MAPPING AGAINST SEXUAL HARRASMENT

UNIVERSIDAD EAFIT

Team Presentation

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Literature review

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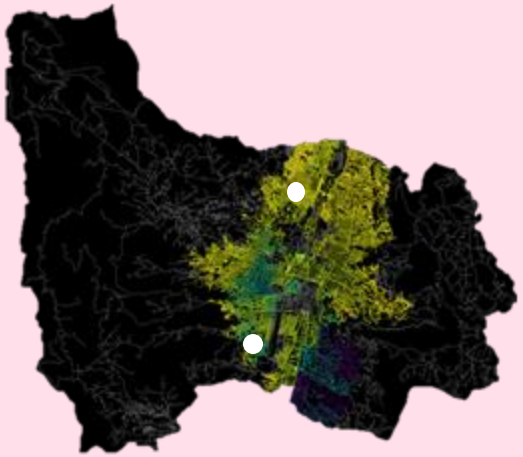
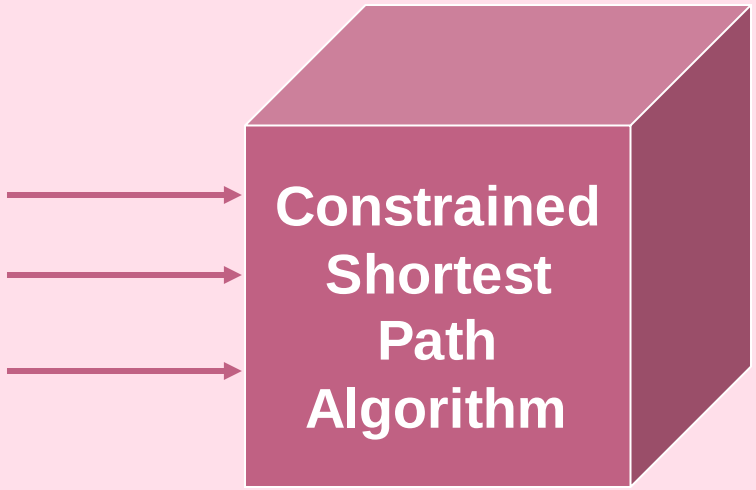
Data preparation

