CPS 844 Lab 7: Association Rules Classification

The purpose of this lab is to give you experience with generating association rules.

Write a Python script that performs the tasks described below. Submit the .py file on D2L. Please note that if you submit your file in some other format besides .py or (.txt should you meet an issue), then your mark will at most be 60%.

Association Analysis

Association rule mining is a technique to identify underlying relations between different items. Just like it was demo-ed during one of the lectures, we will use the apyori library, where all of the code for generating the association rules has been implemented.

1. (0 points) Reload the dataset weather.csv if you have modified it.
2. (15 points) Discretize the continuous data as follows:
    a. temperature: create 3 equal-width bins, where the original temperature values are replaced by the labels 'cool', 'mild' or, 'hot'
    b. humidity: create 2 equal-width bins, where the original humidity values are replaced by the labels 'normal' or 'high'
3. (10 points) Because of the implementation of the apyori library, you will also need to convert the boolean values from the attribute 'windy' to string. Hint: consider calling the method ‘map’ on the column ‘windy’ of your dataframe, in order to ‘map’ the boolean values to any string values.
4. (5 points) As seen during the lecture, the apyori library requires inputs in the form of a list of lists. Convert the whole dataset as a big list, where each ‘record’ is an inner list within the big list (you can re-use the code posted for the demo on D2L).
5. (5 points) You are ready to call the apriori function from the apyori module (you can re-use the code posted for the demo on D2L). You can start with a minimum support threshold of 0.28 and a minimum confidence threshold of 0.5.
6. (5 points) Print out each of the rules generated, along with their corresponding support and confidence values. Play with the minimum support and confidence thresholds to see what happens (you can re-use the code posted for the demo on D2L).