

## Chapter 09: Looping Statements - Exercises

### Exercise 09 - 01: Counting positive and negative numbers and computing the average of numbers

Write a program that reads an unspecified number of integers, determines how many positive and negative values have been read, and computes the total and average of the input values, not counting zeros. Your program ends with the input 0. Display the average as a floating-point number. (For example, if you entered 1, 2, and 0, the average should be 1.5.)

### Exercise 09 - 02: Conversion from miles to kilometers

Write a program that displays the following table (note that 1 mile is 1.609 kilometers):

Miles	Kilometers
1	1.609
2	3.218
...	
9	14.481
10	16.09

### Exercise 09 - 03: Conversion from miles to kilometers

Write a program that displays the following two tables side-by-side (note that 1 mile is 1.609 kilometers):

Miles	Kilometers	Kilometers	Miles
1	1.609	20	12.430
2	3.218	25	15.538
...		...	
9	14.481	60	37.290
10	16.09	65	40.398

### Exercise 09 - 04: Finding numbers divisible by 5 and 6

Write a program that displays all the numbers from 100 to 1000, ten per line, that are divisible by 5 and 6.

### Exercise 09 - 05: Printing a pattern using loops

Related Chapter: Looping Statements

Use nested loops that print the following pattern:

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
```

### **Exercise 09 - 06: Summing a series**

Write a program to sum the following series:

$$\frac{1}{3} + \frac{3}{5} + \frac{5}{7} + \frac{7}{9} + \frac{9}{11} + \frac{11}{13} + \dots + \frac{95}{97} + \frac{97}{99}$$

### **Exercise 09 - 07: Computing e**

You can approximate  $e$  by using the following series:

$$e = 1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \frac{1}{4!} + \dots + \frac{1}{i!}$$

Write a program that displays the  $e$  value for  $i = 10000, 20000, \dots,$  and  $100000$ .

### **Exercise 09 – 08: Average KPL Calculation**

Drivers are concerned with the kilometer obtained by their automobiles. One driver has kept track of several tankfuls of gasoline by recording kilometers driven and liters used for each tankful. Develop a Java application that will input the kilometer driven and liters used (both as integers) for each tankful. The program should calculate and display the kilometer per liters obtained for each tankful and print the combined kilometer per liters obtained for all tankfuls up to this point. All average calculations should produce floating-point results. Use input dialogs to obtain the data from the user.

### **Exercise 09 – 09: Sales Calculation**

A large company pays its salespeople on a commission basis. The salespeople receive \$200 per week plus 9% of their gross sales for that week. For example, a salesperson who sells \$5,000 worth of merchandise in a week receives \$200 plus 9% of \$5,000, or a total of \$650. You have been supplied with a list of the items sold by each salesperson. The values of these items are as follows:

Item	Value
1	239.99
2	129.75
3	99.95
4	350.89

Develop a Java application that inputs one salesperson's items sold for last week and calculates and displays that salesperson's earnings. There is no limit to the number of items that can be sold by a salesperson.

**Exercise 09 – 10: prints a table of values**

Write a Java application that uses looping to print the following table of values:

N	10*N	100*N	1000*N
1	10	100	1000
2	20	200	2000
3	30	300	3000
4	40	400	4000
5	50	500	5000

**Exercise 09 – 11: finds the smallest of several letters**

Write an application that finds the smallest of several integers. Assume that the first value read specifies the number of values to input from the user.