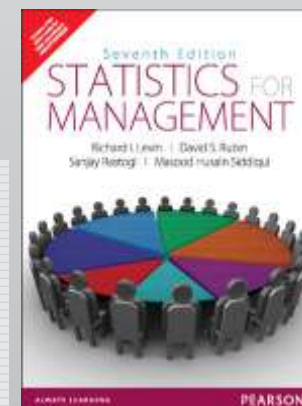


Course Case Map for

# STATISTICS FOR MANAGEMENT

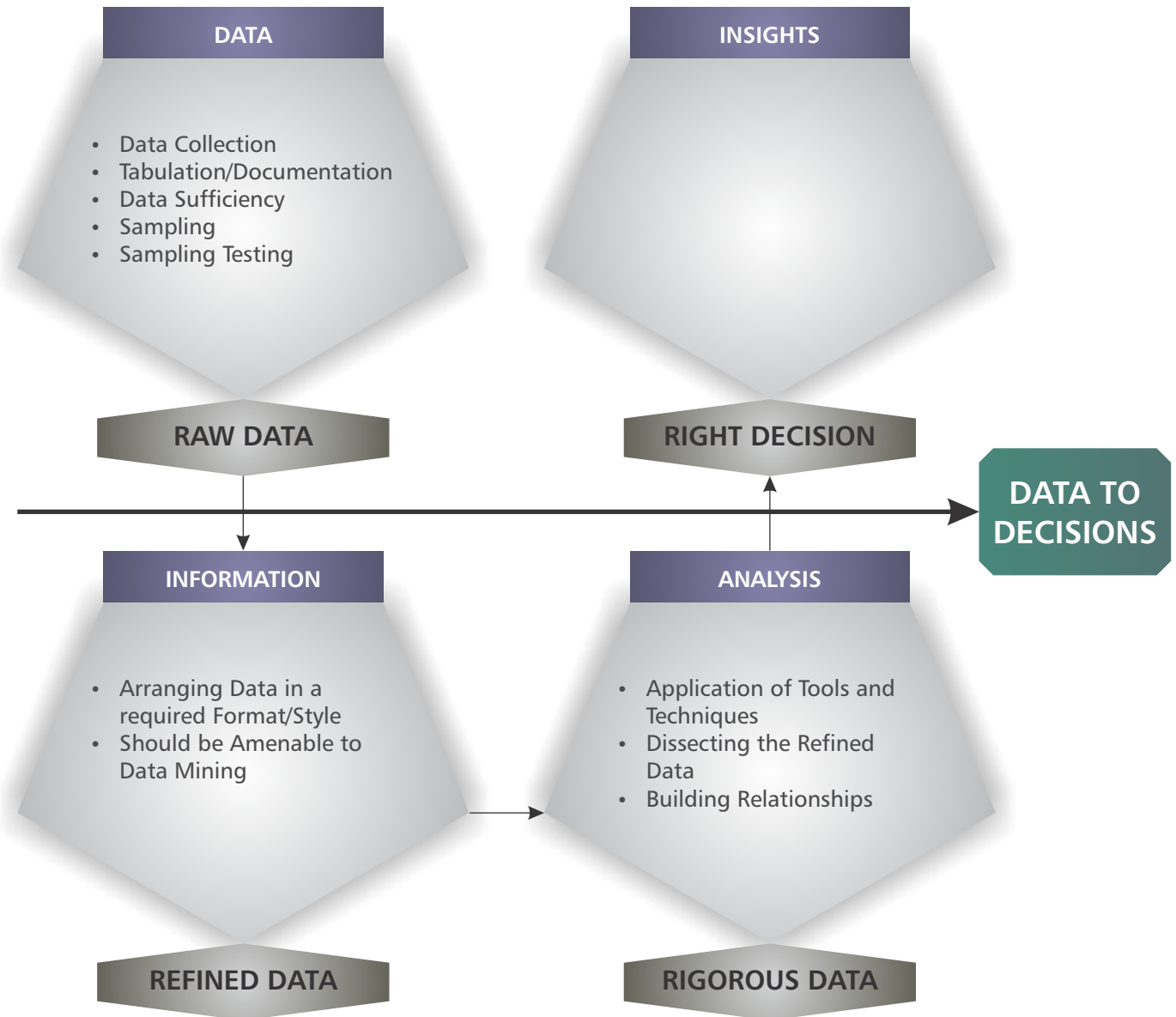
**Mapping for**  
STATISTICS FOR MANAGEMENT  
by Richard I. Levin | David S. Rubin |  
Sanjay Rastogi | Masood Husain Siddiqui  
7<sup>th</sup> Edition, Pearson Education

[www.etcases.com](http://www.etcases.com)



'Statistics for Management' tries to answer the following questions, which are purely application-based / practical, very inclusive and comprehensive. These questions try to provide in-depth reasons to take this course. Each question would try to address / encompass at least 1-2 chapters or even more chapters.

