Aston Business School

Week 2
Exploring Quantitative data

BN2230 – Business Analytics in Practice

Topics of this presentation

- Visual representations of data
  - Graphs
  - Sparklines
- Logical arguments and functions
  - IF function
  - SUMIF, COUNTIF
  - Booleans
- Pivot tables

Graphs and charts

- One of the most important features in Excel and critical in all Business Analytics applications
  - Charts allow you to more easily spot trends and unusual data
  - Charts allow you to more easily communicate you findings with your audience
    - Act complementary to tables
    - Tables are good for the increased detail, charts are good for quick overview
- Wide range of styles and charts to utilise
  - Bar (and column), Line, Pie and Scatter chart are the most useful
  - Can also create more ‘advanced’ charts
    - Eg. Histograms are available through Data Analysis add-in
    - Box-plots can be constructed using simpler charts
      - see http://youtu.be/l_roXgxIWPU

Creating Charts

- For an overview of how to create charts see:
  - this week's Replay in Blackboard
  - Microsoft's tutorial
  - large number of tutorial videos online, eg.
    - http://www.dummies.com/how-to/content/the-essentials-of-working-with-excel-2010-charts.html
- Tips for successful charts
  - Label your chart!
  - Make sure you choose the correct chart type
    - Scatterplot will not be helpful for categorical data
    - Acid test – if you had no knowledge of the underlying data, would be able to conclude something from the chart you just created?
  - Choose function over form!
- **Sparklines**: Mini charts that you can embed on a single cell
  - Mostly for the benefit of the analyst
    - allows you to quickly and easily spot trends at a glance

Logical arguments (1)

- Critical for extracting information from categorical data
  - ie, data that can be classified as different groups or categories, eg sales by region (region is the category)
- SUMIF and COUNTIF: returns SUM and COUNT in a range for the specified category in the IF statement
  - see Week 2 Case study for examples and usage scenarios
  - also online, eg
    - How to use the COUNTIF and SUMIF functions in Excel — a quick introductory tutorial

Logical arguments (2)

- IF statement:
  - IF(logical test, what to do if logical test is TRUE, what to do if logical test is FALSE)
  - Logical tests are usually comparison operators (ie they compare the values of two cells and/or functions) and they return either a TRUE or FALSE statement
    - eg, =12<8 would return FALSE
  - see Week 2 Case study for examples and usage scenarios
    - also, online, eg How to use the IF function in Excel
- Booleans: any functions that return either TRUE or FALSE
  - Can also be converted to return 0 for FALSE or 1 for TRUE
  - These 0/1 (Boolean) operators can be very powerful when constructing logical tests or statements
    - see Week 2 Case study for examples and usage scenarios

Pivot tables

- Tool for summarising and sorting data in Excel, without the use of functions or formulas
  - Results in the creation of a Pivot table
- Can also be used to create Pivot charts, which offer similar functionality but for charts rather than tables
- How to create them:
  - See Replay for week 2
  - Large number of online video tutorials:
    - http://www.youtube.com/watch?v=lEPmBuyeIxs
    - http://www.youtube.com/watch?v=y4z6GEnAp3E
- Advantages
  - Practical, Easy to use, Interactive
- Disadvantages
  - Difficult to use in a model, using pivot tables breaks the audit trail, difficult to audit