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Case Study

Reading: Association Rule Case Study

2h

Discussion Prompt: Association Rule Exploration Exercise

2h

Graded Assignment: Self Reflection

Started

Self Reflection

Instructions

Review Learning Objectives

Assignment details

Due

Mar 3, 11:59 PM IST

Attempts

Unlimited

1. Reflecting on the case study, what was the most challenging aspect of applying association rules analysis to solve the real-world problem? How did you overcome this challenge, and what did you learn from it?

1 point

It's the preprocessing step. The python implementation of the apriori and fp-growth algorithms expect the input data-structure as transaction encoder, not as pandas Dataframe or numpy darray. We need to create a TransactionEncoder object and fit the dataset into it, using the module mixtend.preprocessing, but it accepts a list of list instead of a Dataframe, so a prior conversion is needed.

Your answer cannot be more than 10000 characters.

Resume

2. Describe a situation where you encountered technical problems while applying association rules analysis to the case study data. How did you troubleshoot and resolve these issues to ensure accurate results?

1 point

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I particularly had problems, since I assumed that the TransactionEncoder would accept the dataset in numpy ndarray form, so just converted the pandas Dataframe to numpy. But later from the mlxtend documentation and a stackoverflow post (https://stackoverflow.com/questions/6272243/apriori-algorithm-in-data-mining-how-to-resolve-typerror-regarding-the-trans/77869810#77869810), I came to know that it expects it in list of list form, and the np.nan values must be excluded, each transaction has to be represented as just a list of items.

Your answer cannot be more than 10000 characters.

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3. Reflect on the interpretation of the association rules analysis results. How did you derive actionable insights from the model outcomes to make data-driven decisions for the real-world problem?

1 point

Learnt a few insightful association rules from the Kaggle dataset, for example the rule burgers -> eggs (with confidence 0.33 and lift 1.8), which can be interpreted as buying burgers is often accompanied by buying eggs and it also increases the probability of buying eggs, and the rules such as (spaghetti, olive oil) -> (mineral water) . The store can keep these items together or at nearby locations, so that the customers can buy them easily, increasing the sale.

Your answer cannot be more than 10000 characters.

4. How did the application of association rules analysis in the case study scenario enhance your critical thinking and problem-solving skills? Provide specific examples of how association rules analysis aided you in making informed decisions [Practice this question as if you were in an interview!]

1 point

As described in the last section, a few insightful association rules were output by the apriori and the fp-growth algorithm, for example the rule (spaghetti, olive oil) -> (mineral water), with confidence 0.45 and lift 1.88. It implies that it will be highly likely to have a better sale of mineral water if it is kept in the nearby location as spaghetti and olive oil, which should also be kept nearby.

Your answer cannot be more than 10000 characters.

5. What were the most valuable lessons you learned from completing the case study? How do you plan to apply these insights to further develop your association rules analysis skills and grow as a data analyst?

1 point

Preprocessing the data is often the most critical part of data analysis, both in terms of the analysis time and the quality of the insight obtained from the outputs, since the algorithm is as good as the data provided to it. Also, the whether the insights add value to business or not (it really finds some hidden, useful patterns in the dataset) that has to tested after the actionable insights has been implemented (e.g., with a/b testing).

Your answer cannot be more than 10000 characters.

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