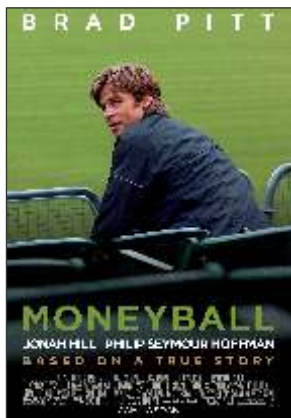
1. How do you make decisions based on diverse data as and when needed?
2. How do you assess your chances of success, when you launch a product/start a new business or venture or plant?
3. How do you evaluate your business/products performance trend whether it is on par with targets/benchmark?
4. How do you analyse the factors influencing business/products' performance?
5. How do you examine prior- and post-use of any factor or method on performance?



### Must-Read Article / Background Notes' Inventory

- "Decision trees", Robin Greenwood, (HBR, March 2006)
- "Note on Linear Programming", Jonathan Eckstein, (HBR, November 1992)
- "Sampling and Statistical Inference", Arthur Schleifer, (HBR, August 1996)
- "Decision Analysis", (HBR, December 1997)
- "Bjorn Lomborg Is the World's Most Optimistic Statistician", Jonathan Ledgard, (strategy+business, Issue 38, Spring 2005)
- "The Days of Futurists Past", Stuart Crainer, (strategy+business, Issue 20, Reprint No. 00310)
- "The Use – and Misuse – of Statistics: How and Why Numbers Are So Easily Manipulated", (Knowledge@Wharton, April 2008)
- "Why Soccer Defies the Odds – Even for Oddsmakers", (Knowledge@Wharton, July 2014)

### Hollywood Classics



Moneyball



The Double



Equilibrium

### Widely-used Books for Statistics

- *How to Lie with Statistics*, by Darrell Huff, Irving Geis (Illustrator)
- *The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century* by David Salsburg
- *The Cartoon Guide to Statistics (Cartoon Guides)* by Larry Gonick, Woollcott Smith
- *Damned Lies and Statistics: Untangling Numbers from the Media, Politicians, and Activists* by Joel Best
- *A Mathematician Reads the Newspaper* by John Allen Paulos
- *Thinking Statistically* by Uri Bram
- *Think Stats* by Allen B. Downey
- *Naked Statistics: Stripping the Dread from the Data* by Charles Wheelan
- *Statistics Without Tears: An Introduction for Non-Mathematicians* by Derek Rowntree
- *Thinking, Fast and Slow* by Daniel Kahneman
- *The Numbers Game: Baseball's Lifelong Fascination with Statistics* by Alan Schwarz
- *An Accidental Statistician: The Life and Memories of George E. P. Box* by George E.P. Box
- *Statistics: A Very Short Introduction* by David J. Hand
- *Statistics in a Nutshell: A Desktop Quick Reference* by Sarah Boslaugh, Paul A. Watters
- *Numbers Rule Your World: The Hidden Influence of Probabilities and Statistics on Everything You Do* by Kaiser Fung
- *Turning Numbers into Knowledge: Mastering the Art of Problem Solving* by Jonathan G. Koomey
- *Mostly Harmless Econometrics: An Empiricist's Companion* by Joshua D. Angrist, Jorn-Steffen Pischke
- *Statistical Inference* by Roger L. Berger
- *The Drunkard's Walk: How Randomness Rules Our Lives* by Leonard Mlodinow
- *The Black Swan: The Impact of the Highly Improbable* by Nassim Nicholas Taleb
- *The Signal and the Noise: Why So Many Predictions Fail - But Some Don't* by Nate Silver

