

Business Case Study



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Case #1: Century National Bank



- Century National Bank has offices in several cities in the Midwest and the southeastern part of the United States. Mr. Dan Selig, president and CEO, would like to know the characteristics of his checking account customers.
- To better understand the customers, Mr. Selig asked Ms. Wendy Lamberg, director of planning, to select a sample of customers and prepare a report. To begin, she has appointed a team from her staff.
- 60 customers are selected as a random sample in each account at the end of last month.
- The data includes
 - 1) Balance: Checking account balance in \$
 - 2) ATM: Number of ATM transactions in the month
 - 3) Services: Number of other bank services used
 - 4) Debit: Has a debit card (1=yes, 0=no)
 - 5) Interest: Receives interest on the account (1=yes, 0=no)
 - 6) City: City where banking is done
(1=Cincinnati Ohio, 2=Atlanta Georgia, 3=Louisville Kentucky, 4=Erie Pennsylvania)
- ✓ Identify high balance customers in his checking account.



Case #2: Terry and Associates

- Terry and Associates is a specialized medical testing center in Denver, Colorado. One of the firm's major sources of revenue is a kit used to test for elevated amounts of lead in the blood. Workers in auto body shops, those in the lawn care industry, and commercial house painters are exposed to large amounts lead and thus must be randomly tested. It is expensive to conduct the test, so the kits are delivered on demand to a variety of locations throughout the Denver area.
- Kathleen Terry, the owner, is concerned about setting appropriate costs for each delivery. To investigate, Ms Terry gathered information on a random sample of 50 recent deliveries. Factors thought to be related to the cost of delivering a kit were:
 - 1) Prep: The time in minutes between when the customized order is phoned into the company and when it is ready for delivery.
 - 2) Delivery: The actual travel time in minutes from Terry's plant to the customer.
 - 3) Mileage: The distance in miles from Terry's plant to the customer.
- ✓ Identify the delivery cost structure.
- ✓ Identify unusual cases (either high cost or low cost).



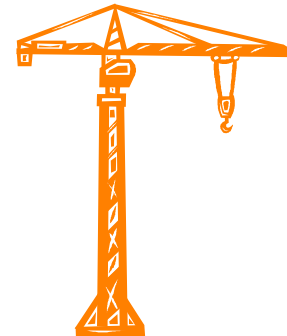
Case #3: Thomas Testing Labs

- John Thomas, the owner of Thomas Testing Labs, has for some time done contract work for insurance companies regarding drunken driving. To improve his research capabilities, he recently purchased the Ruppel Driving Simulator. This device will allow a subject to take a “road test” and provide a score indicating the number of driving errors committed during the test drive. Higher scores indicate more driving errors.
 - Driving errors would include: not coming to a complete stop at a stop sign, not using turning signal, not exercising caution on wet or snowy pavement, and so on. During the road test, problems appear at random and not all problems appear in each road test. These are major advantages to the Ruppel Driving Simulator because subjects do not gain any advantage by taking the test several times.
 - With the new driving simulator, Mr. Thomas would like to study in detail the problem of drunk driving. He begins by selecting a random sample of 25 drivers. He asks each of the selected individuals to take the test drive on the Ruppel Driving Simulator. The number of errors for each driver is recorded. Next, he has each of the individuals in the group drink three 16-ounce cans of beer in a 60-minutes period and return to the Ruppel Driving Simulator for another test drive. The number of driving error after drinking the beer is also shown.
- ✓ Check the normality of scores.
 - ✓ Does alcohol increase the score?
 - ✓ Can you tell ‘drunk driving’ with score? How?



Case #4: Return on Capital for 4 Sectors

- The case #4 has financial data of some companies drawn from four different industry sectors – Banking, Computers, Construction, and Energy –.
 - The data include ‘return on capital’, ‘sales’, ‘operating margin’, and ‘debt-to-capital ratio’ all pertaining to the same latest 12 months for which data were available for that company.
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- ✓ Identify characteristics of four different sectors.
 - ✓ Build a model to predict return on capital.
 - ✓ Do we need to have four different models for each sector? Justify your answer.
 - ✓ For each of the four sectors, give a 95% interval for the expected return on capital for a company with the following annual data: sales of \$2 billion, operating margin of 3.5%, and a debt-to-capital ratio of 50%.



