Programming-1: Sheet #3
100 marks

Notes:

1. **Cheaters will be graded -100**
2. **submission in you lab next week that start from 17/5/2014**
3. **No accepted submission**

Question 1 (30 Marks):

Given a string, consisting if uppercase and lowercase Latin letters, you are to:

- deletes all the vowels,
- inserts a character "." before each consonant,
- replaces all uppercase consonants with corresponding lowercase ones.

Vowels are letters "A", "O", "Y", "E", "U", "I", and the rest are consonants. The program's input is exactly one string, it should return the output as a single string, resulting after the program's processing the initial string.

Sample Input
Faculty of Computers and Information

Sample Output
.f.c.l.t. .f. .c.m.p.t.r.s. .n.d. .n.f.r.m.t.n

Question 2 (30 Grades):

Sometimes some words like "localization" or "internationalization" are so long that writing them many times in one text is quite tiresome.

Let's consider a word too long, if its length is strictly more than 10 characters. All too long words should be replaced with a special abbreviation.

This abbreviation is made like this: we write down the first and the last letter of a word and between them we write the number of letters between the first and the last letters. That number is in decimal system and doesn't contain any leading zeroes.

Thus, "localization" will be spelt as "l10n", and "internationalization» will be spelt as "i18n".

You are suggested to automatize the process of changing the words with abbreviations. At that all too long words should be replaced by the abbreviation and the words that are not too long should not undergo any changes.

The first line of the input contains an integer n ($1 \leq n \leq 100$). Each of the following n lines contains one word. You should print n lines. The i-th line should contain the result of replacing of the i-th word from the input data.

Sample Input
2
program
FacultyOfComputersAndInformation

Sample Output
program
F30n

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### Question 3 (40 Grades):

After your graduation from FCI, you won a car to work on it from the government and you are required to transfer lot of watermelons from Cairo city to other cities. As you know, we have an economic problem and limited Gasoline so you need to minimize using gasoline. Government will give you a map, which contains the required Gasoline Liters from City X to City Y, and you should follow specific path to use the minimal number of Gasoline liters.

For example: You are in Cairo and want to transfer the lot to 3 cities: Alexandria, Mansourah, Hurghada. In the map, you have the following diagram:
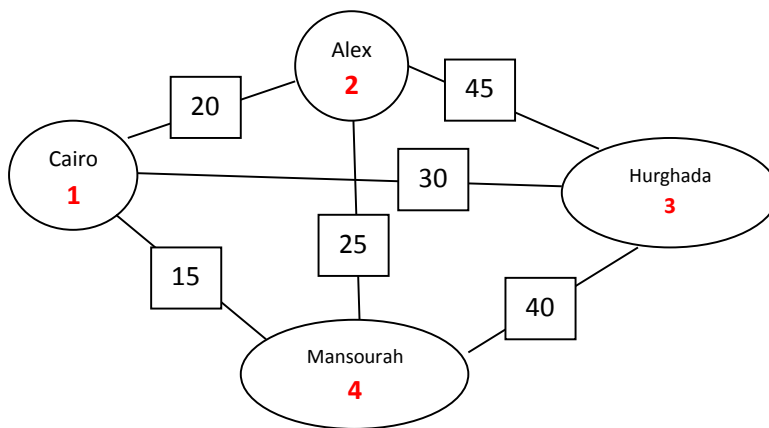
If your start point is Cairo and you should visit each city so to minimize using Gasolin, you should follow the following path:

(Cairo -> Mansourah -> Alex -> Hurghada) using this path, you will use only **85** Liters. You are required to write a program, which determine the minimum number of Gasoline.

Sample Input:
Enter number of cities: **4**
The start city is city#: 1
Required Gasoline from City#1 to City#2: **20**
Required Gasoline from City#1 to City#3: **30**
Required Gasoline from City#1 to City#4: **15**
Required Gasoline from City#2 to City#3: **45**
Required Gasoline from City#2 to City#4: **25**
Required Gasoline from City#3 to City#4: **40**
Sample Output:
Minimum amount of Gasoline: 85