

E-Business Intelligence and Relationships

Brain dump SS18

metadata:

date, time: 13th July, 8 am =(

location: H4, Lange Gasse, Nuremberg

max. points: $18 \times 5 = 80$

duration: 90 minutes

non programmable calculator allowed

reward: 5 ects

exam questions:

A1) Association Rules & Image Mining

a) Apriori Algorithm: Apply algorithm to given datasets.

b) FP-Growth: Describe the 2 steps of FP-growth

c) Given:

Rule 1 with Support 5% and Confidence 90%

Rule 2 with Support 20% and Confidence 75%

Which rule is better. Explain why.

d) Process of Image Mining, Example in an online shop

A2) Decision Trees

a) Semantic of Leaf's in a Decision Tree

b) Calculate Information Gain of an attribute

c) Draw a decision tree from the data set

d) Give some recommendation (based on predicting new instances)

e) very complex tree: what's the problem, variables to prevent

A3) Neural Net

a) Calculate activation value of an output node

b) Calculate error signal & new weight for an edge

c) Meaning of thick edges in neural nets

d) Deep Learning

e) Learning Rate: how it influences the training process

A4) Support Vector Machine

a) Calculate distance between hyperplane and data set.

b) given example of datasets and hyperplanes plotted. give recommendation which data set to choose from the samples. (based on probability of being positive)

e) GUEST LECTURE (6 points): Adidas customer segmentation

A5) Social Network Analysis and Evaluation

a) Difference between Centrality and Centralization

b) calculate Closeness Centralization of a network, compare 2 networks, which would you choose for a campaign

c) calculate Precision, Recall and F1 (given: TP, FP, TF, FF)

d) which metric(s) should you use if you want to avoid False Positives

(?) not sure if it was in the context of SVM: high test error, high application error. what's the problem? So the context is very relevant for the question. :D e.g. SVM: not possible to separate data -> transform to higher dimension. - other algorithms: classic underfitting, model not strong enough)

Additional information: the guest lecture was not recorded. (ask one of your colleges to take notes if u can't attend) (guest lecture question was 6 out of 80 points)

Good luck :)

Tenma