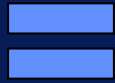# Association Analysis

After this video you will be able to..

- Explain what association analysis entails
- List some applications of association analysis
- Define what an item set is

Association Analysis

Goal: Find rules to capture associations between items.

Association Analysis Examples

- **Have sales on related items often purchased together**
- **Recommend items based on purchase/browsing history**
- **Identify effective treatments to patients**

Analysis Association Overview

ID	Items
1	diapers, bread, milk
2	bread, diapers, beer, eggs
3	milk, diapers, beer, butter
4	bread, milk, diapers, beer
5	bread, milk, diapers, butter

Item Sets

{bread, milk} => {diapers}
{milk) => {bread}

Rules

If bread and milk are bought, then diaper is also bought

Association Analysis Steps

1. **Create item sets**

   {bread}   {butter}   {bread, milk}   {milk, beer}

2. **Identify frequent item sets**

   {bread}   {bread, milk}

3. **Generate rules**

   {bread, milk} => {diapers}

Association Analysis Notes

Unsupervised

Usefulness of rules is subjective

Need to determine how to use rules

Interpretation and analysis required to make sense of resulting rules!

Association Analysis Summary

- Find rules to capture associations between items

- Rules have intuitive appeal

- Resulting rules require analysis and interpretation using domain knowledge