## List of Mapped ET Cases' Case Studies for Statistics for Management

S.No.	Chapter	Case Study/Caselet	Key Concepts
1	Chapter II: Grouping and Displaying Data to Convey Meaning: Tables and Graphs	Sales at the University Canteen: Analysis Dilemmas	Quantitative Methods; Decision Science; Analysis; Frequency Distribution; Frequency Curve; Ogive; Relative Frequency; Statistics
2	Chapter III: Measures of Central Tendency and Dispersion in Frequency Distributions	Micromax: Piloting Assembly Operations in India	Quantitative Methods, Decision Science, Analysis, Central Tendency, Dispersion, Micromax, Process Performance, Statistics
3	Chapter IV: Probability I: Introductory Ideas	Selection of Candidates for General Elections	Quantitative Methods, Decision Science, Analysis, Probability, Conditional Probability, Selection at Random, Bayes Theorem, Statistics
4	Chapter V: Probability Distributions	Estimating the Probabilities of Sales at Maxwell	Quantitative Methods, Decision Science, Probability, Probability Distribution, Discrete Probability, Sample, Binomial Distribution, Statistics
5	Chapter VI: Sampling and Sampling Distributions	Application of Sampling and Sampling Distribution at Quickfire	Quantitative Methods, Decision Science, Sampling, Sampling Distribution, Population, Sample, Parameter and Statistic, Statistics
6	Chapter VI: Sampling and Sampling Distributions	Sampling Design to Understand the Consumer Behavior in Rural Market	Quantitative Methods; Decision Science; Sampling; Sampling Plan; Sampling Procedure; Multistage sampling; Population; Sample; Parameter and Statistic; Statistics
7	Chapter VII: Estimation	Estimating the Inflow of Visitors at 'The Resort'	Estimates, Point Estimate, Interval Estimate, Confidence Sample Size, Margin of Error, Estimation, Statistics for Management, Decision Sciences
8	Chapter VIII: Testing Hypotheses: One-Sample Tests	Cosmo: Analysing the Promotional Offer	Quantitative Methods, Decision Science, Analysis, Z test, Testing Hypotheses, Null and Alternate Hypothesis, Statistics, Level of Significance
9	Chapter X: Quality and Quality Control	OxyPure: Usage of Control Charts	Quantitative Methods; Control Charts; Sample Size; Statistical Process Control; Run Charts; Control Limits; Margin of Error; X-bar & R-Charts; Statistics for Management; Decision Sciences
10	Chapter X: Quality and Quality Control	Arvind Auto: Usage of Control Charts	Quantitative Methods; Control Charts; Statistical Process Control; Run Charts; Control Limits; Sample Size; Margin of Error; P-Charts; Statistics for Management; Decision Sciences
11	Chapter XI: Chi-Square and Analysis of Variance	Students Committee Election	Quantitative Methods; Decision Science; Analysis; Analysis of Variance (ANOVA); Comparing Means; 'F' Distribution; Statistics; 't' Distribution

S.No.	Chapter	Case Study/Caselet	Key Concepts
12	Chapter XI: Chi-Square and Analysis of Variance	Media Consumption Patterns of Indian Youth	Quantitative Methods, Decision Science, Analysis, Chi-square Analysis, Test of Independence, Contingency Table, Chi-square Distribution, Statistics
13	Chapter XI: Chi-Square and Analysis of Variance	Analysis of Variance (ANOVA): The Three Khans	Quantitative Methods, Decision Science, Analysis, Analysis of Variance (ANOVA), Comparing Means, 'F' Distribution, 't' Distribution, Statistics
14	Chapter XII: Simple Regression and Correlation	Gitanjali Group: Analysis of Retail Expansion	Quantitative Methods, Decision Science, Analysis, Simple Regression Analysis, Dependent Variables, Independent Variables, Correlation, Statistics
15	Chapter XIII: Multiple Regression and Modeling	Analysing Sales at REALAPP	Quantitative Methods, Decision Science, Analysis, Multiple Regression Analysis, Dependent Variables, Independent Variables, Correlation, Statistics
16	Chapter XIII: Multiple Regression and Modeling	DailyFresh: A Study on Customer Satisfaction	Quantitative Methods, Decision Science, Analysis, Multiple Regression Analysis, Correlation, Interpretation, Statistics
17	Chapter XIV: Non-parametric Methods	Correlation of Brand Ranking	Quantitative Methods, Decision Science, Analysis, Rank Correlation, Non-parametric Methods, Rank Correlation Coefficient, Correlation vs Rank Correlation, Statistics
18	Chapter XV: Time Series and Forecasting	Analysis of Sales Trends of Tristar Air Coolers	Quantitative Methods, Decision Science, Analysis, Time Series Analysis, Trend Analysis, Seasonal pattern/variation, Cyclical Variation, Statistics
19	Chapter XVI: Index Numbers	Price Indexing	Quantitative Methods; Index Number; Price Index; Consumer Price Index; Paasche Method; Laspreyres Method; Aggregated Fixed-weight Method; Estimation of Economic Variables; Statistics for Management; Decision Sciences
20	Chapter XVII: Decision Theory	Mobile Continent's Expansion Dilemma	Quantitative Methods, Decision Science, Analysis, Decision Tree Analysis, Probability, Time Value for Money, Expected Monetary Values (EMV), Statistics
21	Chapters II & XII: Grouping and Displaying... & Simple Regression and Correlation	Analysis of Impact of Autorickshaws on Public	Quantitative Methods; Decision Science; Analysis; Multiple Regression Analysis; Dependent Variables; Independent Variables; Correlation; Statistics; Customer Service; Autorickshaw
22	Chapters IV & XVII: Probability I: Introductory Ideas & Decision Theory (Decision Tree Analysis)	Decision-Making Dilemma at Sunshine Electronics	Quantitative Methods, Decision Science, Analysis, Decision Tree Analysis, Probability, Time Value for Money, Expected Monetary Values (EMV), Statistics

