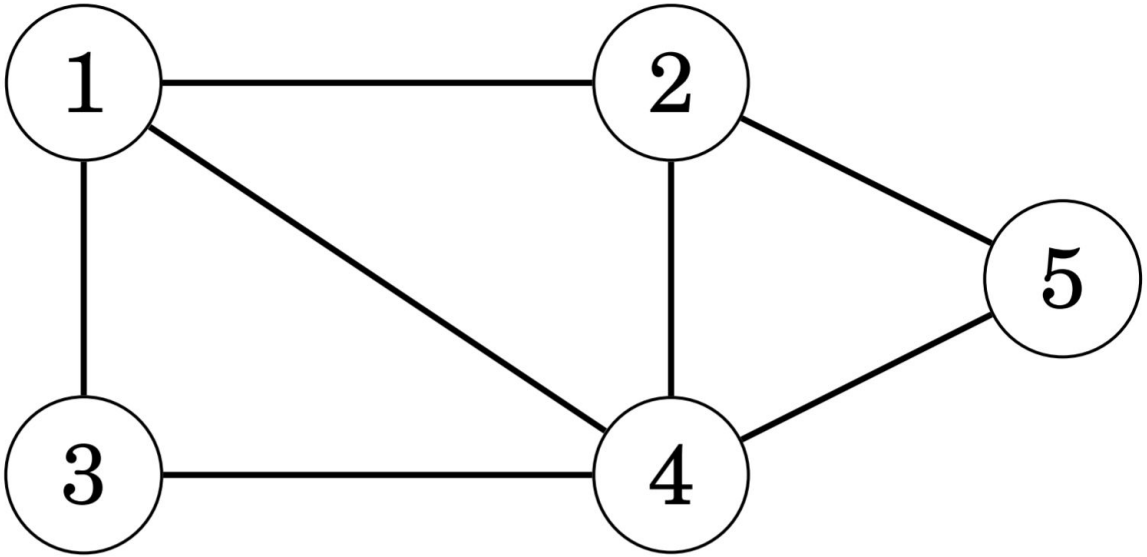
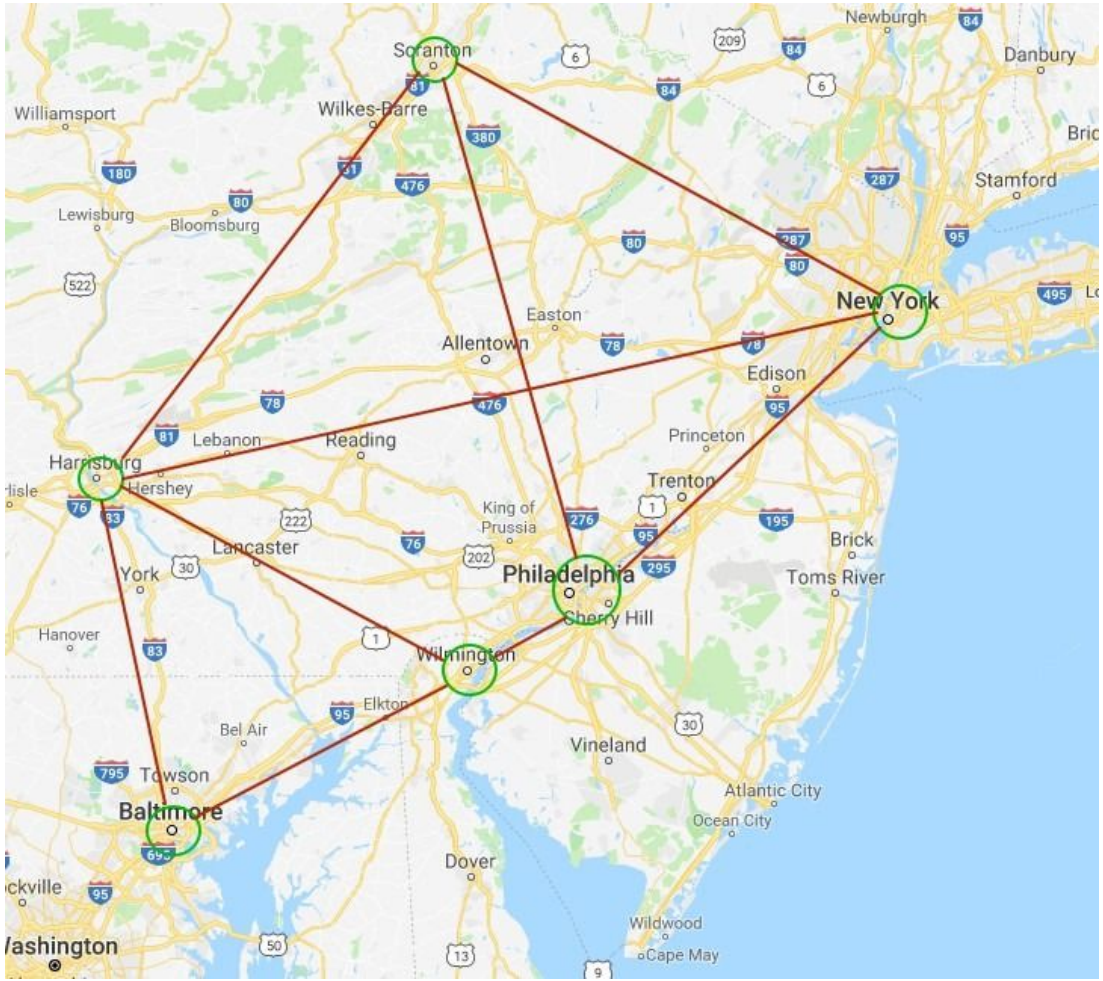
BACKTRACKING E