

# Data Mining, eCommerce, Fraud Detection, and Technical Communication

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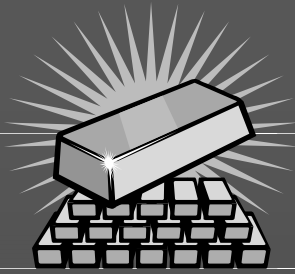
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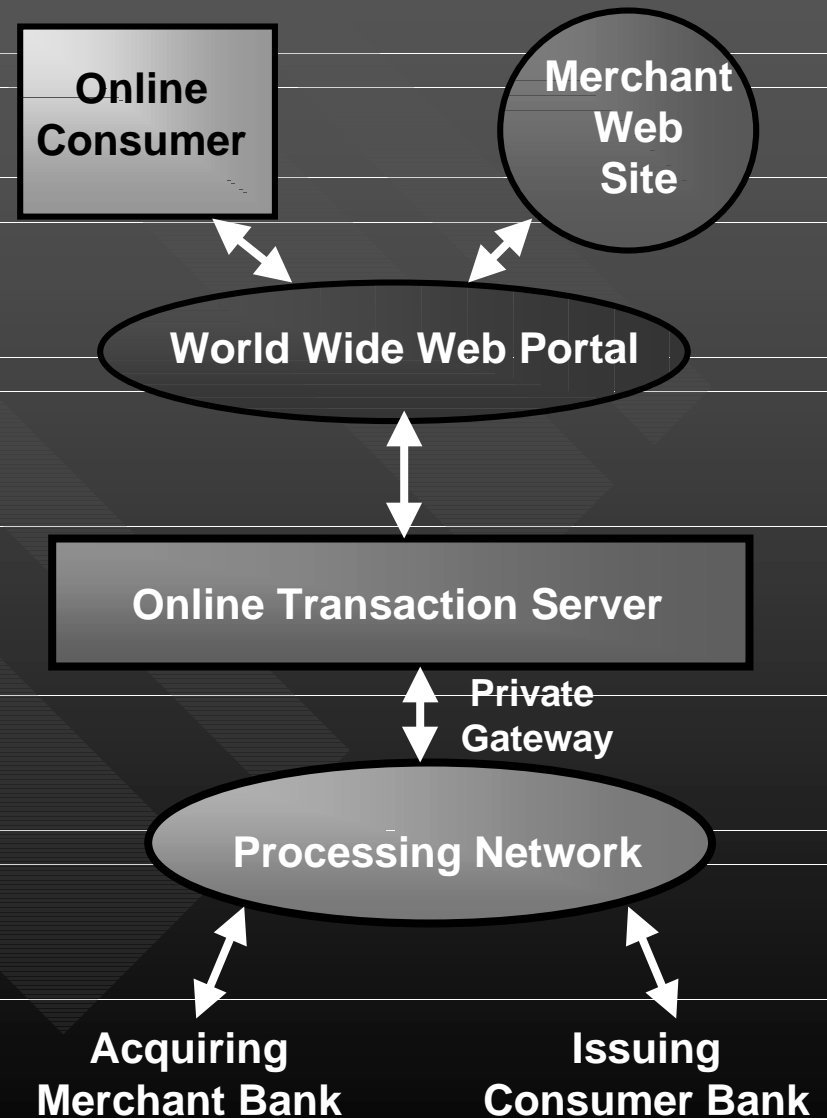
# Overview

- eCommerce, Data Mining, and Fraud Detection
- The Technical Communicator's Role in all of This
- 3 Examples of eCommerce/Retail Fraud
- Additional Resources
- Questions



# What is eCommerce?

- The consumer moves through the Internet to the merchant's Web site
- From there, consumer decides to purchase something, so control moves to the online transaction server, where all of the information the consumer provides is encrypted
- Once the order is placed, the information moves through a private gateway to a processing network, where the issuing and acquiring banks complete or deny the transaction
- This roundtrip transaction process generally occurs in about 5 to 7 seconds



# What is eCommerce?

- eCommerce is not just about Web-based transactions
- Anytime financial transaction data is transmitted electronically--through ATM machines in the mall, card swipers in the grocery store, or using a credit card to pay for Disney World tickets--it can be defined as electronic commerce



# What is Data Mining?

The process of extracting valid, useful, previously unknown, and ultimately comprehensible information from large databases and using it to make crucial business decisions, or....”

“...torturing the data until it confesses...”



