ESTRUCTURA DE DATOS 1
Código ST0245

Laboratory practice No. 5: Graphs

Gregorio Pérez Bernal
Universidad Eafit
Medellín, Colombia
gperezb1@eafit.edu.co

Luisa Toro Villegas
Universidad Eafit
Medellín, Colombia
ltorov@eafit.edu.co

3) Practice for final project defense presentation

3.1 The code works based on several classes or objects. Object Vertex takes a String and separates it into 3 variables, its ID, its name and its weight (the last is used only in the adjacency matrix). Object Edge works similarly, with variables IDSalida, IDEntrada, weight and name. Object Graph City creates an adjacency "matrix", which is actually a list of lists of vertices, and has different methods like addEdge, addVertex, a boolean which determines if two vertices are connected, a method which returns the weight of the connection between two vertices, and a method which given a node returns its successors. Then to implement it, a class called ImplementationCityMap, which uses a list of edges, a list of vertex and a graph city, which reads a given data set, and organices it into a graphcity, and uses all of its methods.

3.2 Taking into account that there are 310153 vertices, we would have a matrix to 310153^2 positions of integers. That being said, the storage would be 4*310153^2 = 3.847795336x10^11 bytes.

3.3 This problem never appeared inside of the data structure that was built

3.5 Complexity O(m*n), n being the number of vertices and m to the number of edges.
3.6 n refers to the number of vetices and m refers to the number of edges.

4) Practice for midterms

4.1

	0	***1***	***2***	***3***	***4***	***5***	***6***	***7***
0	***0***	***0***	***0***	***1***	***1***	***0***	***0***	***0***
1	***1***	***0***	***1***	***0***	***0***	***1***	***0***	***0***
2	***0***	***1***	***0***	***0***	***1***	***0***	***1***	***0***
3	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***1***
4	***0***	***0***	***1***	***0***	***0***	***0***	***0***	***0***

PhD. Mauricio Toro Bermúdez
Professor | School of Engineering | Informatics and Systems
Email: mtorobe@eafit.edu.co | Office: Building 19 – 627
Phone: (+57) (4) 261 95 00 Ext. 9473

5	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
6	***0***	***0***	***1***	***0***	***0***	***0***	***0***	***0***
7	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***

4.2
0 [3,4]
1 [0,2,5]
2[1,4,6]
3 [7]
4[2]
5[]
6[2]
7[]

4. 3 b
4. 4.1 b
4 4.2 a

5) Recommended reading (optional)

Mapa conceptual

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