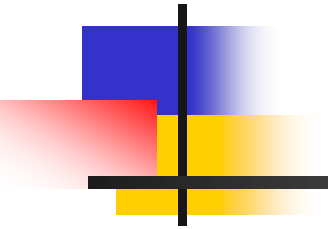


Association Rules Demo

Dr. Goutam Chakraborty

Topics for This Session

- Demonstration of SAS EM
  - Market basket analysis
  - Sequence analysis

The **BANK** data set contains service information for nearly 8,000 customers. There are three variables in the data set, as shown in the table below.¶

Name	Model Role	Measurement Level	Description
ACCOUNT	ID	Nominal	Account Number
SERVICE	Target	Nominal	Type of Service
VISIT	Sequence	Ordinal	Order of Product Purchase

The **BANK** data set has over 32,000 rows. Each row of the data set represents a customer-service combination. Therefore, a single customer can have multiple rows in the data set, each row representing one of the products he or she owns. The median number of products per customer is three.¶

The 13 products are represented in the data set using the following abbreviations:¶

- ATM automated teller machine debit card¶
- AUTO automobile installment loan¶
- CCRD credit card¶
- CD certificate of deposit¶
- CKCRD check/debit card¶
- CKING checking account¶
- HMEQLC home equity line of credit¶
- IRA individual retirement account¶
- MMDA money market deposit account¶
- MTG mortgage¶
- PLOAN personal/consumer installment loan¶
- SVG saving account¶
- TRUST personal trust account¶

Data: Bank (First 15 rows)

	ACCOUNT	SERVICE	VISIT
1	500026	CKING	1
2	500026	SVG	2
3	500026	ATM	3
4	500026	ATM	4
5	500075	CKING	1
6	500075	MMDA	2
7	500075	SVG	3
8	500075	ATM	4
9	500075	TRUST	5
10	500075	TRUST	6
11	500129	CKING	1
12	500129	SVG	2
13	500129	IRA	3
14	500129	ATM	4
15	500129	ATM	5

Association Tool Demonstration

Analysis goal:

Explore associations between retail banking services used by customers.

Analysis plan:

- **Create an association data source.**
- **Run an association analysis.**
- **Interpret the association rules.**
- **Run a sequence analysis.**
- **Interpret the sequence rules.**

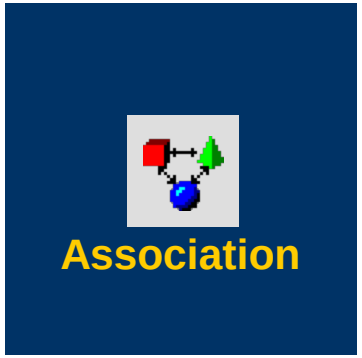
Market Basket Analysis

This demonstration illustrates how to conduct market basket analysis.

Sequence Analysis

This demonstration illustrates how to conduct a sequence analysis.

Pattern Discovery Tools Review



Conduct market basket and sequence analysis on transactions data. Must define one target, one ID, and one sequence variable in data source.

It’s Your Turn

- Make sure you practice using SAS EM and attempt to follow what I demonstrated in this video lecture.
- Try using other options as you play around with data (use SAS EM help for options)