## Sales at the University Canteen: Analysis Dilemmas

### Abstract:

This caselet focusses on the concepts of Frequency Distribution and Ogive. The concepts are discussed based on the dilemma faced by the owner-manager of the University canteen, Raghu Raman (Raghu). The canteen sold various fast food and beverages. Over the last few months however, Raghu witnessed a steady drop in beverages' sales. Based on his experience, he took all the measures, however, sales did not improve. Ramesh, Raghu's friend advised him to do an analysis of the buying habits and age patterns of the customers. Raghu was confused how to get the required data that would help him in finding answers to his dilemma and relation between: (a) Age, Gender; and (b) Impressions on the service offered by canteen employees; and (c) Preference for beverages.

### Pedagogical Objectives:

- To understand the basics of Frequency distribution, tables and graphs
- To measure the implications of Frequency distribution, tables and graphs

### Chapter Reading/Background Material:

- Richard I. Levin and David S. Rubin, "Chapter 2: Grouping and Displaying Data to Convey Meaning: Tables and Graphs", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

### Key Concepts/Keywords:

Quantitative Methods; Decision Science; Analysis; Frequency Distribution; Frequency Curve; Ogive; Relative Frequency; Statistics; MBA Course Case Mapping; Business Statistics

## Micromax: Piloting Assembly Operations in India

### Abstract:

The caselet enables a discussion on the process performance during the piloting operations at Micromax, an Indian consumer electronics company in Kolkata, West Bengal, India. This caselet can be used for teaching the concepts of descriptive statistics. The caselet provides a brief about Micromax and its pilot mobile handset manufacturing in India. The caselet provides scope for understanding of descriptive statistics and analyzes the process performance of pilot manufacturing at Micromax.

### Pedagogical Objectives:

- To discuss the implications of the measures of central tendency in decision-making
- To cognize and discuss the significance of the measures of central tendency and dispersion in statistical quality control
- To discuss the significance of the measures of skewness and kurtosis in statistical quality control

### Chapter Reading/Background Material:

- Richard I. Levin and David S. Rubin, "Chapter 3: Measures of Central Tendency and Dispersion in Frequency Distributions", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

### Key Concepts/Keywords:

Quantitative Methods, Decision Science, Analysis, Central Tendency, Dispersion, Micromax, Process Performance, Statistics, MBA Course Case Mapping, Business Statistics

**Selection of Candidates for General Elections****Abstract:**

This caselet can be used for teaching the concepts of probability including conditional probability and Bayes' theorem. The caselet provides a brief about selection of candidates by the political parties in India for the general elections. New Progressive Party, a newly launched political party in India, having analyzed and understood the pulse of the public, tries to select the candidates for the general elections much before its schedule. The selection criteria was based on – age, education, clean image (without corruption charges), gender, etc. The Party Secretary wanted to estimate the chances of selection of a candidate in random with possible combinations of gender, age, education and a clean image. The caselet focuses on the use of Bayes' theorem in estimating the probability of selection of candidate – a female and of age less than 45 years, in random with possible combinations.

**Pedagogical Objectives:**

- To understand the basics of probability and laws of probability
- To study the application of conditional probability
- To have an in-depth understanding of Bayes' theorem and its application

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 4: Probability I: Introductory Ideas**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Probability, Conditional Probability, Selection at Random, Bayes Theorem, Statistics, MBA Course Case Mapping, Business Statistics

**Estimating the Probabilities of Sales at Maxwell****Abstract:**

This caselet enables an understanding of the application of Discrete Probability Distribution. Maxwell is an upcoming electronics retailer in Bangalore, India. Through its huge promotional offers, it had continued attracting a lot of window purchasers. The company sold all types of electronic gadgets including multi-brand handsets, accessories, network connections, provided repair services, etc. As the founder observed that not all the visitors became Maxwell's customers. Based on his past experience and recommendation from consultant, he wanted to estimate the probability of the number of customers who may make purchases based on discrete probability distribution.