Case #5: Tiffany & Co. Sales

- Tiffany was founded in 1837, when Charles Lewis Tiffany opened his first store in downtown Manhattan. Tiffany retails and distributes a selection of Tiffany & Co. brand jewelry at a range of prices. Today, more than 150 Tiffany & Co. stores sell to customers in U.S. and international market.
 - In addition to jewelry, it sells Tiffany & Co. brand merchandise in the following categories: timepieces and clock; sterling silver merchandise; stainless steel flatware; crystal, glassware, china, and fashion accessories. Fragrance products are sold under the trademarks Tiffany, Pure Tiffany, and Tiffany for Men. Tiffany also sells other brands of timepieces and tableware in its U.S. stores.
 - Tiffany's quarterly sales (in \$million) from 1995 to 2002 are given in the data file. In addition, the following variables are given to build a regression forecasting model for sales:
T Bill Rate: risk-free interest rate / GDP: Gross Domestic Product / CPI: Consumer Price Index / Disposable Income / Unemployment Rate / Sales: dependent variable
- ✓ Build a regression forecasting model with 1995~2002 sales.
 - ✓ Compare your forecast in 2003 with actual sales in 2003.
 - ✓ Identify economic indicators to see how sensitive sales were.



Case #6: Bell Grove Medical Center

- Ms. Gene Dempsey manages the emergency care center at Bell Grove Medical Center. One of her responsibilities is to have enough nurses so that incoming patients needing service can be handled promptly.
- It is stressful for patients to wait a long time for emergency care even when their care needs are not life threatening. Ms. Dempsey gathered the following information regarding the number of patients over the last several weeks.
- The center is not open on weekends. Does it appear that there are any differences in the number of patients served by the day of the week? If there are differences, which days seem to be the busiest? Write a brief report summarizing your findings

Date	Day	Patients			
2006-09-29	Monday	38	2006-10-13	Monday	37
2006-09-30	Tuesday	28	2006-10-14	Tuesday	29
2006-10-01	Wednesday	28	2006-10-15	Wednesday	27
2006-10-02	Thursday	30	2006-10-16	Thursday	28
2006-10-03	Friday	35	2006-10-17	Friday	35
2006-10-06	Monday	35	2006-10-20	Monday	37
2006-10-07	Tuesday	25	2006-10-21	Tuesday	26
2006-10-08	Wednesday	22	2006-10-22	Wednesday	28
2006-10-09	Thursday	21	2006-10-23	Thursday	23
2006-10-10	Friday	32	2006-10-24	Friday	33

Home Page

Main Surgery
The Grove Medical Centre
6 Uplands Terrace, Uplands,
Swansea SA2 0GU



Case #7: Pronto Pizza (1/2)



- Pronto Pizza
 - Family-owned pizza restaurant
 - Success business by pizza delivery service
 - One of leading restaurant in the Vinemont, NY
 - 90% of their business is pizza delivery service
 - Pronto pizza operates from 4 p.m. to midnight every day of the week
- One of the national chains of fast-food pizza delivery services was taking business in Vinemont, NY → Competition was started
 - The competitor guarantee 30 minutes delivery after the order is placed
 - The new pizza restaurant is taking business away from Pronto Pizza
- To cope with the competitor, Pronto pizza offer similar service
 - Guarantee 29 minutes delivery after the order is placed
 - Break-even point for such promotion is 5% of all deliveries for free pizza
- Sample is randomly selected from a phoned-in order
 - Data on 240 deliveries were collected at the end of month



Case #7: Pronto Pizza (2/2)

Data Description

- Day : Day of the week (1 = Monday , ... , 7 = Sunday)
- Hour : Hour of the Day (4 p.m. ~ 11 p.m.)
- Prep Time : Time required (in minutes) to prepare the order
- Wait Time : Time (in minutes) from completing preparation of the order until delivery person was available to deliver the order
- Travel Time : Time (in minutes) it took the car to reach the delivery location
- Distance : Distance (in miles) from the Pronto Pizza to delivery location



Case #8: Baldwin Computer (1/2)

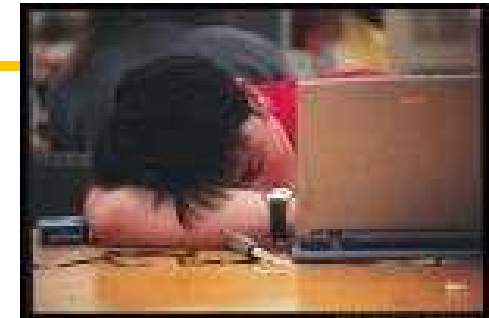


- Baldwin Computer
 - Selling Computers through mail-order at discount prices
 - Reaching out for a new market of college students through the Student Purchase Program
- Student Purchase Program
 - Started 5 years ago with 5 universities
 - Making a small payment each semester until they pay in full within two years of graduation
 - In the case of default on payment, Baldwin could repossess the computer
- Need to Qualitative decision whether or not to continue the program or to expand the program to several more universities
 - The 5-year result is close to just breaking even due to the loss on default
 - A screening test was used to select better qualified students for the program based on personal information
- Provide the evidence to back up your recommendation



