

CS 0411 assignment 6

Due on Friday. April 2, 2010

Each student is required to do this assignment **individually**. Type all of your answers in an electronic file (you can use plain text or Microsoft Word), which includes your explanation and data of inputs and output. All computer programs should be saved in separated files. Send your answer sheet and program files to the course email account:

`cs0411@peace.lakeheadu.ca`

In the email, you should indicate your name, student ID, assignment number and a list of attachments. All the program files should be sent as attachments of the email.

Assignments which do not meet above requirement risk reduced marks or even no marks.

The grade of the assignment will depend on:

Documentation and readability: 20 %

Correctness: 80 %

Problem 1.

Suppose a sequence of numbers x_1, x_2, \dots, x_n is arranged in increasing order. The *media* of the sequence is $x_{\frac{n+1}{2}}$ if n is odd, or $(x_{\frac{n}{2}} + x_{\frac{n+2}{2}})/2$ if n is even. Write a Fortran program which reads a sequence of integers in arbitrary order from keyboard and outputs the media of the sequence. You may define a run-time array and sort the inputs before compute the media. An sample of inputs and outputs are as follows:

Please input the length of the sequence:

11

Please input the elements of the sequence:

34,2,23,12,23,45,64,78,45,5,89

The media of the sequence is: 34

Problem 2.

A car manufacturer has collected data on the noise level (measured in decibels) produced by six different models of cars at seven different speeds. This data is summarized in the following table:

CAR	SPEED(MPH)						
	20	30	40	50	60	70	80
1	88	90	94	102	111	122	134
2	75	77	80	86	94	103	113
3	80	83	85	94	100	111	121
4	68	71	76	85	96	110	125
5	77	84	91	98	105	112	119
6	81	85	90	96	102	109	120

Write a program using a two-dimensional array, that will display this table in a nice format and that will calculate and display the average noise level for each car model, the average noise level at each speed, and the overall average noise level.