Naive Bayes & Advanced Algorithms

This assignment will challenge your understanding of Naive Bayes, Support Vector Machines (SVM), K-means, and Association Analysis.

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10 نقاط

* :In Naive Bayes, the assumption of feature independence means

- Features are completely unrelated to each other
- Features are conditionally independent given the class
- Features have equal importance in classification

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* :The Naive Bayes algorithm calculates probabilities using

- Maximum likelihood estimation
- Entropy-based splitting
- Mean squared error
- Information gain

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* :SVM is a supervised learning algorithm used for

- [ ] Regression
- [ ] Clustering
- [x] Classification
- [ ] Association Analysis

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* :The objective of SVM is to

- ○ Maximize information gain
- ◉ Maximize margin between different classes
- ○ Minimize entropy
- ○ Minimize mean squared error

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* :The kernel trick in SVM allows for

- ○ Feature selection
- ◉ Non-linear classification boundaries
- ○ Regularization

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* :In SVM, support vectors are

- [x] Data points closest to the decision boundary
- [ ] Data points in the training set with the highest weight
- [ ] Misclassified data points
- [ ] Centroids of each cluster

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* :K-means is an example of a(n)

- [ ] Supervised learning algorithm
- [x] Unsupervised learning algorithm
- [ ] Reinforcement learning algorithm

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* :The value of K in K-means refers to

- [ ] The number of features in the dataset
- [x] The number of clusters to be formed
- [ ] The number of iterations in the algorithm
- [ ] The dimensionality of the data points

10 نقاط * The initialization of K-means algorithm can affect the final clustering result because:

- It determines the number of clusters
- It influences the convergence of the algorithm (selected)
- It affects the choice of distance metric
- It determines the feature weights

10 نقاط * The support of an itemset in association analysis is defined as:

- How frequent an item appears in the itemset. (selected)
- The confidence of the association rule
- The lift of the association rule
- The length of the itemset

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