**Pedagogical Objectives:**

- To understand the basics of Discrete Probability Distribution
- To discuss and analyze how the discrete probability distribution can be used to improve the top line of a company

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 5: Probability Distributions**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Probability, Probability Distribution, Discrete Probability, Sample, Binomial Distribution, Statistics, MBA Course Case Mapping, Business Statistics



**Application of Sampling and Sampling Distribution  
at Quickfire****Abstract:**

This caselet facilitates an understanding of the application of sampling and sampling distribution. Quickfire, a well-established safety matches manufacturing company in South India, used automatic machines and semi-skilled employees for the entire manufacturing process including packaging. A potential customer while discussing about the packing, had doubts about the number of boxes in a carton pack. Based on the past experience, the supervisor informed that the boxes are normally distributed with a mean of 1,008 with a standard deviation of 45. It was decided that the potential customer will reject the order, if in the first lot, the sample mean is not within the sample acceptable limit. This caselet attempts to discuss how the sampling distribution can be adjusted to improve the quality or characteristics of a population.

**Pedagogical Objectives:**

- To understand the basics of sampling
- To discuss the details of sampling distribution
- To discuss and analyze how the sampling distribution can be adjusted to improve the quality or characteristics of a population

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, “**Chapter 6: Sampling and Sampling Distributions**”, Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Sampling, Sampling Distribution, Population, Sample, Parameter and Statistic, Statistics, MBA Course Case Mapping, Business Statistics

**Sampling Design to Understand the Consumer Behavior  
in Rural Market****Abstract:**

This caselet facilitates an understanding of the application of sampling plan and sampling procedure. The caselet uses a situation brought to light through a study Rural Marketing – Understanding the Consumer Behaviour and Decision Process, to understand the rural markets, to enable a discussion on sampling. The caselet attempts to design a sampling plan for a study based on population.

**Pedagogical Objectives:**

- To understand the basics of sampling
- To discuss the details of sampling plan and procedure

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, “**Chapter 6: Sampling and Sampling Distributions**”, Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods; Decision Science; Sampling; Sampling Plan; Sampling Procedure; Multistage sampling; Population; Sample; Parameter and Statistic; Statistics; MBA Course Case Mapping; Business Statistics

**Estimating the Inflow of Visitors at 'The Resort'****Abstract:**

The caselet provides scope for understanding the concept of Point and Interval Estimates. The Resort, a growing multi-theme park based in Hyderabad, India, came into business in 2010. Within 3 years of its inception the park became a well-known name among its contemporaries. The Founder-CEO, of The Resort, wanted to plan the entertainment themes effectively, but was facing difficulties as the company's sales had not been uniform. To plan for the season he needed to estimate the number of visitor registrations on a given day. The caselet enables an insight into the concepts of point estimate and interval estimate as well as drawing inferences through the estimates.

**Pedagogical Objectives:**

- To discuss the concepts of point estimate and interval estimate
- To understand the concepts of sample size and confidence interval
- To know how to draw inferences through the estimates

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 7: Estimation**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Estimates, Point Estimate, Interval Estimate, Confidence Interval, Sample Size, Margin of Error, Estimation, Statistics for Management, Decision Sciences

**Cosmo: Analysing the Promotional Offer****Abstract:**

This caselet enables understanding of the application of Testing Hypothesis. Cosmo Construction Company, an upcoming construction company in Hyderabad, India, having successfully executed a few landmark projects, decided to expand. But its past success was not yielding any substantial increase in its customer-base. Having conducted the surveys to gauge a new promotional offer, the Founder-CEO wants to know if the resulting hypothesis is correct. The caselet attempts to discuss how to infer the results of testing hypothesis.

**Pedagogical Objectives:**

- To discuss the testing of hypothesis
- To comprehend the ways to select the right test to examine the hypothesis
- To understand the concepts of sample size and level of significance
- To test the hypotheses and to draw inferences

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 8: Testing Hypotheses: One-Sample Tests**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Testing Hypotheses, Null and Alternate Hypothesis, Z test, Level of Significance, Statistics, MBA Course Case Mapping, Business Statistics



**OxyPure: Usage of Control Charts****Abstract:**

The caselet enables a discussion on the concept of Control Charts. Within 3 years of its inception in 2010, OxyPure a family-owned water company in Mumbai, India, became a very sought after brand. However, the Founder-CEO of OxyPure wanted to be known for their quality product pan-India. In order to achieve its goal the company introduced Statistical Process Control (SPC) to improve the quality of the product. Will SPC help control the process and improve the quality of the product?

