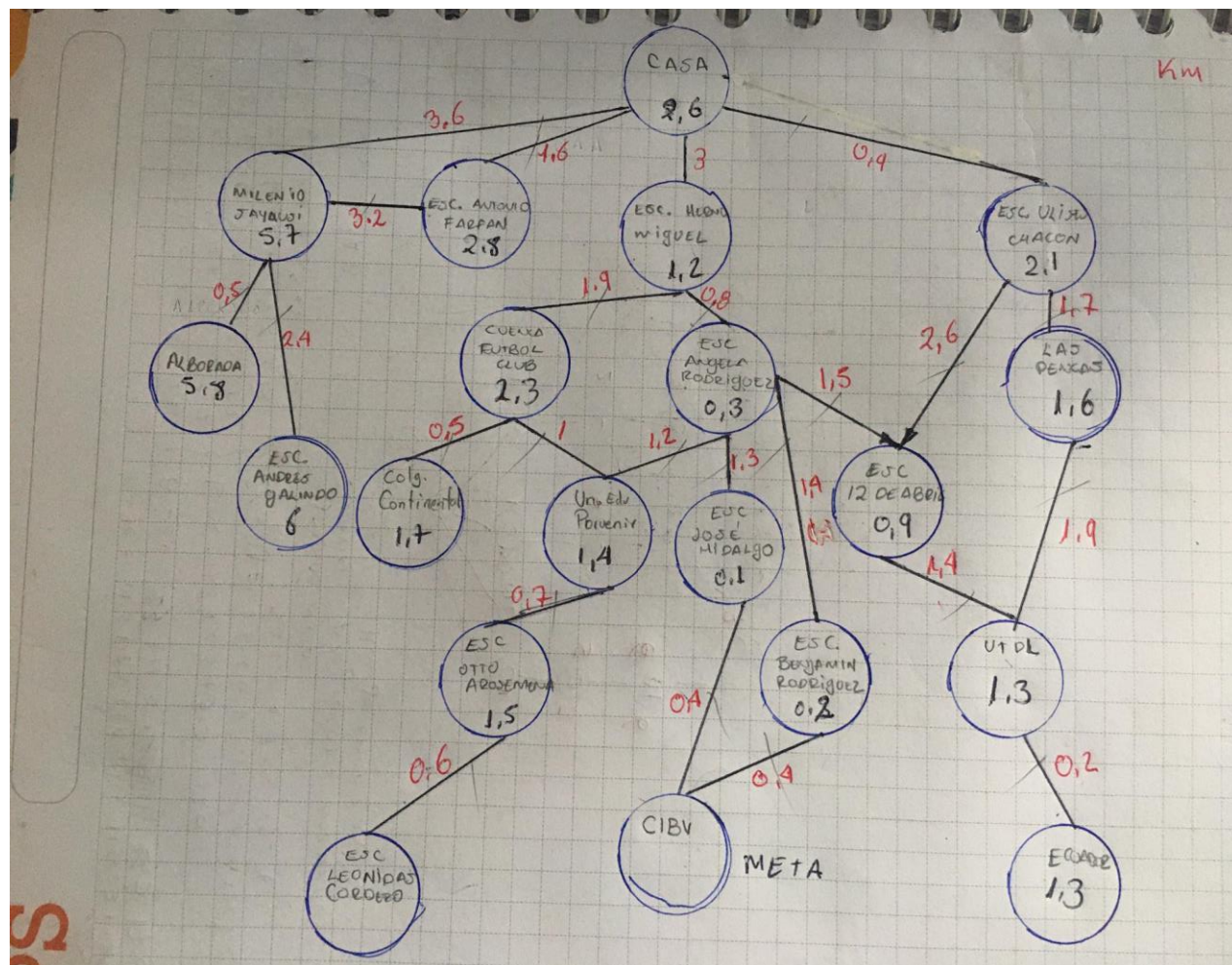


Árbol de grafo



- 2- Realizar los cálculos de forma manual y determinar el camido que debe recorrer para llegar del nodo inicio al nodo meta.

Cálculos

UPS

Cálculos de distancias:

CASA - MILENIO = $h(n) 3.6 + 5.7 = 9.1$ ①
 CASA - A. FARFA = $h(n) 1.6 + 2.8 = 4.4$ ③
 CASA - H. MIGUEL = $h(n) 3 + 1.2 = 4.2$ ②
 CASA - U. CHACON = $h(n) 0.9 + 2.1 = 3.0$ ④

Visitados: CASA, U. Chacon, LAS PENCAS, UPL ECUADOR, H. Miguel, C. FURBOZ, A. Rodriguez, Parvenir, J. Hidalgo, Benjamin, IZABEL CIBU

Recorrido: CASA - H. Miguel - A. Rodriguez - J. Hidalgo - CIBU

Cálculos de distancias entre nodos:

