-start the positions of centroids.It Easily adapts to new ex.It generalizes to clusters of different shapes and sizes,such as elliptical clusters.

14. Is means a deterministic algorithm?

Answer:In computer science,a deterministic algorithm is an algorithm that,given a particular input,will always produce the same output,with the underlying machine always passing through the same sequence of states.