



Week 5 Video 3

Relationship Mining

Association Rule Mining

Association Rule Mining

- Try to automatically find simple if-then rules within the data set

Example

- Famous (and fake) example:
 - People who buy more diapers buy more beer
- If person X buys diapers,
- Person X buys beer
- Conclusion: put expensive beer next to the diapers

Interpretation #1

- Guys are sent to the grocery store to buy diapers, they want to have a drink down at the pub, but they buy beer to get drunk at home instead

Interpretation #2

- There's just no *time* to go to the bathroom during a major drinking bout

Serious Issue

- Association rules imply causality by their if-then nature

- But causality can go either direction

If-conditions can be more complex

- If person X buys diapers, and person X is male, and it is after 7pm, then person Y buys beer

Then-conditions can also be more complex

- If person X buys diapers, and person X is male, and it is after 7pm, then person Y buys beer and tortilla chips and salsa
- Can be harder to use, sometimes eliminated from consideration

Useful for...

- Generating hypotheses to study further
- Finding unexpected connections
 - ▣▣ Is there a surprisingly ineffective instructor or math problem?
 - ▣▣ Are there e-learning resources that tend to be selected together?

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