INTRODUCCIÓN A GRAFOS

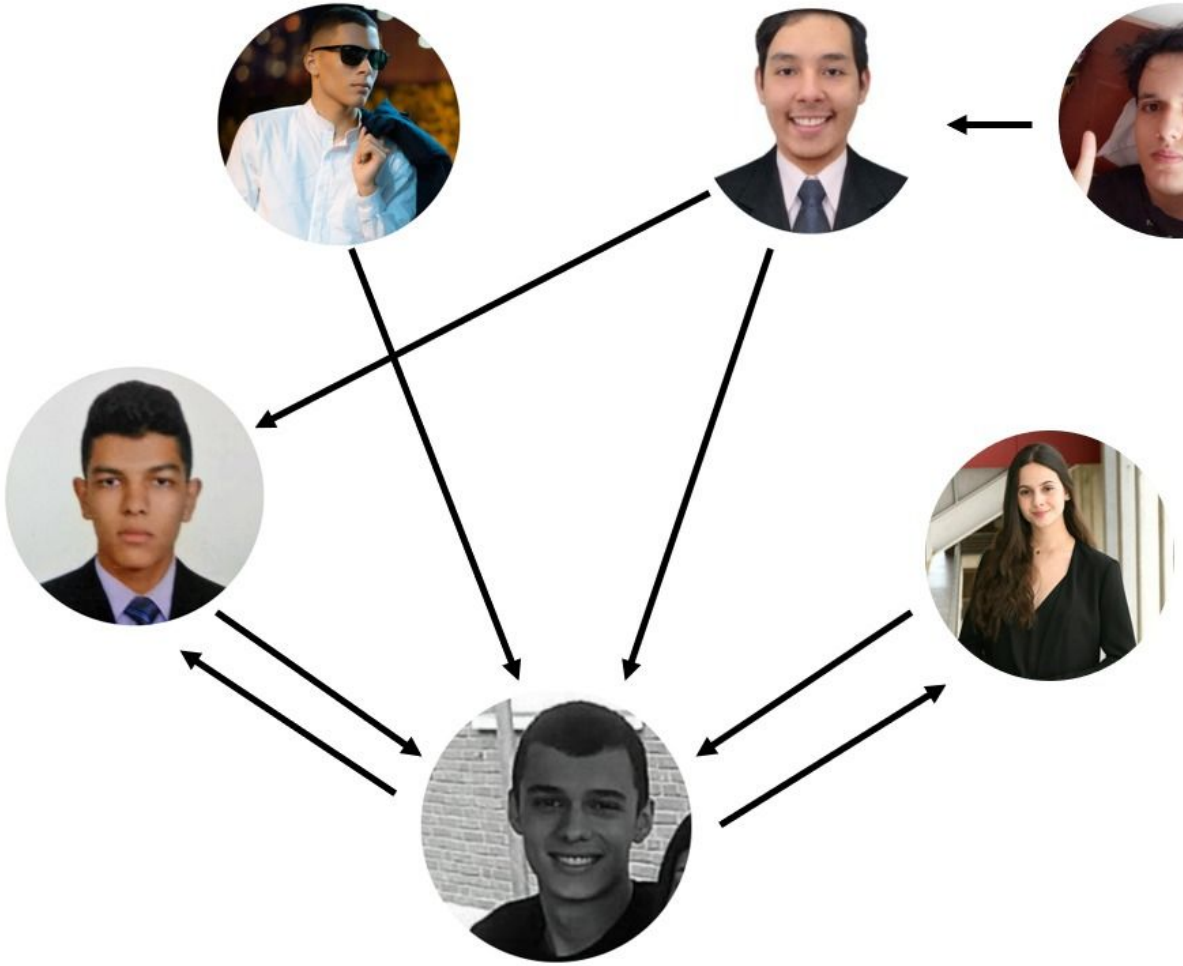
Teoría de grafos

Qué es un grafo?

