

Capstone Exercise

What if people split a dinner check using the principles of the progressive income tax that is central to our tax code? Five lifelong friends of various means meet once a week for dinner and split the \$100 check according to their ability to pay. Tom, Dick, and Harry are of relatively modest means and pay \$1, \$4, and \$9, respectively. Ben and Ken are far more prosperous and pay \$18 and \$68, respectively.

The friends were quite satisfied with the arrangement until the owner offered a rebate. "You are excellent customers, and I will reduce the cost of your meal by \$15." The question became how to divide the \$15 windfall to give everyone his fair share? The proprietor suggested that they allocate the savings according to the amount each contributed to the original check. He made a quick calculation, and then rounded each person's share to an integer. For example, Tom's new bill should have been 85 cents, but it was decided he would eat for free. In similar fashion, Dick now owes \$3, Harry \$7, Ben \$15, and Ken \$60. (Ken, the most prosperous individual, made up the difference with respect to the cents that were dropped.) The new total is \$85, and everyone saves money.

Once outside the restaurant the friends began to compare their savings. Tom and Dick each complained that they saved only \$1. Harry grumbled that he saved only \$2. Ben thought it unfair that Ken saved more than the other four friends combined. Everyone continued to pick on Ken. The next week Ken felt so uncomfortable that he did not show up, so his former friends ate without him. But when the bill came they were \$60 short.

Create the Worksheet

You will create the worksheet that is the basis for the charts. The first sheet, which you will name Numerical Analysis, contains the labels and data described below.

- Enter a title in row 1. In row three enter the following labels: **Person, % Paid, Amount, Projected Saving, New Amount, Actual Saving, % Saving, Type Total** in cell A9 and type **The Original Total** in cell A11 and **Reduction in Bill** in cell A12.
- Type the names, the percent paid, and the amounts in cells A4:C8. This data is in the description of the problem.

Calculations and Formatting

The analysis includes calculations and formatting necessary for presentation. You will create the formulas and select appropriate formatting options.

- Calculate the projected savings for each individual in column D, the new account in column E, the actual savings in column F, and the percent savings in column G.

- Calculate appropriate totals in cells B9:G9.
- Calculate the original total in cell C11 and the reduction in bill in cell C12.
- Format columns B through G as appropriate for the values displayed.
- Format the remainder of the worksheet with appropriate colors, borders, fonts, and font size.

Create the Charts

You will create the charts based on the worksheet values. The charts provide information visually and help you to analyze that information. You will create three charts: a pie chart, a clustered column chart, and a combination chart.

- Create a pie chart on a separate sheet that shows the percentage of the bill each individual pays before the refund. Include descriptive titles and labels.
- Create a column chart on a separate sheet showing the amount each individual saves. Include data labels below the chart and an overlay showing the percentage of savings.
- Add a shape with text box describing the results depicted on the chart. Include descriptive titles.
- Create a clustered column chart on a separate sheet showing the new amount of the bill and the actual savings for each individual. Include data labels below the chart, and a legend to the right of the chart.
- Include a shape with a text box describing the data depicted in the chart. Include descriptive titles and labels.

Footers and Printing

Your instructor requires documentation for assignments. You will print the data sheet and the three chart sheets with your name, page numbers, and your instructor's name.

- Create a custom footer that includes the page number, instructor's name, and your name.
- Print the worksheet and charts in landscape format to ensure that all charts print on separate pages.
- Save the workbook as **chap3_cap_dinner_solution**.