Case #8: Baldwin Computer (2/2)

Data Description



- Student : Student identification number for the transaction
- School : University where the student was enrolled
- Default : 1 in the event of default
0 if account was paid in full on time
- When : 1 if default occurred or paid in full before graduation
0 if default occurred or paid in full after graduation
- Score : Score on screening test based on student applicant information such as his or her major, grade point average, work experience, scholarships, and how much of their college expenses were earned through the work



Case #9: Fastest Courier (1/2)

- The law firm of Adams, Badcock, and Connors located in the Dallas.
- Major business of the law firm is
 - Preparation of contracts and other legal documents for its clients
- ➔ The firm employed a courier service to deliver legal documents to its many clients as they are scattered throughout the Dallas area.



There are three Couriers services
: Metro Delivery (main courier)
: Carborne Carrier
: DFW Express

- Recently, the firm has received a couple of complaints from some of its best clients about delayed contract deliveries
- Need to make qualitative decision as to which courier service will be given the exclusive contract



Case #9: Fastest Courier (2/2)

Data Description

- Courier : 1 = DFW Express
2 = Carborne Carrier
3 = Metro Delivery
- Pickup Time : Time in minutes from when the order is phones in until a courier agent arrive
- Delivery Time : Time in minutes that it takes for the documents to be delivered to the destination from the firm.
- Mileage : Distance in miles from the law firm to the destination
- Cost : Charge for the delivery. Each of the courier services charges a flat fee plus a mileage charge. These charges vary from courier to courier



Case #10: Easton Realty (1/3)

- Sam Easton started his own company, Easton Realty Company in Fort Worth, Texas.
- Recently, the Dallas, Fort Worth (DFW) and the state of Texas have suffered economic problems from several sources.
 - Therefore, real estate agencies found it increasingly difficult to sell house
- Two days ago, Sam Easton was claimed to sell two clients' house at too low price, triggered by a recent article in one of the local newspapers.

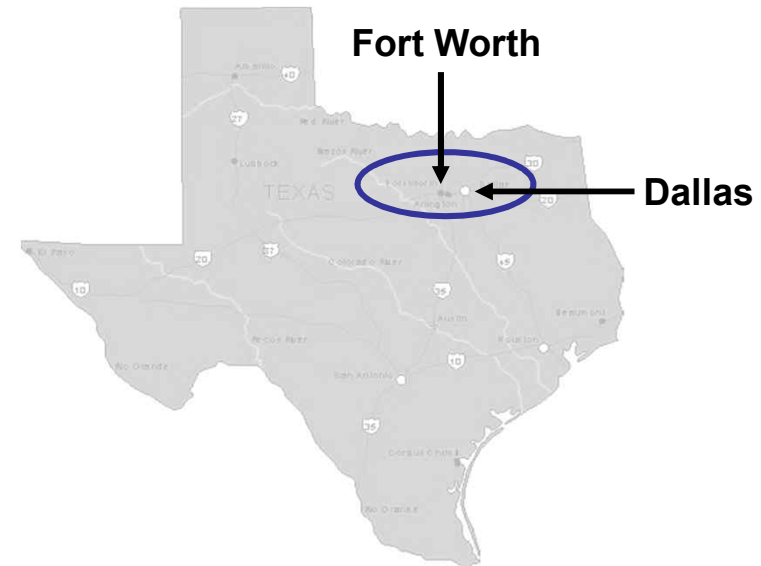


	Price (\$)	Size (sq. ft.)	Location	Age (years)	Bedrooms	Remarks
Newspaper	104,250	1,860	DFW	–	–	Over the past 12 months
1 st Client's House	88,500	2,190	Outside of the DFW	4	3	
2 nd Client's House	79,500	1,848	Fort Worth	9	3	



Case #10 : Easton Reality (2/3)

- Sam Easton collected 378 data on home sales over the past three months in the DFW area.
- Provide the appropriate response to the under pricing claims of his former clients based on the empirical evidence



Case #10 : Easton Realty (3/3)

Data Description



- Month : Month in which the sale took place → 4, if April / 5, if May / 6, if June
- Price : Sale price of the house in dollars
- Sq. Feet : Square feet of heated floor space
- Bedrooms : Number of bedrooms in the house
- Age : Age of the house in years
- Dallas : 1 if the house is located in Dallas / 0 if in Fort Worth or elsewhere
- Easton : 1 if Easton Realty sold the house / 0 otherwise





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