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**EXERCISE-3**

**3. Demonstration of Association rule process on dataset**

**contactlenses.arff using apriori algorithm**

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1. Perform the basic pre-processing operations on data relation such as removing an attribute and filter attribute bank data
2. What is **Bayesian belief network** ?explain with an example
3. **To list all the categorical(or nominal) attributes and the real valued attributes** using Weka mining(german credit data)

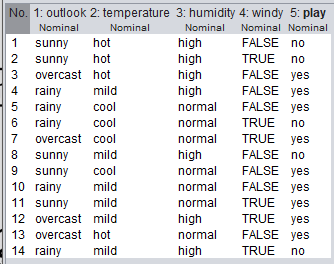
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 |
| 1 | 0 |  |  |  |  |
| 2 | 9 | 0 |  |  |  |
| 3 | 3 | 7 | 0 |  |  |
| 4 | 6 | 5 | 9 | 0 |  |
| 5 | 11 | 10 | 2 | 8 | 0 |

1. Explain agglomerative methods and construct a dendrogram for below distance matrix using single linkage

# Load each dataset into Weka and perform Naive-bayes classification(contact-lenses). Interpret the results obtained

1. Explain Naïve-Bayers classifiers and predict instance to the class (weather data set)

if outlook=rainy,temp=cool, humidity=high, windy=true, play =?



1. Demonstrate performing classification on data set Extract if-then rules from the decision tree generated by the classifier, Observethe confusion matrix and derive Accuracy, F-measure, TPrate, FPrate, Precision and Recall values. Apply cross-validation strategy with various fold levels and compare the accuracy results.(iris data)
2. Explain divisive method and construct a dendrogram for below distance matrix

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E |
| A | 0 |  |  |  |  |
| B | 1 | 0 |  |  |  |
| C | 2 | 2 | 0 |  |  |
| D | 2 | 4 | 1 | 0 |  |
| E | 3 | 3 | 5 | 3 | 0 |

1. To create a Decision tree by cross validation training data set using Weka mining tool
2. Describe the general approaches to solve a classification problem
3. : Demonstrate performing clustering on data sets Load each dataset into Weka and run simple k-means clustering algorithm with different values of k (number of desired clusters). Study the clusters formed. Observe the sum of squared errors and centroids, and derive insights.
4. Consider the following data, apply KNN algorithm to find class when acid durability=3 and strength=7

|  |  |  |  |
| --- | --- | --- | --- |
| name | acid durability | strength | class |
| Type1 | 7 | 7 | Bad |
| Type2 | 7 | 4 | Bad |
| Type3 | 3 | 4 | Good |
| Type4 | 1 | 4 | Good |

1. Explore visualization features of Weka to visualize the clusters. Derive interesting insights and explain.
2. Explain agglomerative methods and construct a dendrogram for below distance matrix using complete linkage

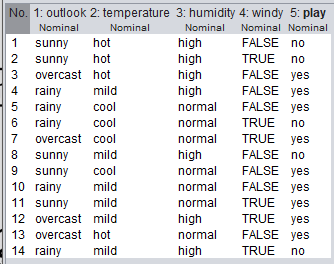
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | | 5 |
| 1 | 0 |  |  |  | |  |
| 2 | 9 | 0 |  |  | |  |
| 3 | 3 | 7 | 0 |  | |  |
| 4 | 6 | 5 | 9 | 0 | |  |
| 5 | 11 | 10 | 2 | 8 | 0 | |

1. Use options cross-validation and percentage split and repeat running the Linear Regression Model. Observe the results and meaningful results.
2. :Sample Programs using German Credit Data
3. Write a program to implement Bayes classification technique(contact lenses)

18.Write **KNN** classification algorithm with an example

1. To predict with the smallest total error using rule based on OneR attribute
2. Demonstrate of clustering rule process by using simple K-mean algorithm
3. TO PREDICT THE RESULT FROM A GIVEN DATASET USING DECISION TREE4 J48 ALGORITHM

Construct a Decision tree using J48 for blow data set



1. To Predict the most probable class “contact –lenses” by computer on each instance based on training set using Baye’s theorem