

EXAMPLE 2.7 Using INDEX and MATCH for a Left Table Lookup

Suppose that, in the Sales Transactions database, we wish to find the customer ID associated with a specific transaction code. Refer back to Figure 2.8 or the Excel workbook. Suppose that we enter the transaction code in cell K2, and want to display the customer ID in cell K4. Use the formula in cell K4:

=INDEX(A4:A475,MATCH(K2,D4:D475,0),1)

Here, the MATCH function is used to identify the row number in the table range that matches the transaction code exactly, and the INDEX function uses this row number and column 1 to identify the associated customer ID.

Spreadsheet Add-Ins for Business Analytics

Microsoft Excel will provide most of the computational support required for the material in this book. Excel (Windows only) provides an add-in called the *Analysis Toolpak*, which contains a variety of tools for statistical computation, and *Solver*, which is used for optimization. These add-ins are not included in a standard Excel installation. To install them, click the *File* tab and then *Options* in the left column. Choose *Add-Ins* from the left column. At the bottom of the dialog, make sure *Excel Add-Ins* is selected in the *Manage* box and click *Go*. In the *Add-Ins* dialog, if *Analysis Toolpak*, *Analysis Toolpak VBA*, and *Solver Add-in* are not checked, simply check the boxes and click *OK*. You will not have to repeat this procedure every time you run Excel in the future.

In addition, many third-party add-ins are available to support analytic procedures in Excel. One add-in, Frontline Systems' *Analytic Solver Platform*, offers many other capabilities for both predictive and prescriptive analytics. See the Preface for instructions on how to download and install this software. We will use both the included Excel add-ins and *Analytic Solver Platform* throughout this book, so we encourage you to download and set up these add-ins on your computer at this time.

Key Terms

Absolute address
Discount rate

Net present value (discounted cash flow)
Relative address

Problems and Exercises

1. The Excel file *Science and Engineering Jobs* shows the number of jobs in thousands in the year 2000 and projections for 2010 from a government study. Use the Excel file to compute the projected increase from the 2000 baseline and also the percentage increase for each occupational category.
2. The Excel file *Store and Regional Sales Database* provides sales data for computers and peripherals showing the store identification number, sales region, item number, item description, unit price, units sold, and month when the sales were made during the fourth quarter of last year.³ Modify the

³Based on Kenneth C. Laudon and Jane P. Laudon, *Essentials of Management Information Systems*, 9th ed. (Upper Saddle River, NJ: Prentice Hall, 2011).

spreadsheet to calculate the total sales revenue for each of the eight stores as well as each of the three sales regions.

3. The Excel file *President's Inn Guest Database* provides a list of customers, rooms they occupied, arrival and departure dates, number of occupants, and daily rate for a small bed-and-breakfast inn during one month.⁴ Room rates are the same for one or two guests; however, additional guests must pay an additional \$20 per person per day for meals. Guests staying five seven days or more receive a 10% discount. Modify the spreadsheet to calculate the number of days that each party stayed at the inn and the total revenue for the length of stay.
4. The worksheet *Base Data* in the Excel file *Credit Risk Data* provides information about 425 bank customers who had applied for loans. The data include the purpose of the loan, checking and savings account balances, number of months as a customer of the bank, months employed, gender, marital status, age, housing status and number of years at current residence, job type, and credit-risk classification by the bank.⁵
 - a. Use the COUNTIF function to determine (1) how many customers applied for new-car, used-car, business, education, small-appliance, and furniture loans and (2) the number of customers with checking account balances less than \$500.
 - b. Modify the spreadsheet using IF functions to include new columns, classifying the checking and savings account balances as low if the balance is less than \$250, medium if between \$250 but less than \$2000, and high otherwise.
5. A manager needs to identify some information from the *Purchase Orders* Excel file but has only the order number. Modify the Excel file to use the VLOOKUP function to find the item description and cost per order for the following order numbers: Aug11008, Sep11023, and Oct11020.
6. A pharmaceutical manufacturer has projected net profits for a new drug that is being released to the market over the next five years:

⁴Based on Kenneth C. Laudon and Jane P. Laudon, *Essentials of Management Information Systems*, 9th ed. (Upper Saddle River, NJ: Prentice Hall, 2011).

⁵Based on Elfrain Turban, Ramesh C. Chatterjee, and David S. Armstrong, *Human Resource Management: A Managerial Approach*, 2nd ed. (Upper Saddle River, NJ: Prentice Hall, 2002).