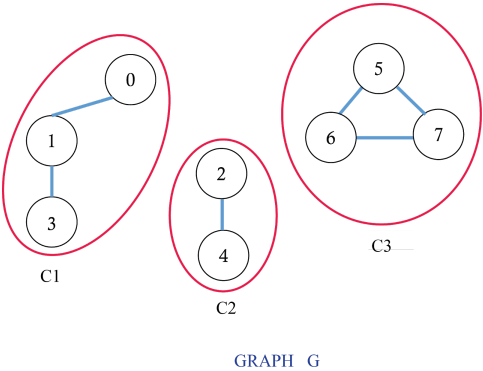


❑ **Problem 1**

In Graph Theory, the **connected component** of an undirected graph is a subgraph in which any two vertices are connected to each other by paths, and which is connected to no additional vertices in the supergraph. An example will make it clear.



Here **G** is a graph with total **8** vertices numbered from **0** to **7**. It has 3 connected components **C1**, **C2** and **C3**. **C1** is connected, **C2** is connected, **C3** is connected but they don't have any connection among them. With the help of **Breadth First Search**, the number of connected components in a given undirected graph can be determined very easily.

Now your task is very simple. You will be given **2** integers **n** and **m** in the first line of the input, where **n** is the number of vertices of a **simple undirected** graph **G** and **m** is the number of edges in **G**. Next **m** lines of input will contain **2** integers **x** and **y**, which represents that there is an edge between vertex-**x** and vertex-**y**. You have to find the number of connected components in **G**. It is guaranteed that vertices are numbered from **0** to **n-1** uniquely.

Constraints:

- 1. $1 \leq n \leq 100$
- 2. $0 \leq x < n$
- 3. $0 \leq y < n$
- 4. **x** and **y** will not be equal for an edge

Examples:

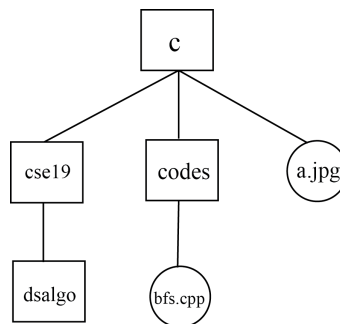
Input
4 3 0 3 2 0 3 2
Output
2

Input
5 0
Output
5

❑ Problem 2

In the Windows operating system, the file system is organized as tree data structure. A drive is a location in a computer that is capable of storing and reading data. A drive can store files or folders. Folder is also a container that can contain both folders and files. A file or folder can be accessed by its absolute path. The components an absolute path of a file/folder is given below:

1. **A volume or drive letter** followed by the volume separator (:)
2. **A directory name.** The directory separator character (\) separates subdirectories within the nested directory hierarchy
3. **An optional filename.** The directory separator character (\) separates the file path and the filename



File Structure

The file structure represents that the **C** drive contains 2 folders named **cse19** and **codes** and a file named **a.jpg**. The folder named **cse19** contains a folder named **dsalgo** and the folder **codes** contains a file named **bfs.cpp**. The absolute path for the file named **bfs.cpp** is **c:\codes\bfs.cpp**.

A file/folder is opened by clicking **2** times on the interface of that specific file/folder. For example, if the **bfs.cpp** file to be opened then total **6** mouse clicks will be needed. [**2** clicks for opening **c** drive, **2** clicks for opening the folder named **codes** and **2** clicks for opening the file named **bfs.cpp**].

Now your task is very simple. The User will represent a file structure as input and then a list of file/folder names will be given to find the absolute path and the number of mouse clicks needed to open those files/folders.

For simplicity you can assume that:

1. **c** is the only drive of the computer
2. The given file structure can contain at most **50** files/folders in total
3. No file/folder having same name in the given file structure
4. The name of a file/folder can contain lowercase letters, digits and dot(.)

● Input

The first line of input contains an integer **n**. Where **n** represents the total number of files and folders in the file structure including **C** drive. Next **n-1** lines of input respectively contain two strings **x** and **y** separated by a single space each which represents that **x** is a drive/folder that contains **y** is a file/folder. Then the next line

contains an integer **q** which represents the number of queries that will be made by the user. Next **q** lines of input contain a string of file/folder names each.

- **Input Constraints**

1. $2 \leq n \leq 50$
2. If the value of **x** is “**c**” then it will represent the **c** drive

- **Output**

For each independent query of file/folder name you need to print the absolute path and number of mouse clicks required for opening the file/folder. If any query contains a file/folder name that is not present in the file structure then print **File Not Found** as the absolute path and **-1** as number of mouse clicks required. For each independent query, you will assume that the user needs to open the file/folder starting from the **c** drive.

- **Examples**

If we consider the file structure which has been used for example then the input-output section will be like

Input
6 c cse19 codes bfs.cpp c a.jpg c codes cse19 dsalgo 3 bfs.cpp cse19 koushik.jpg
Output
Absolute path for bfs.cpp: c:\codes\bfs.cpp Number of mouse clicks required for opening bfs.cpp: 6 Absolute path for cse19: c:\cse19 Number of mouse clicks required for opening cse19: 4 File Not Found -1

- **Hints**

1. You can use **map** of C++ for storing a numerical value for a file/folder/drive name
2. You are recommended to use **string** data type of c++ for taking the file/folder/drive name as input