University of Costa Rica

Engineering Faculty

Computer Science and Informatics School

CI-0113 Programming II

Prof. Jeisson Hidalgo Céspedes

Group 02

Second Project

Analysis of the data from the test of the graph template

Alejandro Barboza Taylor   C10886

Fabian Vega Meza   C08369

Kenneth Daniel Villalobos Solís   C18548

II Semester, 2022

Table with the results:

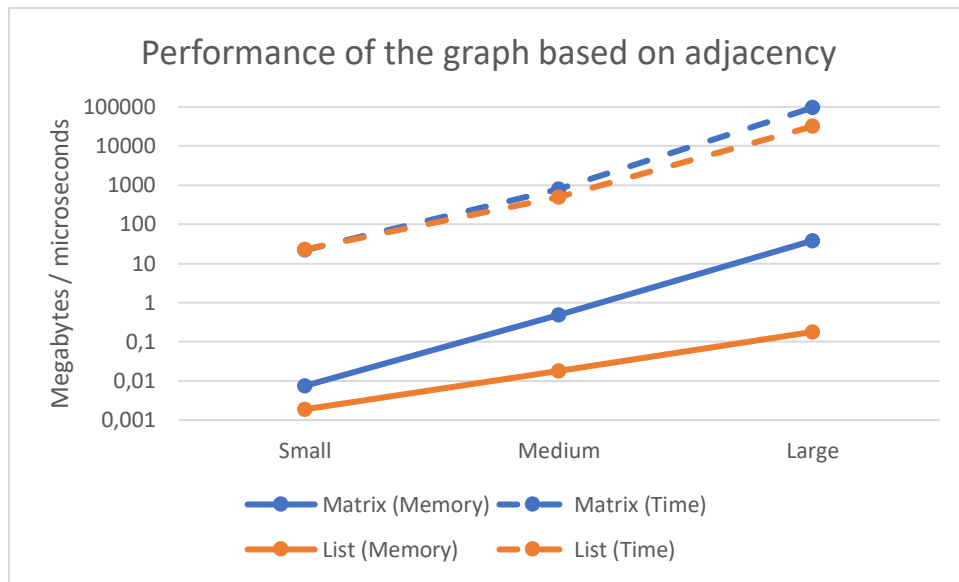| Test	Time Matrix	Time List	Memory Matrix	Memory List
Small	0m0.022s	0m0.023s	7512 bytes	1888 bytes
	0m0.027s	0m0.026s		
	0m0.022s	0m0.023s		
Medium	0m0.802s	0m0.718s	487464 bytes	18224 bytes
	0m0.822s	0m1.038s		
	0m0.938s	0m0.502s		
Large	1m35.552s	0m33.835s	38405832 bytes	179008 bytes
	1m38.437s	0m31.823s		
	1m44.836s	0m33.013s		

This table documents the results of performing 3 different tests of different length on the LinkedUp app 3 times each using the developed graph template.

Table with minimum results:

Minimums Matrix		Minimums List	
0m0.022s	7512 bytes	0m0.023s	1888 bytes
0m0.802s	487464 bytes	0m0.502s	18224 bytes
1m35.552	38405832 bytes	0m31.823s	179008 bytes

This table summarizes the obtained minimal results on the matrix and list versions on both categories: time and memory.

Logarithmic Line Chart based on the minimum results

Performance of the graph based on adjacency

Conclusion:

Based on several of the tests performed with the developed code of the graph template we can conclude some important results looking at the tendencies from the data. There is a significant difference on the memory used on each version, in the case of the list we can see a more cost-effective usage of storage whereas the matrix version provided a more comfortable and easy interaction with us the developers.

On the other hand, contrary to the expected results, both versions have a similar execution speed, usually matrixes tend to be faster and more efficient when accessing its data but In this case we can see the opposite result, we can only assume this is because of the way the graph was implemented, maybe a different approach would've yield different and possibly better results.

On this instance however, we can clearly see the that the list version is way more optimal for most scenarios and should be preferred when using the graph template on this app.