York University
Lassonde school of Engineering
Dept. of Electrical Engineering and Computer Science
EECS2032
Introduction to Embedded Systems
Fall 2021

EECS2032E   Test 2   Thursday Nov 25, 2021

Time 2:30-3:45

Please note the change in submit directories (easier to detect dishonesty)

Problem 1 5 points

Read an integer n, then read a sequence of n integers.
Display the number of positive to negative changes in the sequence

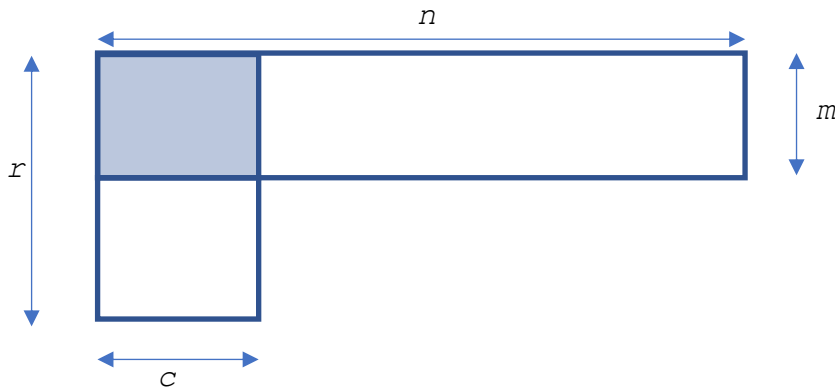For example, if the input is
6
2   4   -3   -9   3   3

Display 1 since there is only one change from 4 to -3

submit 2032E LABTEST2_1 labtest2_1.c

Problem 2 5 points

Write a program that reads 2 matrices and print the element by element sum of the intersection of the two matrices.

For example, the two matrices are shown in the figure above. One is $m \times n$, and the other is $r \times c$. The intersection is the shaded matrix above.

Input
one line contains m and n
Then m lines each contains n integers
one line contains r and c
r lines each contains c integers

Output
A matrix $m \times c$ which is the element-by-element sum of the shaded area of the two matrices. displayed in m lines each contains c elements with 2 spaces separation between the elements

Example

Input
3 2
1 7
8 2
2 6
2 4
1 2 3 4
5 6 7 8

Output
2 9
13 8

submit 2032E LABTEST2_2 labtest2_2.c

Problem 3. 5 points

Read a matrix and display its transpose. The transpose of matrix A is matrix B such that the columns of A are the rows of B and in the same order (column 1 of A is row 1 of B).

```
1 7 9          Transpose
2 8 1                              1 2 4 7 7
4 5 6                              7 8 5 8 3
7 8 9                              9 1 6 9 1
7 3 1
```

Read the number of rows (r)and columns (c) on one line, then r lines each contain c integers

submit 2032E LABTEST2_3 labtest2_3.c

Problem 4. 5 points

Read an integer *n* then read *n* strings on the same line and separated by spaces, each string is made of non-whitespace characters and is limited to 20 characters. Assume a maximum value of n to be 100
Display **Repeated** if there is a string that is repeated more than once. Otherwise display **NO Repetition**

submit 2032E LABTEST2_4 labtest2_4.c