1. Write an algorithm to check if a given integer value belongs to a given array of integers. It should also print the location numbers at which this value was found otherwise it prints Not Found.

Input:

Array = [34, 22, 35, 34, 99, 54, 34, 99]

User Input = 34

Output:

Value is found at:

1

4

7

1. Write an algorithm that will get an array of students’ grades from the user and do the following:
   1. Check each array element if it is a valid grade (valid range is from 0 to 100). For each grade, print either Valid or Invalid. Count number of invalid grades.
   2. Check each array element if it is a valid grade (valid range is from 0 to 100). Produce a corresponding array (same size as the grades array) that has 1 or 0 in the same grade position; 1 if the grade is valid and 0 if it is invalid.

A grade array [90 -10 50 130 -2] will produce an output array [1 0 1 0 0]

* 1. Calculate and print the average grade.
  2. Find and print the highest and lowest grades and specify their locations.
  3. Allocate and print students having grades greater than 85%, and print their count.
  4. Allocate and print students having grades greater than average, and print their count.

1. A sound engineer has recorded a sound signal from a microphone. The sound signal was “sampled,” meaning that values at discrete intervals were recorded (rather than a continuous sound signal). The units of each data sample are volts. The microphone was not kept ON always, however, so the data samples that are below a certain threshold are considered to be data values that were samples when the microphone was not on, and therefore not valid data samples. The sound engineer would like to know the average voltage of the sound signal. Write an algorithm that will get the following from the user:

* the threshold,
* the number of data samples, and then
* the individual data samples.

The algorithm will then print the average and a count of the valid data samples, or an error message if there were no valid data samples. An example of what the input and output messages would look like is shown here.

Input:

Please enter the threshold below which samples will be considered to be invalid: 3.0

Please enter the number of data samples to enter: 7

Please enter a data sample: 0.4

Please enter a data sample: 5.5

Please enter a data sample: 5.0

Please enter a data sample: 2.1

Please enter a data sample: 6.2

Please enter a data sample: 0.3

Please enter a data sample: 5.4

Output:

Valid samples

4

Average

5.53