https://github.com/saradrl/ST0245-001

Problem Statement

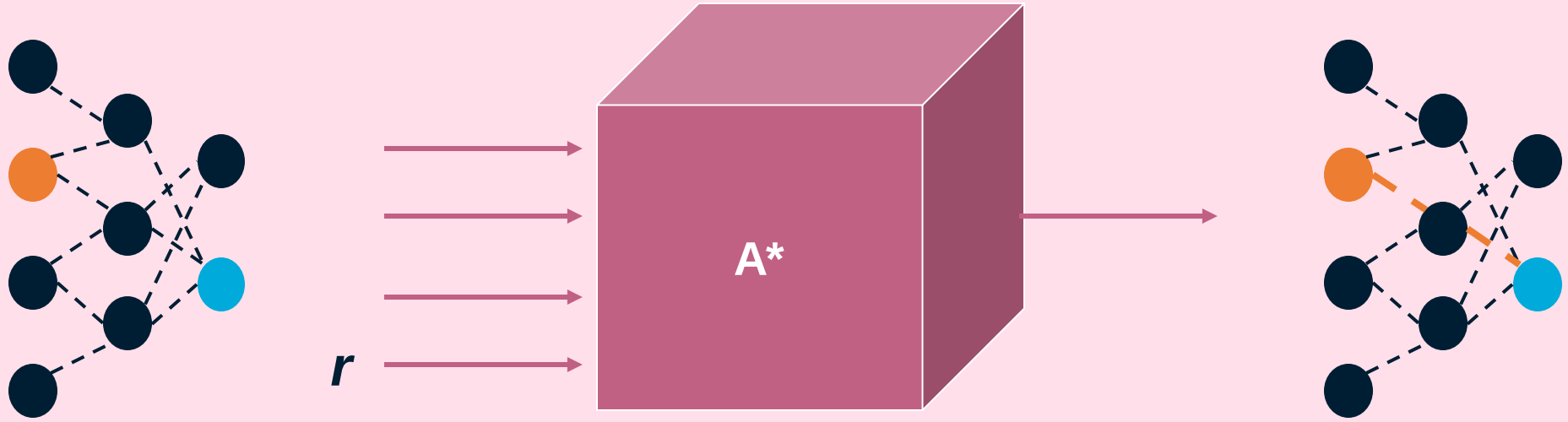




Streets of Medellín, Origin and Destination

Constrained Shortest Paths

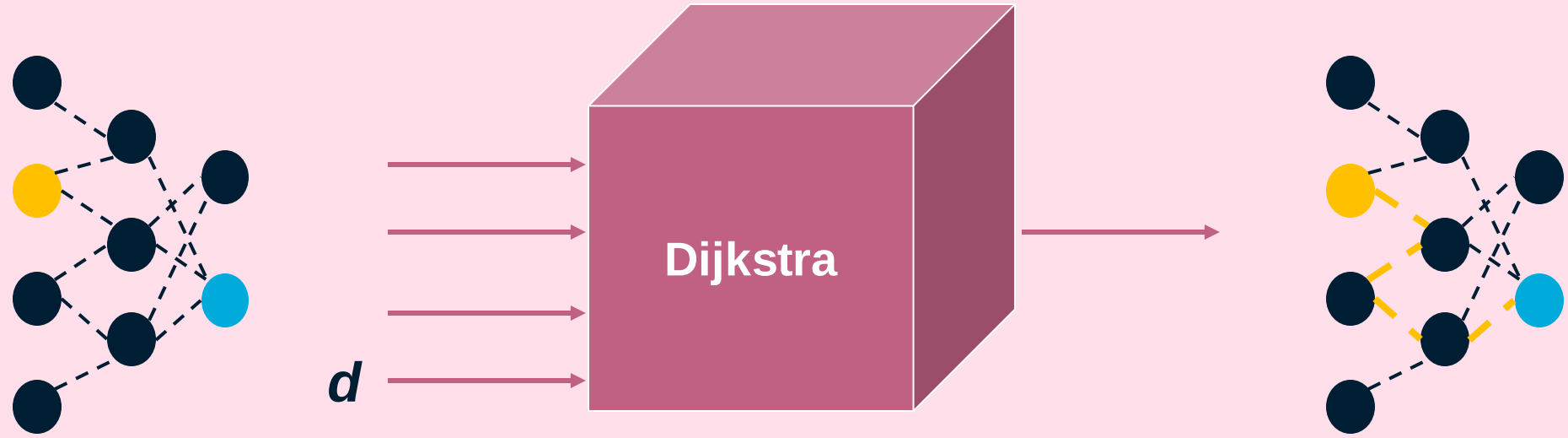
First Algorithm



Streets of Medellín, Origin and Destination

Shortest path without exceeding a weighted-average risk of harassment *r*

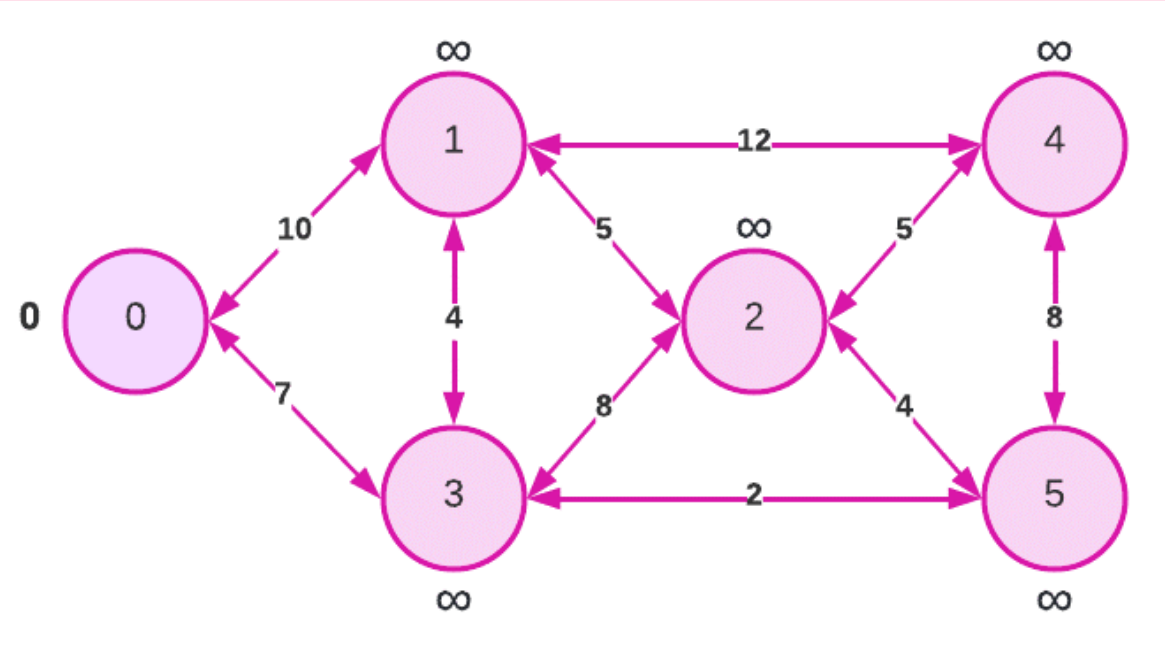
Second Algorithm

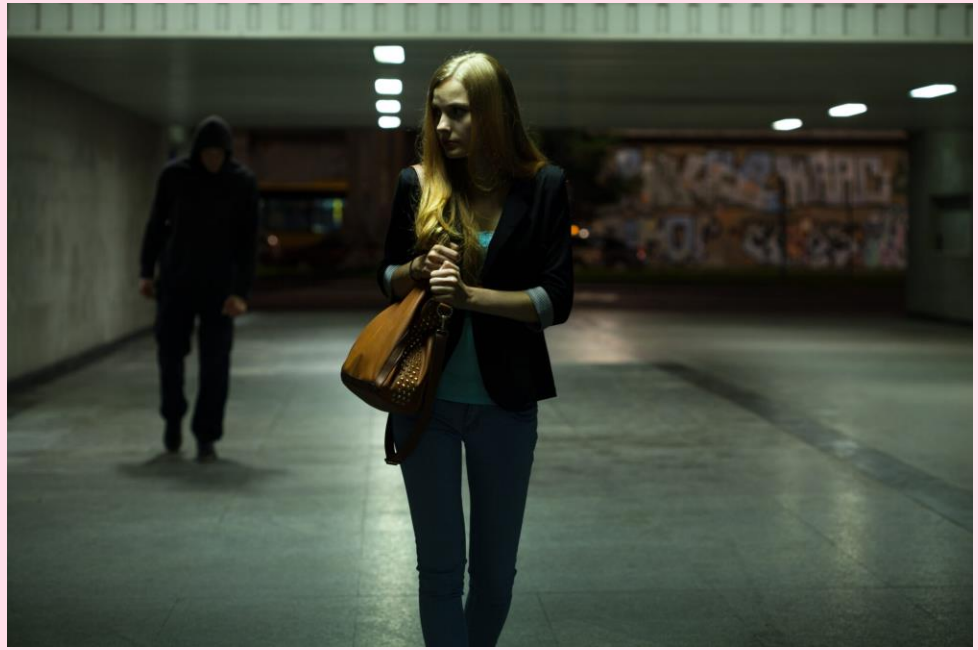


Streets of Medellín, Origin and Destination

Path with the lowest weighted-average risk of harassment without exceeding a distance *d*

Algorithm Explanation





Dijkstra for the Constrained Shortest Path:

The graphic has a groups of nodes, of which each of them contains their distances between one and another. Also, the initial node has a value of 0, and the other ones of infinite.

Algorithm Complexity

	Time Complexity	Memory Complexity
Dijkstra	O(E*Log(V))	O(V*E2^E)

Time and memory complexity of the algorithm name. The V represent the vertices, while the E represents edges. Therefore, both algorithms have very good time and memory complexity, but A* could run faster and safe more memory .

Shortest Path Results

Origin	Destination	Shortest distance (meters)	Without exceeding a weighted-average risk of harassment
Universidad EAFIT	Universidad de Medellín	700	0.84
Universidad de Antioquia	Universidad Nacional	80	0.83
Universidad Nacional	Universidad Luis Amigó	90	0.85

Shortest distance obtained without exceeding a weighted average risk of harassment *r.*

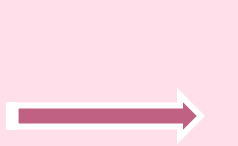
Lowest Risk Results

Origin	Destination	Weighted-average risk of harassment	Without exceeding a distance (meters)
Universidad EAFIT	Universidad de Medellín	0.42	5000
Universidad de Antioquia	Universidad Nacional	0.2	7000
Universidad Nacional	Universidad Luis Amigó	0.3	6500

Lowest weighted-average risk of harassment obtained without exceeding a distance *d.*

Algorithm Execution Times

Execution Times



5.75 seconds

3.42 seconds

2.71 seconds

Future Work Directions

Databases

- Add other destinations

Data structure 2

- Implement a heat map

Software Eng.

- A Web Application

Integrative project

- A mobile application

THANK YOU!

Supported by

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