① U. Chacon - IZABEL = $2.6 + 0.9 + 0.9 = 4.4$
 ① U. Chacon - PENCAS = $1.7 + 1.6 + 0.9 = 4.2$
 PENCAS - UPL = $0.9 + 1.3 + 1.7 = 4.9$
 UPL - ECUADOR = $0.2 + 1.3 + 1.9 = 3.4$
 ② H. Miguel - C. FURBOZ = $1.9 + 2.5 + 3 = 7.2$
 H. Miguel - A. Rodriguez = $0.8 + 0.3 + 3 = 4.1$
 A. Rodriguez - Parvenir = $1.2 + 1.4 + 0.8 = 3.4$
 A. Rodriguez - J. Hidalgo = $1.3 + 0.1 + 0.8 = 2.2$
 A. Rodriguez - Benjamin = $1.4 + 0.2 + 0.8 = 2.4$
 A. Rodriguez - IZABEL = $1.5 + 0.9 + 0.8 = 3.2$
 J. Hidalgo - CIBU = $0.1 + 0.4 = 0.5$

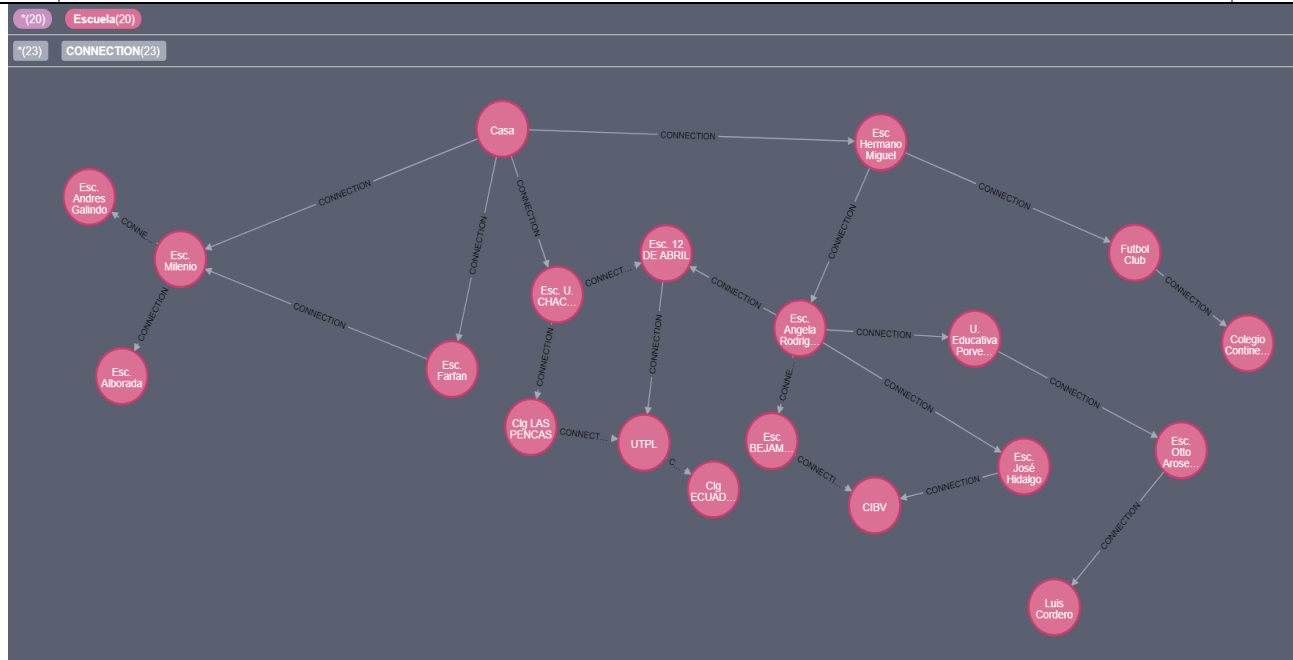
PUNTO	LATITUD	LONGITUD
CASA	-2.885266	-79.042925
MILENIO	-2.882088	-79.069084
FARFA	-2.897724	-79.050250
H. MIGUEL		
U. CHACON		
ALBORADA	-2.881123	-79.069349
F. CLUB	-2.903735	-79.047002
A. RODRIGUEZ	-2.901366	-79.028830
PENCAS		
A. GALINDO		
CONTINENTAL		
PARVENIR	-2.906970	-79.038342
J. HIDALGO	-2.908673	-79.027169
IZABEL		
OTTO A.		
BENJAMIN		
UPL		
ECUADOR		
CIBU	-2.902134	-79.085846
Z. CALDERO	-2.912771	-79.039949

Recorrido {Casa-Esc. Hermano Miguel-Esc. Ángela Rodríguez-Esc. José Hidalgo-CIBU}

