Datapolitan
Data Solutions for the Modern Metropolis

Excel Tools: Summarizing Data

Summary

A one-day course exploring the use of Microsoft Excel to quickly and correctly summarize data for making decisions. The course involves hands-on practice with open data to demonstrate how to use key features of Excel for clear, concise, and actionable insights from the wealth of data collected by organizations of all kinds.

Target Audience

Employees of all levels who have a need to leverage basic and advanced features of Excel for extracting meaning from data, as well as communicating those findings in a clear and concise way for key decision makers.

Course Overview

This course will address one of the greatest challenges employees face today: making sense of the data they already have. Being able to quickly and efficiently summarize and analyze data is essential to making better business decisions. Participants will be taught some of the most effective techniques in summarizing and displaying data to extract actionable intelligence quickly and accurately.

Goals

- Provide hands-on experience using Excel to clean and summarize data, including useful tips and tricks to working with data of varying quality and consistency
- Demonstrate and discuss best practices when analyzing and visualizing data
- Introduce advanced functionality within Excel as it relates to summarizing data

Key Takeaways

- Participants will be more proficient using Excel for cleaning, analyzing, and visualizing data
- Participants will have a better understanding of the analytics process
- Participants will be familiar with Excel functions and other advanced features for analyzing data
- Participants will be familiar with fundamental best practices for visualizing data

Schedule

- Introduction to Excel - Objective: Review basic operations in Excel
  - Overview of Excel
  - Excel shortcuts
  - Basic formulas and functions
  - Basic math functions (SUM, COUNT, COUNTA) and Subtotaling
- Working with NYC population data 1970 - 2010 - Objective: Tell a basic story with data
  - Working with cell references and ranges
  - Introduction to charts
- Working with 311 Service Requests - Objective: Use Excel functions to aggregate and transform data
  - Sorting
  - Filtering
  - Conditional Formatting
  - PivotTables
  - Exercise 1: Explore 311 Service Requests by borough to find patterns
- Visualizing Data - Objective: Create clear and meaningful data visualizations
  - Overview of chart design and layout
  - Practical exercise visualizing data to tell a true and compelling story
- Advanced Functions in Excel - Objective: Use functions to transform data
  - Basic date and time functions (HOUR, WEEKDAY)
  - Using the CHOOSE function
  - Basic text functions (FIND, MID, CONCATENATE)
  - Using documentation
  - Exercise 2: Vision Zero (dB)
- Putting it all together - Objective: Demonstrate knowledge through practical exercise
  - Task: Combine 311 Service Request data with NYC Population data to find service requests per 1000 people for a given area
  - Practicing nesting functions
  - Relational functions (VLOOKUP) and linking spreadsheets
- Wrap-up discussion
  - Overview of Macros
  - Further resources
- Course Evaluations and Dismissal

Exercise Descriptions

Exercise 1: Explore 311 Service Requests by borough to find patterns

- Task to participants
    - In small groups, explore the complaints for your assigned borough
    - What are the common types of complaints?
    - Which community districts have the most complaints?
    - Identify any other meaningful patterns to the noise complaints
    - Describe your findings to the class
- Desired outcomes
    - Participants will be familiar with the basic steps of exploratory data analysis
    - Participants will demonstrate basic proficiency with Excel

Exercise 2: Vision Zero (dB)

- Task to participants
    - Given 311 noise complaint data, assist enforcement efforts by identifying community districts that have a high volume of noise complaints and the time frame enforcement resources should be deployed
    - Identify the prevalent types of noise complaints in these areas to guide enforcement in each community district
- Desired outcomes
    - Participants will be familiar with the analytics process, using NYC-specific data to make policy and program decisions
    - Participants will be more familiar with the tools of basic data analysis and understand the types of questions that can be answered with data

Classroom Setup

- Access to a private training room able to accommodate the expected number of students with sufficient space for participants and facilitators to easily move around the room
- A laptop (ideally) or desktop computer for each participant, with power supply, Internet access, mouse, and the necessary software applications specified by the instructor
- 2 standing "flip charts" with markers of varying colors. Ideally, the pages of the flip charts will have adhesive so they can be pasted directly onto the walls. If not, then tape of some sort that is safe for attaching the flip chart pages to the walls will be necessary