

you are going to implement BFS (Breadth First Search).

Your program is expected to support the following operations:

- You have two files named **cities.txt** and **graph.txt**.
- The cities of Turkey is written in the **cities.txt** file in an ordered way according to their plate. (81 cities)
- In the **graph.txt** file, the neighbourhood of this cities are represented. (81 x 81 matrix)

0 represents **Not Neighbour**

1 represents **Neighbour**

Explanation:

Assume that cities.txt file has the following:

A
B
C
D

Assume that graph.txt file has the following:

0	1	0	1
0	0	1	0
0	0	0	1
1	0	0	0

That means;

	A	B	C	D
A	0	1	0	1
B	1	0	1	0
C	0	1	0	1
D	1	0	1	0

which represents

A is neighbour to B and D
B is neighbour to A and C
C is neighbour to B and D
D is neighbour to A and C

- Your goal is to show the neighbourhood levels for a cities of Turkey. (**Hint:** BFS)
- You can use either adjacency matrix or graph representation.

Example Run:

Please select a city to see the neighbourhood level:

Ankara

Neighbourhood Level 1

Afyon
Bolu
Cankiri
Eskisehir
Kirsehir
Konya
Aksaray
Kirikkale

Level 1 represents the direct neighbourhood.

Neighbourhood Level 2

Burdur
Denizli
Isparta
Kutahya
Usak
Bilecik
Sakarya
Zonguldak
Duzce
Corum
Kastamonu
Karabuk
Nevsehir
Yozgat
Antalya
Mersin
Nigde
Karaman

Level 2 represents the neighbourhood that you can reach from the Level 1 neighbours of a given city.

Neighbourhood Level 3

Mugla
Aydin
Manisa

Balikesir

Bursa

Kocaeli

Bartın

Amasya

Samsun

Sinop

Kayseri

Sivas

Tokat

Adana

Neighbourhood Level 4

Izmir

Canakkale

Yalova

Istanbul

Ordu

Kahramanmaraş

Erzincan

Giresun

Malatya

Hatay

Osmaniye

Neighbourhood Level 5

Edirne

Tekirdag

Kirklareli

Adiyaman

Gaziantep

Bingöl

Elazığ

Erzurum

Gumushane

Tunceli

Bayburt

Trabzon

Diyarbakır

Kilis

Neighbourhood Level 6

Sanliurfa

Mus

Agri

Artvin

Kars

Rize

Ardahan

Mardin

Batman

Neighbourhood Level 7

Bitlis

Van

Igdir

Siirt

Sirnak

Neighbourhood Level 8

Hakkari

- You can check your solution with this output for Ankara.
- You can benefit from the BFS implementations in the following links:
- <https://www.geeksforgeeks.org/breadth-first-search-or-bfs-for-a-graph/>
- <https://www.geeksforgeeks.org/implementation-of-bfs-using-adjacency-matrix/>