**Pedagogical Objectives:**

- To discuss the concept of Control Charts
- To understand how to infer from Control Charts to help improve the process

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, “**Chapter 10: Quality and Quality Control**”, Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods; Control Charts; Statistical Process Control; Run Charts; Control Limits; Sample Size; Margin of Error; X-bar and R-Charts; Statistics for Management; Decision Sciences

**Arvind Auto: Usage of Control Charts****Abstract:**

The caselet enables the discussion on the concept of Control Charts. Arvind Auto Components (Pvt.) Ltd., is an upcoming auto component manufacturing company in Chennai, India. Within a few years of its inception in 2008, the company implemented Statistical Process Control (SPC) methods to survive the market competition. The Founder-Director wanted to inspect the defective parts to improve the quality of the products. It's to be seen whether this will help control the process.

**Pedagogical Objectives:**

- To discuss the concept of Control Charts
- To understand how to infer from Control Charts to help improve the process

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, “**Chapter 10: Quality and Quality Control**”, Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods; Control Charts; Statistical Process Control; Run Charts; Control Limits; Sample Size; Margin of Error; P-Charts; Statistics for Management; Decision Sciences

**Students Committee Election****Abstract:**

With the milieu of forthcoming elections to be held in another two weeks, in a college in Trivandrum, Kerala, India, the caselet enables a discussion on the concept of Analysis of Variance (ANOVA). Thomas Kurien (Thomas), a strong candidate was confident of his victory with 50.01% of the votes. Nevertheless, Thomas conducted a survey with a random sample of 300 prospective voters, to assess the possibility of his victory. The caselet provides scope for the students to analyze whether Thomas will emerge successful and correct in being confident about his win or was he being overconfident?

**Pedagogical Objectives:**

- To discuss the testing of hypothesis
- To understand the ways to select the right test to examine the hypothesis
- To understand the concepts of Sample size and level of Significance
- To test the hypothesis and to draw inference

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 11: Chi-Square and Analysis of Variance**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods; Decision Science; Analysis; Analysis of Variance (ANOVA); Comparing Means; 'F' Distribution; 't' Distribution; Statistics; MBA Course Case Mapping; Business Statistics

**Media Consumption Patterns of Indian Youth****Abstract:**

This caselet enables an understanding of the application of Chi-square Analysis. Akhila Vasan in her working paper titled, "Films and TV: Viewing Patterns and Influence on Behaviours of College Students", presented findings from a study about the influence of the media on youth. Based on the report, this caselet provides a brief about media preferences of the Indian youth and the influence of media (Movies and Television) on selected behavior and gender attitude. The report also cites certain similarities and dissimilarities among the gender preferences. The caselet enables a discussion on whether the media preference or consumption pattern changes depending on the gender.

**Pedagogical Objectives:**

- To introduce chi-square analysis and its use in statistical inferences
- To use chi-square distribution to check whether two classifications of the same data are independent of each other

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 11: Chi-Square and Analysis of Variance**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Chi-square Analysis, Test of Independence, Contingency Table, Chi-square Distribution, Statistics, MBA Course Case Mapping, Business Statistics

**Analysis of Variance (ANOVA):  
The Three Khans****Abstract:**

This caselet enables to discuss Analysis of Variance (ANOVA) concept. The Hindi film industry (Bollywood) in Mumbai, India, is one of the largest centers of film production in the world. In 1990s, new generation of actors (such as Aamir Khan, Salman Khan and Shahrukh Khan) made their mark in the Indian film industry and became trendsetters. Since then each one is having huge fan following. A critic wanted to analyze the fan-base of these three actors. He collected a sample data from three cities. The caselet gives scope to get insights on the analysis results.

**Pedagogical Objectives:**

- To understand how to recognise situations requiring the comparison of more than two means or proportions
- To understand how to compare more than two means using ANOVA
- To test the hypothesis using 'F distribution' or 't distribution'

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 11: Chi-Square and Analysis of Variance**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Analysis of Variance (ANOVA), Comparing Means, 'F' Distribution, 't' Distribution, Statistics, MBA Course Case Mapping, Business Statistics

**Gitanjali Group:  
Analysis of Retail Expansion****Abstract:**

This caselet enables an understanding of the application of Simple Regression Analysis. The caselet gives details of the Gitanjali Group, the largest integrated branded jewellery retailer-manufacturer in the Indian market. The caselet traces the aggressive expansion of Gitanjali Retail and its efforts to establish organized multiple formats of retail stores in the Indian jewelry market. It throws light on different formats of Gitanjali retail stores. The caselet gives scope to discuss the relationship between expansion of retail stores and the sales revenue of the company using regression analysis.

