


Data Mining

A Baber Khairi Presentation



Datamining

by Baber Khairi

- The growth of data mining has come with this realization:

A customer's full potential cannot be realized unless the marketer has an optimum level of knowledge on that customer's consumer behavior.

- To gather, track & analyze such data is a hugely complex task – thus enters Data mining
-



Datamining

by Baber Khairi

- Data mining is the adaptation of machine learning techniques to business applications
 - It is a process of analyzing detailed data to extract actionable, implicit and novel information to solve business problems
 - It classifies customers according to their propensities to consume a product or service
-



Role of Datamining

- To convert data into information and knowledge so that right decisions can be made
 - Provide mechanisms to deploy knowledge into operational systems such that right actions can occur.
-



Advantages Of Datamining

- ❑ It gives us something to do
- ❑ It gives others something to do
- ❑ It keeps us busy doing something

And:

- ❑ Allows us to have many 1 to 1 relationships with many, um, customers
 - ❑ Allows companies to capture & grow customer segments
-



Disadvantages of Datamining

- ❑ It gives us work to do when we want to sleep
 - ❑ It doesn't come with chocolates
 - ❑ It doesn't give us an A for reading this
 - ❑ It gets in the way of prime TV time
 - ❑ It leads companies to assume they have all the answers to marketing problems
 - ❑ It doesn't give definitive answers but only estimates of market positions
-



2 CLASSES OF DATA MINING

- Verification driven:
 - SQL programming using QUERY tools to verify hypothesis

 - Discovery driven:
 - Used with intelligent software (ESS) i.e: machine learning, stats, data visualization
-



2 Sub-classes of Discovery

- Prediction:

Forecasting > Regression, Rule induction, neural networks

- Description:

Data visualization, Clustering, Association (Affinity analysis)



Datamining is used for:

- Target marketing
 - Fraud detection
 - Customer segmentation
 - Credit scoring
 - Portfolio mgmt
 - Customer profitability analysis
 - Inventory control
 - *Customer Retention
 - *Market basket analysis
 - *Credit risk assessment
 - *Cross/up-selling
 - *Price optimization
-



Datamining

- The process of turning data into knowledge is:
Data > Information > Knowledge >> Action

 - Stepwise the process goes thus:
 1. Problem Definition
 2. Data Preprocessing
 3. Model Building & Analysis
 4. Knowledge Deployment & Maintenance
-



Datamining Process

1. Problem Definition

- Define business problem
- Examine Data
- Define initial approach
- Scope project

2. Data Preprocessing

- Data access/sampling
- Data visualization
- Data manipulation

3. Model Building & Analysis

- Data manipulation
- Test model
- Interpret & evaluate

4. Knowledge Deployment & Maintenance

- Custom reports, External applications, external monitors/agents
-



Datamining: Uses

- CUSTOMER RETENTION
 - FRAUD DETECTION
 - AFFINITY ANALYSIS
-



Datamining: Uses

□ CUSTOMER RETENTION

This is similar in some ways to Target Mktg. It involves building propensity models – i.e.: predictive models that indicate customer propensity.

Customer Retention models are used to identify customers with propensities to switch to a competitor. They are then targetted based on their cost of defection



Datamining: Uses

- Customer Retention: Cost of defection is calculated as:

Lost profitability x estimated continuing longevity

- Other aspects of Customer Retention:
 - ID of key factors in retaining customers
 - ID of activity patterns in winning back customers
 - Determining characteristics of loyal customers
-



Datamining: Uses

□ FRAUD DETECTION:

This remains a major concern for all businesses dealing with human beings on Planet Earth. Its' main aspects are:

- i. Predictive models Identify customers propensity to defraud the companies
 - ii. Analysis of characteristics of fraudulent claims & business dealing (esp. for Insurance & the reverse supply chain)
-



Datamining: Uses

□ FRAUD DETECTION:

iii. Clustering = Customers are grouped into segments by a cluster algorithm (known as a “KOHENEN Network”) based on similarities multiple attributes

Customers who do not fit the profiles are examined for possibilities of fraud.



Datamining: Uses

- AFFINITY ANALYSIS:
 - Models determine purchase affinities (i.e.: “Market Basket Analysis”). The Mkt Basket shows affinities such as Sugar with Tea; having children & paying school fees

 - Affinity analysis is particularly useful when trying to decide which material to include in a direct mail or telemarketing campaign
-



Datamining: Uses

□ AFFINITY ANALYSIS:

- Affinity analysis is used to identify customers through profiling or by identifying combinations of products and/or services

Customers may be profiled thus:

20% of married customers aged 27 to 34
have 3kids aged 2 to 7years of age



Customer Datamining: Process

- Customer Profile Information

IDENTIFICATION

- Transaction/Interaction Detail

SEGMENTATION

for Customer Level Profitability

- Retention / Acquisition Models

PREDICTION

- Relationship Pricing

LTVA