3- Generar el algoritmo A* en neo4j

Creación de los nodos Escuela

```
CREATE (a:Escuela {name: 'Casa',
latitude: -2.885266, longitude: -79.042925}},
(b:Escuela {name: 'Esc. Milenio',
latitude: -2.882088, longitude: -79.0691089}},
(c:Escuela {name: 'Esc. Farfan',
latitude: -2.897724, longitude: -79.050950}},
(d:Escuela {name: 'CIBV',
latitude: -2.902147, longitude: -79.025848}},
(f:Escuela {name: 'Esc. BEJAMIN ',
latitude: -2.900198, longitude: -79.026192}},
(g:Escuela {name: 'Esc. 12 DE ABRIL ',
latitude: -2.894898, longitude: -79.021607}},
(h:Escuela {name: 'UTPL ',
latitude: -2.892037, longitude: -79.019429}},
(i:Escuela {name: 'Clg ECUADOR ',
latitude: -2.893312, longitude: -79.017423}},
(j:Escuela {name: 'Clg LAS PENCAS',
latitude: -2.887236, longitude: -79.027486}},
(k:Escuela {name: 'Esc. U. CHACON',
latitude: -2.885893, longitude: -79.035633}},
(l:Escuela {name: 'Esc. Andres Galindo',
latitude: -2.868597, longitude: -79.068916}},
(m:Escuela {name: 'Esc. Hermano Miguel',
latitude: -2.899876, longitude: -79.036634}},
(n:Escuela {name: 'Colegio Continental',
latitude: -2.908761, longitude: -79.040234}},
(o:Escuela {name: 'Esc. Alborada',
latitude: -2.881125, longitude: -79.069349}},
(p:Escuela {name: 'Futbol Club',
latitude: -2.903735, longitude: -79.047002}},
(q:Escuela {name: 'Esc. Angela Rodriguez',
latitude: -2.901366, longitude: -79.028850}},
(r:Escuela {name: 'U. Educativa Porvenir',
latitude: -2.906970, longitude: -79.38342}},
(s:Escuela {name: 'Esc. José Hidalgo',
latitude: -2.902075, longitude: -79.027169}},
(t:Escuela {name: 'Luis Cordero',
latitude: -2.912771, longitude: -79.039949}},
(u:Escuela {name: 'Esc. Otto Arosemena',
latitude: -2.910329, longitude: -79.037422}},
(a)-[:CONNECTION {time: 3.6}]->(b),
(a)-[:CONNECTION {time: 1.6}]->(c),
(a)-[:CONNECTION {time: 3}]->(m),
(a)-[:CONNECTION {time: 0.9}]->(k),
(b)-[:CONNECTION {time: 0.5}]->(o),
(b)-[:CONNECTION {time: 2.4}]->(l),
(c)-[:CONNECTION {time: 3.2}]->(b),
(m)-[:CONNECTION {time: 1.9}]->(p),
(m)-[:CONNECTION {time: 0.8}]->(q),
(p)-[:CONNECTION {time: 0.5}]->(n),
(q)-[:CONNECTION {time: 1.2}]->(r),
(q)-[:CONNECTION {time: 1.3}]->(s),
(q)-[:CONNECTION {time: 1.4}]->(f),
(q)-[:CONNECTION {time: 1.5}]->(g),
(r)-[:CONNECTION {time: 0.7}]->(u),
(u)-[:CONNECTION {time: 0.6}]->(t),
(s)-[:CONNECTION {time: 0.4}]->(d),
(f)-[:CONNECTION {time: 0.4}]->(d),
(g)-[:CONNECTION {time: 1.4}]->(h),
(h)-[:CONNECTION {time: 0.2}]->(i),
(k)-[:CONNECTION {time: 1.7}]->(j),
(k)-[:CONNECTION {time: 2.6}]->(g),
(j)-[:CONNECTION {time: 1.7}]->(h))
```



Consulta del camino recorrido entre CASA-CIBV

```

MATCH (start:Escuela {name: "Casa"}), (end:Escuela{name:"CIBV"})
CALL gds.alpha.shortestPath.astar.stream({
  nodeQuery: 'MATCH (p:Escuela) RETURN id(p) AS id',
  relationshipQuery: 'MATCH (p1:Escuela)-[r:CONNECTION]->(p2:Escuela) RETURN id(p1) AS source, id(p2)
AS target, r.time AS weight',
  startNode: start,
  endNode: end,
  relationshipWeightProperty: 'weight',
  propertyKeyLat: 'latitude',
  propertyKeyLat: 'longitude'
})
YIELD nodeId, cost
RETURN gds.util.asNode(nodeId).name AS escuela, cost
  
```

neo4j\$ MATCH (start:Escuela {name: "Casa"}), (end:Escuela{nam...

Table

A

Text

Code

escuela

cost

"Casa"

0.0

"Esc Hermano Miguel"

3.0

"Esc. Angela Rodriguez"

3.8


"Esc. José Hidalgo"

5.1

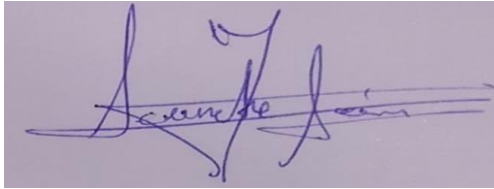
"CIBV"

5.5

Started streaming 5 records after 2 ms and completed after 17 ms.

	VICERRECTORADO DOCENTE	Código: GUIA-PRL-001
	CONSEJO ACADÉMICO	Aprobación: 2016/04/06
Formato: Guía de Práctica de Laboratorio / Talleres / Centros de Simulación		

Estudiante: Leandro León.



Firma: