

# Lassonde School of Engineering

## EECS 2032Z

### LAB TEST 2A

4:00-5:55pm

#### Submission

- Websubmit this lab to directory LABTEST2A with the file names given below
- Every array here should have a max size of 50 (or 50x50)
- Each part is worth 5 points
- Attempt **ANY FOUR** out of the given

#### Part 1

Print the even numbered rows of a matrix (assume 0 is even).

Read  $n, m$

Read  $n*m$  elements of the matrix (in a row major fashion)

Display the even numbered rows each row on a line by itself with three spaces between entries.

**File name labtest2A\_1.c**

#### Part 2

Read an integer  $N$  from the standard input. Then read  $N$  integers.

Display the maximum and second maximum numbers on the output ended by a new line, and separated by 3 spaces.

**File name labtest2A\_2.c**

## Part 3

Read a string (no spaces) from the standard input. If the string is a palindrome, display YES on the standard output; otherwise display NO both followed by a new line.

A palindrome is a string such that the characters are read the same from left to right or right to left, for example **redivider**

**File name labtest2A\_3.c**

## Part 4

Read two matrices.  $n_1$ ,  $m_1$ , followed by  $n_1 \times m_1$  elements of the first matrix, followed by  $n_2$ ,  $m_2$ , and  $n_2 \times m_2$  elements of the second matrix.

Display the rows of the first matrix where the diagonal element of the two matrices is the same.

Example, the input is

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

Where elements on the main diagonal are shown in red.

The first and third rows (rows 0 and 2) have the same element on the main diagonal (1 and 9), print these rows of the first matrix.

Your output should be

```
1 4 7 9 5
7 3 9 4 8
```

**File name labtest2A\_4.c**

## Part 5

Write a C code to do the following

- Read an integer ( $N$ )
- Read  $N$  integers to form a vector ( $a$ ).
- Check the vector to find the **maximum** absolute difference between any two consecutive entries ( $a[i]$  and  $a[i+1]$ ).
- Display  $a[i]$   $a[i+1]$  and the **maximum** absolute value of the difference.

For example, if the array is (assume  $N=7$ )

5 8 3 7 9 6 6

The difference (absolute) between  $a[0]$  and  $a[1]$  is 3

The difference (absolute) between  $a[1]$  and  $a[2]$  is 5

The difference (absolute) between  $a[2]$  and  $a[3]$  is 4

The difference (absolute) between  $a[3]$  and  $a[4]$  is 2

The difference (absolute) between  $a[4]$  and  $a[5]$  is 3

The difference (absolute) between  $a[5]$  and  $a[6]$  is 0

The maximum is 5 and is between 8 and 3

The output should be

**8 3 5**

**File name labtest2A\_5.c**