

# SCM 651: Business Analytics

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Week 6

# Agenda

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- Homework #2: Discussion
- Review of Optimization
- Modern Analytics and the Future of Quality Performance Excellence
- A Process of Continuous Innovation: Centralizing Analytics at Caesars
- Homework #3: Getting Started

# Homework #2

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- Campaign time frames, costs, effectiveness
- Future campaign: geographic regions, key words, day of week and time of day
- Allocation of costs by program and region
- Performance measures
- Other data that would be helpful

# Week 6 - Review

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- Goal Seek
  - Searches for one goal such as break even point (profit = 0)
  - Allows one variable to be changed in search of the goal
  - Does not allow constraints on the search
- Unconstrained optimization
  - Does not constrain any variables in the search
  - Can search for maximum, minimum, or specific values
  - Can use linear programming (straight line functions) or non-linear programming (curved functions)



# Week 6 - Review

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- Valuable functions: Sumproduct
  - Multiplies rows or columns together, then adds result
- Constrained optimization
  - Can set variables to less than or greater than some constraint
  - Can set variables to be integer or binary

# Homework #3

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1. Graph, regression, calculated sales, revenue, profit
2. Constrained optimization
3. Discussion of risks, other data which would be valuable

# Article #1: Modern Analytics and the Future of Quality Performance Excellence

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- Modern Analytics and the Future of Quality Performance Excellence
  - How are companies using analytics in (page 7):
    - Banks: prevent fraud
    - Manufacturing: production planning, purchasing, inventory mgt
    - Retail: recommend products and optimize marketing promotions
    - Pharmaceuticals: get drugs to market more quickly
    - Sports: determine game strategy and optimal ticket prices

# Article #1: Modern Analytics and the Future of Quality Performance Excellence

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- Modern Analytics and the Future of Quality Performance Excellence
  - Define analytics (page 6)
    - “a process of transforming data into actions through analysis and insights in the context of organizational decision making and problem solving”
    - “the use of data, information technology, statistical analysis, quantitative methods, and mathematical or computer-based models to help managers gain improved insight about their business operations and make better, fact-based decisions”



# Article #1: Modern Analytics and the Future of Quality Performance Excellence

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# Article #1: Modern Analytics and the Future of Quality Performance Excellence

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- Modern Analytics and the Future of Quality Performance Excellence
  - Modern analytics integrates which three fields (page 8)?
    - Business intelligence/information systems
    - Statistics
    - Quantitative methods/operations research
  - What are some examples of data sources (page 9)?
    - Supermarket scanners
    - Click streams from the web
    - Customer transactions
    - Email, tweets, social media
  - What are examples of data visualization (page 11)?
    - Dashboards and scorecards

# Article #2: A Process of Continuous Innovation: Centralizing Analytics at Caesars

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- A Process of Continuous Innovation: Centralizing Analytics at Caesars
  - Why does Caesars use analytics (pages 1 & 2)?
    - Create a rich customer experience
    - Marketing based not only on their preferences but on their actions
    - Gaming analytics, revenue management, finance, marketing analytics, hotel operations and labor
  - What are four lessons learned from their experience (page 3)?
    - Sense of scale
    - Adequate infrastructure
    - Communications with stakeholders
    - Visible and meaningful wins