

**Data Mining, CSCI 347, Fall 2019**  
**Association Rules, Sept. 27**

Association Rules

- Can predict any attribute and combinations of attributes
- The resulting rules are not intended to be used together as a set
- Coverage (support) and accuracy (confidence) are defined as for coverage rules (support is sometimes given as a count and sometimes as a probability)
- Immense number of possible associations so typically specify the minimum support and accuracy needed.

Item is an attribute-value pair

Item-set – all items occurring in a rule

Find association rules with a minimum coverage and accuracy

Two stages for generating rules that meet a minimum coverage and accuracy:

1. Generate all item-sets which have at least the minimum coverage
  - a. Generate all one-item sets with at least the minimum coverage
  - b. Use this to generate the two-item sets, three-item sets, and so on
2. For each item set generated above, determine all of the rules which can be gotten from the item set and which have at least the minimum accuracy
  - a. Each rule must have something as its consequence, but the antecedent can be empty
  - b. A and B is the same as B and A (commutativity)
  - c. For an n-item set, there will be  $2^n - 1$  possible rules