# Data Mining Methods

- Association
- Sequence-based analysis
- Clustering
- Classification
- Genetic algorithms
- Fuzzy logic
- Estimation
- Fractal-based transforms
- Neural networks

# How Data Mining is Used in eCommerce

- Study database schemas
- Identify performance limitations
- Perform due diligence on data itself
- Analyze data
- Examine temporal patterns
- Detect, analyze, and mitigate fraud
- Examine connection times required for data to pass between different network nodes
- Investigate alternative routing strategies, database replication costs, and throughput
- Examine metrics associated with credit card transaction processing at each task node within the transaction process

# The Technical Communicator's Role in Data Mining

- Many technical communications professionals are already well-suited for key roles in data mining
- Solid understanding of databases, statistics and business
- Opportunities in Rapid Application Development (RAD) for building front-end interfaces that allow users to access warehoused data in meaningful ways (Visual Basic, PowerBuilder, client/server, Web-based programming)
- Conversion and Transformation: experience with standardizing and conforming information from disparate systems (can you say SGML? XML?)
- Project management experience combined with business and technical savvy to help end users get the most out of their data



# The Technical Communicator's Role in eCommerce

- Establishing eCommerce/Web development proposal methodologies
- Writing eCommerce/Web development proposals
- Developing eCommerce project Needs Analysis or Requirements specifications
- Developing project documentation (Statements of Work, Functional Design specs, Deliverables specs, Internationalization/Localization specs, user documentation plans; user documentation content specs, project post-mortems)
- Developing online Help
- Understanding issues, practices, and products in the retail business world and how they translate to eCommerce

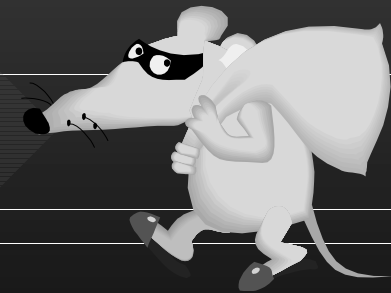


# Retail Fraud Detection

- Data mining helps businesses account for peak periods of consumption, merchandise throughput, irregular transactions
- Loss attributable to internal fraud is between 40 to 50% of the stock (product) loss suffered by all retail business
- Data mining can help resolve unusual patterns involving refunds, discounts, price overrides, credit cards, store cards, debit cards, staff discounts, voids, reversals, overage and shortages
- Much of retail fraud occurs through point-of-sale (POS) systems and doesn't involve merchandise transactions at all

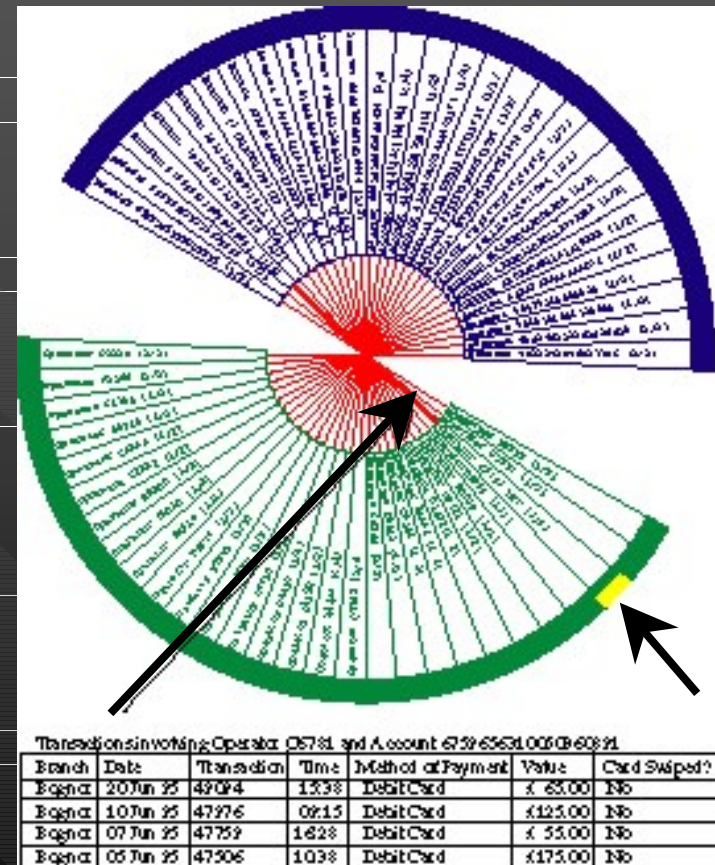
# Types of Retail Fraud

- Refund transactions: stolen merchandise presented with receipt for a cash refund
- Discount transactions: “Sweethearting” is offering special discounts to friends and family
- Skimming: Requires a partner from the outside
- Refunds given to the same account
- Refunds given outside of store hours
- Staff refunds



# Refund Given to Same Account

1. Blue band (top): accounts
2. Green band (bottom): POS operator
3. Yellow box: Suspicious activity associated with this individual
4. Dark red line: Predominance of refunds being credited to this person's account
5. Table: base data used to generated this diagram (required at least three transactions per POS operator and account number before presenting results)



