

02/12/2018

BLM1011
Introduction to Computer Science
Assignment - 2
(Due 08/12/2018 - 23:59h)

Q1

There are several bus lines and bus stops in a city. Suppose that you are given the number of buses (N), the number of bus stops (M) in whole city, and a matrix ($N \times M$) consisting of 1s and 0s. 1s represent the stops of a bus line.

Design an algorithm

- which sorts and list the bus lines based on the number of their bus stops in descending way.
- which finds the most and least busy bus stops
- which finds the most identical two bus lines in the city.

EXAMPLE

Input:

Number of Bus Lines N:5
Number of Bus Stops M:6

Bus Stops

	1	2	3	4	5	6
1	1	0	0	0	0	1
2	0	1	1	1	0	0
3	0	1	0	0	0	1
4	1	0	1	0	1	1
5	1	1	1	1	1	1

Output:

- a. Bus Line 5: 6 stops
Bus Line 4: 4 stops
Bus Line 2 : 3 stops
Bus Line 1 : 2 stops
Bus Line 3 : 2 stops
- b. The most busy bus stop : Stop 6
The least busy bus stop : Stop 4 and Stop 5
- c. The most identical bus lines : **Bus Line 4 and Bus Line 5**

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Specifications for Assignments

Submission

- Assignments submitted after submission deadline (at most 2 days late) will be evaluated over 50. Do not send any e-mail 3 days after submission deadline.
- Collaboration on any assignment is strictly prohibited. Submitted assignments are automatically checked for similarities. Infractions will be given a zero for the entire assignment.
- Assignments **MUST** be submitted by e-mail. Every student must send his/her assignment to the following e-mail address.

amac@yildiz.edu.tr

- Subject of the e-mail **MUST** contain course name, Assignment # and student number in specified format written below;

Example Subject :

Content

1. An archive (zip, rar) file which contains only **ONE report file** and **ONE source file**. The question number indicates the number of source files.
2. The report file should include
 1. **Question** - A brief description for each question
 2. **Solution** - An explanation for each solution
 3. **Flowchart** - The flowchart for the algorithm
 4. **Source Code** - The source code (use Notepad++ or the equivalent to have colored codes)
 5. **Analysis** - Numerous (at least 5, if necessary more) screenshots to show that your program runs correctly

About Source Code

The source file must include **comments** which explain the code.
The code should be **well-designed**.

About Comments

- Important algorithmic parts must be commented.
- You must write a heading comment describing you and the program

3. The name of the submitted files must contain student number

Example: **zip/rar filename :** **13011001.rar**

The zip/rar should contain

pdf filename: 13011001.pdf

Source filename: 13011001.c

// No separate jpg, bmp, etc. files

- Do not forget to prepare a cover page which should include
 - Course Name
 - Course Group
 - Instructor Name
 - Assignment Number
 - Delivery Date of the Assignment
 - Student Id
 - Student Name and Surname
 - Signature
- You can draw your flowchart either by your hand or by computer. Just work clean !!!

ATTENTION

- Do not use double filename extensions. For example, xxx.zip.rar, xxx.c.exe, ... etc. Otherwise your mail will be blocked by spam filter and your assignment will not be evaluated.
- Assignments that don't comply with submission rules will **NOT** be evaluated. **"NO EXCEPTION"**