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

Bus Lines

	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

BLM1011 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 <u>ONE report file</u> and <u>ONE source file</u>. 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

- o Important algorithmic parts must be commented.
- O 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"