

Homework – Chapter 7 – Count Zeros:

47. Write a complete program to do the following:

(a) Write a function called readdata() which receives two parameters, an integer n and an array of integers called vals, both of which are changed in the function. The function reads a value into n and reads in n integers, storing the data values in the array vals. Print the data values as they are read in.

(b) Write a function called countzeros() which receives two parameters, an integer n and an array vals. The function counts how many of the first n elements of the vals array are 0. Print the number of 0 values (in either the main program or the function).

For example, if the array holds 66 0 -4 0 4 31 with n = 6, it has two 0 values.

(c) Write a function called append() which reads in several new values into the array, putting them at the end. As a result, it must change both the array and the value of n. The function receives the same two parameters as readdata(). Assume the array initially holds 66 0 -4 0 4 31 with n = 6; after the function call, the array might hold 66 0 -4 0 4 31 22 0 49 with n = 9.

(d) Write a main program which calls these functions. First, the main program calls readdata() to read a set of data into an array called numbers, which contains no more than 100 integers. The number of elements actually read is returned by the function and stored in a variable called size. Then the main program calls the function countzeros() to find how many of the size array elements are 0. Next the main program calls append() to modify the numbers array and n. The append() function reads in new values until input failure, adding the new values to the array and incrementing n. The new values in the array are printed (in either the main program or the function). Finally, the main program calls the function countzeros() again to determine how many elements in the new array are 0.