APPENDIX F
ADDITIONAL ACTIVITIES AND PROGRAMMING PROJECTS

Additional Activities relating to Geometric Series

Write the pseudo code draw the flowchart to accumulate the sum of the following geometric series:

1. \( \frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \ldots \ldots \ldots \frac{99}{100} \)

2. \( \frac{3}{4} + \frac{9}{8} + \frac{27}{12} + \frac{81}{16} + \frac{243}{20} \)

3. \( \frac{1}{10} + \frac{2}{100} + \frac{3}{1000} + \frac{4}{10000} + \frac{5}{100000} + \frac{6}{1000000} \)

Additional Programming Projects

1. Write a program that prompts the user for two characters and prints the sum of their Unicode values.

2. Write a program that prompts the user for an amount in dollars and converts it to the equivalent amount in euros (you can either assume that 1 euro = $1.33 or look up the current exchange rate on the Web).

3. Write a program that prompts the user for a temperature in degrees Fahrenheit and converts it to Celsius.

4. Create a program that converts weights and measures from standard to metric and vice versa. The program should provide a GUI in the main method to allow the user to choose which units to convert between and to input the value of the conversion. The program should have a different method for each type of conversion. Thus, there should be a method to convert feet to meters, meters to feet, ounces to milliliters, milliliters to ounces, pounds to kilograms, kilograms to pounds, teaspoons to milliliters, milliliters to teaspoons, cups to grams, grams to cups, etc.

5. Write a program that allows the user to input a mileage, a gas price, and a distance and computes the cost of a road trip and the estimated travel time. You can assume a speed of 55 miles per hour and, if the estimated travel time is longer than 4 hours, factor in the cost of food. If the travel time is longer than 10 hours, factor in the cost of a hotel stay. (Estimate $80 per night for the hotel). The program should provide a GUI in the main method. Additional methods should calculate the estimated travel time, the cost of fuel, the cost of food, and the cost of the hotel.