

# EECS 2032E

## FALL 2021

### LAB 6

#### Objective:

The objective of this lab is to get familiar with arrays and strings

#### Problem 1

write a C code that reads a 2-D array of integers. Then, it checks the array columns.

If all the columns are ascending or all the columns are descending, it display Yes, otherwise, it displays NO. if your code displayed any thing other than YES or NO (enter the array, enter the row and columns, or the answer is) you will get a ZERO. Only YES, or NO

#### Input

The input is one line contains two integers, row ( $r$ ) and column ( $c$ ). Then it followed by  $r$  lines each contains  $c$  integers. for example

```
3 5
7 6 2 4 8
5 2 1 3 6
1 0 -1 2 4
```

Your code should display YES, since or the columns are descending

If the input is

```
3 3
1 4 8
2 7 9
6 8 10
```

Your code should display YES, since all the columns are ascending

If the input is

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

Your code should display NO, since the first and second columns are ascending, while the third is not ascending

**Submit as lab6\_1.c**

## Problem 2 – DO NOT USE string.h functions

Write a C program that reads two strings (the maximum size of the string is 30). A string is a number of characters terminated by a white space.

Then your code should check if the smaller string is a part of the long one.

If yes, it should display

*short\_string* is a substring of *long\_string*

Else, it should display

*short\_string* is not a substring of *long\_string*.

If the two strings are equal, and identical, display

identical string

If the two strings are equal but not identical, display

*string\_1* is not equal to *string\_2*

where *short\_string* is the shorter string you read, *long\_string* is the longer string you read, *string\_1* is the first read string, and *string\_2* is the second read string

**Submit as lab6\_2.c**

## Additional problems (Do not submit)

1. Do problem 2, but instead of the shorter one being a substring of the longer one, determine if all the characters in the short string is included in the long string in any order. Consider two cases. The first consider the repeated characters in the shorter string as only one character. For example, all the characters in "ABCCD" are included in "ABCDEFGH" Although the 'C' is repeated twice in the first one, it is enough to exist once in the second one. The second case, 'C' must be repeated twice in the second string.
2. Read a square matrix and calculate if it is symmetric or not.
3. Read a matrix and display the transpose of the matrix

4. read a square matrix and display YES or NO. If every diagonal element in every row is bigger than the sum of all the absolute values of all the elements in that row, display YES, otherwise display NO.
5. Read a string. If the string contains three consecutive letters in the alphabet in consecutive positions, display YES, else display No. For example the string "ghklofghzcd" contains "fgh" then display YES.
6. Read a floating point number and exchange the whole and fraction parts (for example 415.26 becomes 26.415)