**Pedagogical Objectives:**

- To understand how to estimate the relationship between two variables using Regression Analysis
- To analyze how the two variables are correlated with each other
- To discuss and analyze the relationship between Gitanjali's retail expansion and revenues

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 12: Simple Regression and Correlation**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Simple Regression Analysis, Dependent Variables, Independent Variables, Correlation, Statistics, MBA Course Case Mapping, Business Statistics

**Analysing Sales at REALAPP****Abstract:**

This caselet enables understanding of the application of Multiple Regressions Analysis. REALAPP is a growing fruit juice-maker in Bangalore, India. Since its inception in 2005, the company witnessed a slow growth due to heavy competition from renowned brands. Having discussed with a consultant and his subordinate teams about the marketing and sales concerns, Rohit Motilal, the Founding Director wanted to analyze the factors affecting the sales of the company. Motilal assigned Rupali Malhotra, a new executive for backend operations, to collate the past data on quarterly sales, number of distributors, distributors' margins, company's sales force strength, sales incentives paid for each quarter and the expenditure on advertisement for each quarter. The director wanted to draw conclusions from the analysis.

**Pedagogical Objectives:**

- To understand the concept of Multiple Regression Analysis
- To analyze the variables that are correlated with the sales and the variables those describe the variability in sales

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 13: Multiple Regression and Modeling**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Multiple Regression Analysis, Dependent Variables, Independent Variables, Correlation, Statistics, MBA Course Case Mapping, Business Statistics

**DailyFresh: A Study on Customer Satisfaction****Abstract:**

This caselet focuses on the concept and application of Multiple Regression Analysis. A growing retail firm 'DailyFresh' in Chennai had its own dairy farm and supplied dairy products to customers in Chennai. DailyFresh intended to initiate new strategies to enhance their market share, against huge competition from new and existing players. The firm strongly believed that customer satisfaction is the key factor to increase its market share. To emphasize on customer focus, DailyFresh conducted a survey to measure the customer satisfaction towards its products and services; and to plan new strategies to meet the customer expectations. Can the application of Multiple Regression Analysis at DailyFresh prove beneficial in increasing its market share?

**Pedagogical Objectives:**

- To understand the concept, benefits and application of Multiple Regression Analysis
- To discuss how Multiple Regression Analysis was applied at DailyFresh

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 13: Multiple Regression and Modeling**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Multiple Regression Analysis, Correlation, Interpretation, Statistics, MBA Course Case Mapping, Business Statistics

**Correlation of Brand Ranking****Abstract:**

This caselet enables an understanding of the basics of rank correlation and its business applications. Every year global brands are ranked worldwide by prominent institutions like Brand Finance and Interbrand. Two college friends – Vinay and Rahul – discuss and try to understand the ranking methodology and the efficacy of the criteria used to arrive at the rankings. They are concerned about different ranks being awarded to the same brands in the same year by different institutions. Would the conceptual understanding of correlation and rank correlation and appropriate application of the same help resolve their dilemmas?

**Pedagogical Objectives:**

- To understand the basics of rank correlation
- To discuss the difference between correlation and rank correlation
- To discuss the applications of rank correlation

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, “**Chapter 14: Nonparametric Methods**”, Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Rank Correlation, Non-parametric Methods, Rank Correlation Coefficient, Correlation vs Rank Correlation, Statistics, MBA Course Case Mapping, Business Statistics

**Analysis of Sales Trends of Tristar Air Coolers****Abstract:**

The caselet enables to comprehend the basics of time series analysis and the concept of predicting the future pattern of sales by collecting the past data using time series analysis. Tristar is a popular domestic air cooler manufacturer and supplier in Mumbai, India, which came to be counted among the best by 2002, within 3 years of its inception. However, the Founder-CEO observed that the company's sales had not been uniform. He wanted to identify the reasons and improve the sales. Having collected the past data on quarterly basis, the Founder-CEO wanted to analyze the variations, trends and patterns, based on which he wanted to forecast sales for the future too. This caselet attempts to discuss seasonal and cyclical patterns of the sales.

**Pedagogical Objectives:**

- To understand the basics of time series analysis
- To understand and discuss the components – secular trends, cyclical variations and seasonal trends – of time series analysis

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, “**Chapter 15: Time Series and Forecasting**”, Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Time Series Analysis, Trend Analysis, Seasonal pattern/variation, Cyclical Variation, Statistics, MBA Course Case Mapping, Business Statistics

## Price Indexing

### Abstract:

This caselet enables an understanding of the concept of Index Numbers and gives scope to understand the computation of price index. Kris Menon (Kris), the owner of a small neighborhood retail store, who was the first in his family to start a business, had seen frequent price volatility in pulses' prices. It hurt his top-line as well as bottom-line of business. When he approached Rajiv Sumen (Sumen), an agricultural economist for consultation, he was told that price changes from past trend have to be estimated. Can index numbers abet to estimate the changes in economic variables over time?

