RUTA MAS CORTA

Inteligencia artificial

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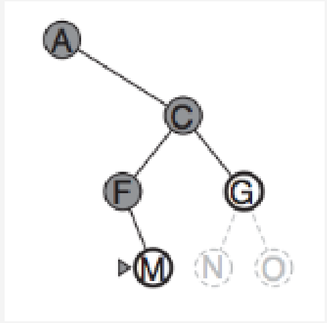
Planteamiento

Se cuenta con 3 instancias:

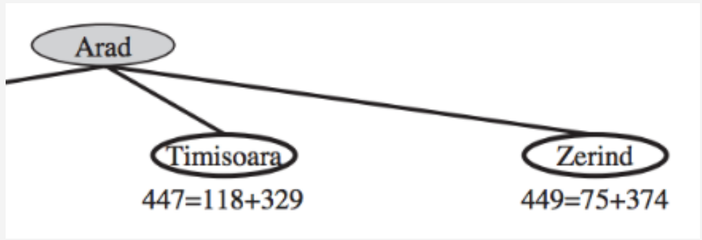
```
instance = {
    'a': [ ['b',75], ['c',118], ['f',140] ],
    'b': [ ['a',75], ['d',71] ],
    'c': [ ['a',118], ['e',111] ],
    'd': [ ['b',71], ['f',151] ],
    'e': [ ['c',111], ['i',70] ],
    'f': [ ['a',140], ['d',151], ['g',99], ['h',80] ],
    'g': [ ['f',99], ['m',211] ],
    'h': [ ['f',80], ['l',146], ['k',97] ],
    'i': [ ['j',75], ['e',70] ],
    'j': [ ['i',75], ['l',120] ],
    'k': [ ['h',97], ['l',138], ['m',101] ],
    'l': [ ['j',120], ['h',146], ['k',138] ],
    'm': [ ['k',101], ['g',211], ['n',90], ['o',98] ],
    'n': [ ['m',90] ],
    'o': [ ['m',85], ['p',142], ['q',98] ],
    'p': [ ['s',92], ['o',142] ],
    'q': [ ['r',86], ['o',98] ],
    'r': [ ['q',86] ],
    's': [ ['t',87], ['p',92] ],
}
```

```
{'n12': [['n24', 133], ['n19', 173], ['n27', 1]], 'n13':
', 136]], 'n16': [['n36', 72], ['n25', 163], ['n25', 85]]
, ['n21', 22]], 'n18': [['n20', 34], ['n40', 3]], 'n19':
n28', 158], ['n40', 44]], 'n29': [['n26', 127]], 'n28': [
, 111], ['n10', 155], ['n24', 141]], 'n31': [['n28', 23]]
[['n7', 139]], 'n36': [['n30', 158], ['n14', 19]], 'n37':
], ['n10', 26]], 'n27': [['n12', 106]], 'n21': [['n8', 11
, 195], ['n19', 10]], 'n25': [['n28', 59], ['n19', 150],
'n6', 148]], 'n5': [['n34', 188]], 'n23': [['n1', 94], ['
```

Métodos de solución



Depth-first search



A*

Experimentación

Instancia	Nodos
1	20
2	40
3	40

Soluciones encontradas

Depth First Search

```
Visited Nodes:
['a']

Visited Nodes:
['a', 'b']

Visited Nodes:
['a', 'b', 'd']

Visited Nodes:
['a', 'b', 'd', 'f']

Visited Nodes:
['a', 'b', 'd', 'f', 'g']

Cost:
607
```

```
real    0m0.025s
user    0m0.013s
sys     0m0.007s
ia > time python a.py
```

```
real    0m0.028s
user    0m0.015s
sys     0m0.009s
ia > time python a.py
```

```
real    0m0.027s
user    0m0.015s
sys     0m0.007s
ia > time python a.py
```

A*

```
Visited Nodes:
['a']

Visited Nodes:
['a', 'f']

Visited Nodes:
['a', 'f', 'h']

Visited Nodes:
['a', 'f', 'h', 'k']

Cost:
418
```

```
real    0m0.026s
user    0m0.014s
sys     0m0.007s
ia > time python b.py
```

```
real    0m0.025s
user    0m0.013s
sys     0m0.007s
ia > time python b.py
```

```
real    0m0.028s
user    0m0.015s
sys     0m0.008s
ia > time python b.py
```

Instancia 2

A*

```
Visited Nodes:
['n1']

Visited Nodes:
['n1', 'n13']

Visited Nodes:
['n1', 'n13', 'n22']

Visited Nodes:
['n1', 'n13', 'n22', 'n39']

Visited Nodes:
['n1', 'n13', 'n22', 'n39', 'n28']

Cost:
362
```

```
real    0m0.026s
user    0m0.014s
sys     0m0.007s
ia > time python b2.py
```

```
real    0m0.028s
user    0m0.015s
sys     0m0.008s
ia > time python b2.py
```

```
real    0m0.029s
user    0m0.015s
sys     0m0.009s
ia > time python b2.py
```

Instancia 3

A*

```
Visited Nodes:
['n1']

Visited Nodes:
['n1', 'n12']

Visited Nodes:
['n1', 'n12', 'n2']

Visited Nodes:
['n1', 'n12', 'n2', 'n31']

Cost:
209
```

```
real    0m0.027s
user    0m0.014s
sys     0m0.008s
ia > time python b2.py
```

```
real    0m0.026s
user    0m0.014s
sys     0m0.007s
ia > time python b2.py
```

```
real    0m0.028s
user    0m0.015s
sys     0m0.008s
ia > time python b2.py
```

Gracias