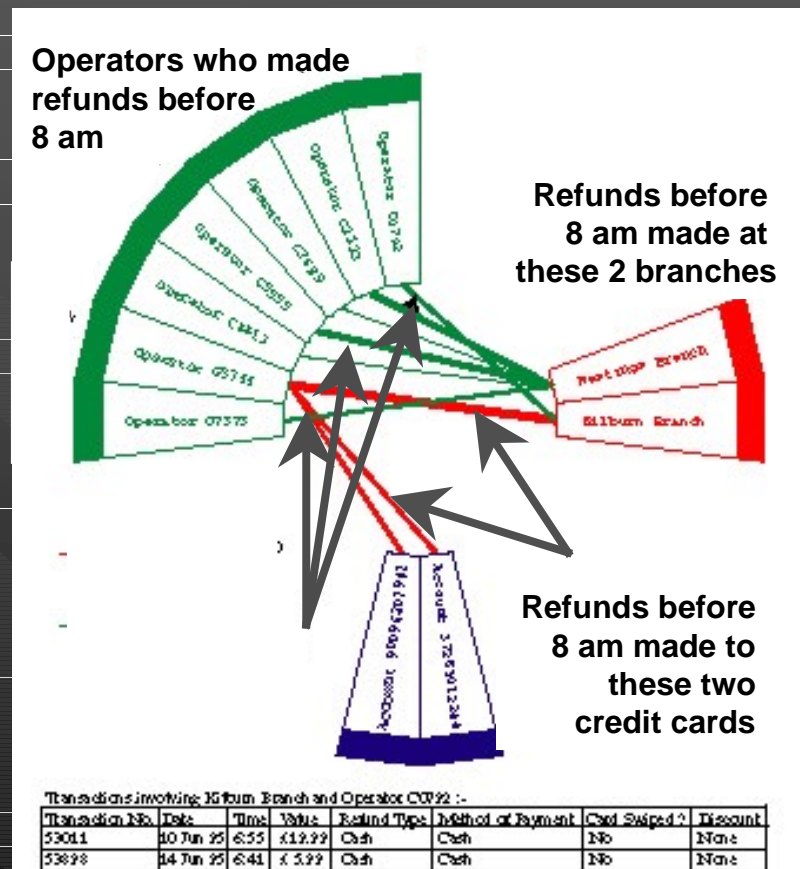
The Result: Fired and prosecuted

# Refunds Given Before 8 am

1. Green band: POS Operators
2. Red band: Store locations
3. Blue band: Credit cards
4. Green arrows: Show POS operators at two store locations making cash refunds prior to 8 am
5. Red arrows: Show POS operator at one store location issuing credits before 8 am to two credit cards

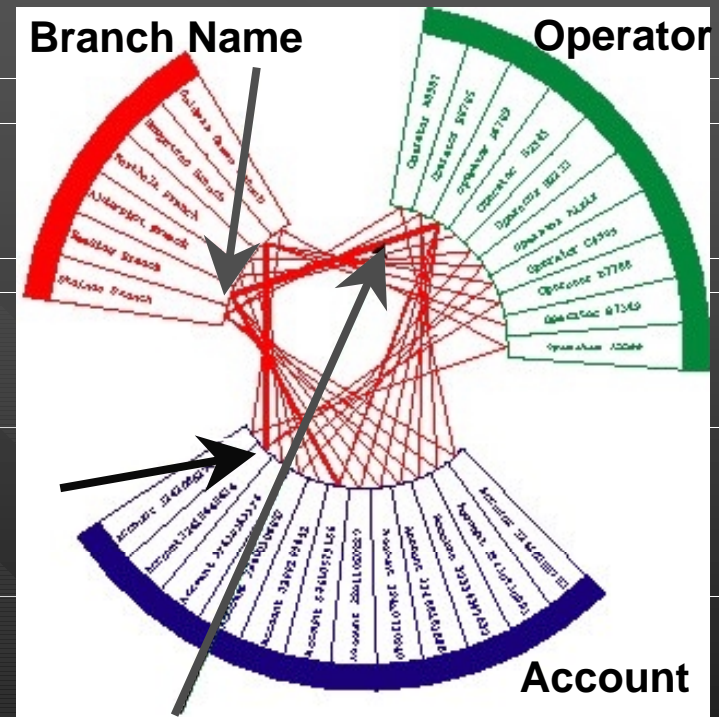
The Problem: Store opens at 10 am

The Result: Fired and prosecuted



# Employee Discount Fraud

1. Red band: Store branch name
  2. Green band: Operator name
  3. Dark blue band: Account number
- The green arrow indicates an operator at one store branch (red arrow) applied an employee discount to an account (blue arrow) in excess of 90% within a 10-minute window (from the table) to an inordinate number of purchases



Transactions involving Reading Branch and Operator D6789 :

Date	Trans'n	Time	Product	Payment by	Account No.	Value	Discount
14 Jun 95	22969	14:00	3702043	Credit card	324 10379 164	£59.99	£55.00
14 Jun 95	22974	14:11	3702036	Credit card	324 10379 164	£59.99	£55.00
14 Jun 95	22975	14:12	3702043	Credit card	324 10379 164	£59.99	£55.00
15 Jun 95	23009	10:21	3742133	Credit card	324 10379 164	£59.99	£55.00

The result: Fired and probation

# Lots of Opportunities to Explore

- Data mining and eCommerce offer many opportunities for technical communications professionals willing to acquire new skills
- The difference in value between a subject-matter expert and a tools expert is increasing
- The difference in salaries between subject-matter experts and tools experts is increasing
- Fraud detection field is ripe with opportunities: incidents of white-collar crime up 30% from 1998.

Questions?