### Pedagogical Objectives:

- To discuss how the index numbers are used to estimate the changes in economic variables over time
- To discuss how to compute price index numbers and its applications
- To understand the difference between various methods of computing price index

### Chapter Reading/Background Material:

- Richard I. Levin and David S. Rubin, "Chapter 16: Index Numbers", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

### Key Concepts/Keywords:

Quantitative Methods; Index Number; Price Index; Consumer Price Index; Paasche Method; Laspreyres Method; Aggregated Fixed-weight Method; Estimation of Economic Variables; Statistics for Management; Decision Sciences

## Mobile Continent's Expansion Dilemma

### Abstract:

This caselet enables an understanding of the application of Decision Tree Analysis. Mobile Continent, an upcoming mobile retailer in Bangalore, India, through its huge promotional offers, had grown to become a one-stop mobile solution shop in a short span of time since its inception in 2000. Mobile Continent sold multi-brand handsets, accessories, connections, provided repair services, etc. The company was considering on an expansion plan. Based on past experience, the company estimated the cost and revenues of different choices of expansion along with market economy condition. It was deliberating its options to reach a decision. The caselet enables a discussion on the choices of the expansion plan and the dilemma of opting for expansion or to continue in the same status.

### Pedagogical Objectives:

- To understand the basics and application of Decision Tree Analysis
- To understand and discuss the concept of Expected Monetary Values (EMVs)

### Chapter Reading/Background Material:

- Richard I. Levin and David S. Rubin, "Chapter 17: Decision Theory", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

### Key Concepts/Keywords:

Quantitative Methods, Decision Science, Analysis, Decision Tree Analysis, Probability, Time Value for Money, Expected Monetary Values (EMV), Statistics, MBA Course Case Mapping, Business Statistics



**Analysis of Impact of Autorickshaws on Public****Abstract:**

This caselet can be used for teaching the concepts of Tables and Graphs, Regression and Correlation Analysis. The caselet enables a discussion on the Impact of Autorickshaws as a major transport. Two friends K. Philip and M. Sumit conducted a survey and decided to present the findings and results of the survey to the Autorickshaw Unions to improve the service.

**Pedagogical Objectives:**

- To measure the implications of Tables and Graphs
- To understand how to estimate the relationship between two variables using Regression Analysis
- To analyze how the variables are correlated with each other

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 2: Grouping and Displaying Data to Convey Meaning: Tables and Graphs**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education
- Richard I. Levin and David S. Rubin, "**Chapter 12: Simple Regression and Correlation**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods; Decision Science; Analysis; Multiple Regression Analysis; Dependent Variables; Independent Variables; Correlation; Statistics; MBA Course Case Mapping; Business Statistics; Customer Service; Autorickshaw

**Decision-Making Dilemma at Sunshine Electronics****Abstract:**

This caselet enables an understanding of the concept and application of Decision Tree Analysis. The caselet provides a brief about the dilemma on choosing the replating method, in a Chennai-based electronics parts manufacturing company. The caselet enables a discussion on the choices of the replating method based on the probability or likelihood of each method.

**Pedagogical Objectives:**

- To understand the basics and application of Decision Tree Analysis
- To understand and discuss the concept of Expected Monetary Values (EMVs).

**Chapter Reading/Background Material:**

- Richard I. Levin and David S. Rubin, "**Chapter 4: Probability I: Introductory Ideas**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education
- Richard I. Levin and David S. Rubin, "**Chapter 17: Decision Theory**", Statistics for Management, 7<sup>th</sup> Edition, Pearson Education

**Key Concepts/Keywords:**

Quantitative Methods, Decision Science, Analysis, Decision Tree Analysis, Probability, Time Value for Money, Expected Monetary Values (EMV), Statistics, MBA Course Case Mapping, Business Statistics

Course Case Map for

# STATISTICS FOR MANAGEMENT

[www.etcases.com](http://www.etcases.com)



**ET CASES,**

The Times of India Group,  
Times Centre for Learning Ltd.,  
Vakratunda Corporate Park, Ground Floor,  
Vishweshwar Nagar, CTS No 256, Off Aarey Road,  
Next to Udipi Vihar, Goregaon- East, Mumbai -400 063.

**Contact @**

[info@etcases.com](mailto:info@etcases.com)