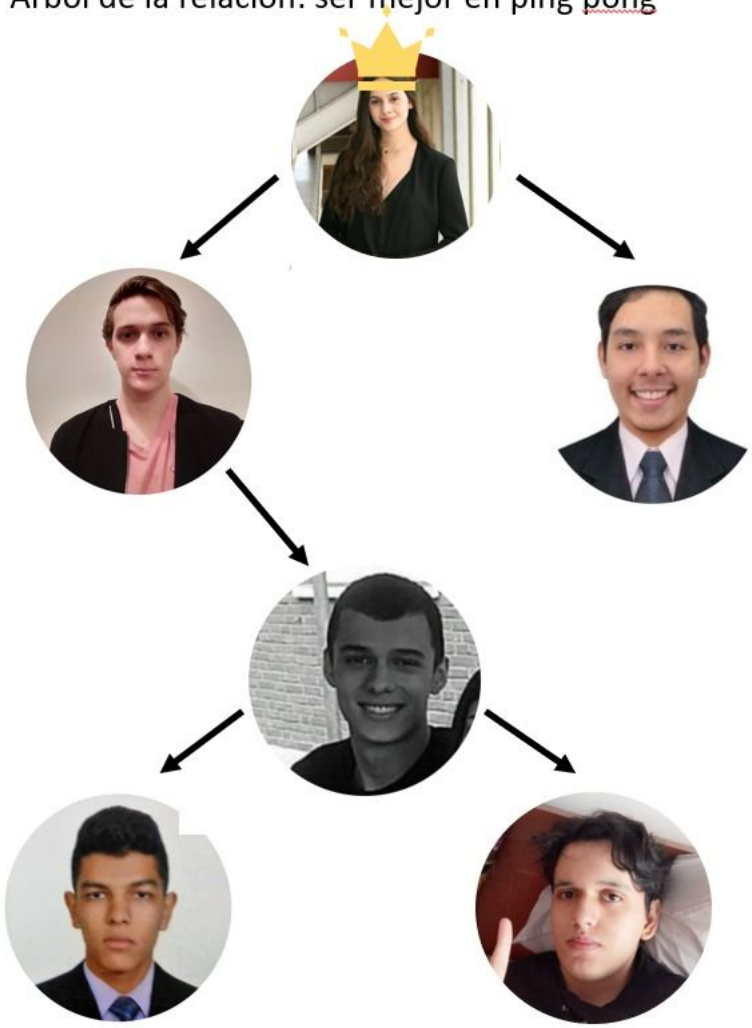



Scranton
Wilkes-Barre
Williamsport
Lewisburg
Bloomsburg
Newburgh
Danbury
Stamford
New York
Easton
Allentown
Edison
Princeton
Trenton
Harrisburg
Hershey
Lebanon
Reading
King of Prussia
Lancaster
York
Philadelphia
Sherry Hill
Brick
Toms River
Hanover
Wilmington
Elkton
Bel Air
Towson
Baltimore
Vineland
Atlantic City
Ocean City
Dover
Wildwood
Cape May

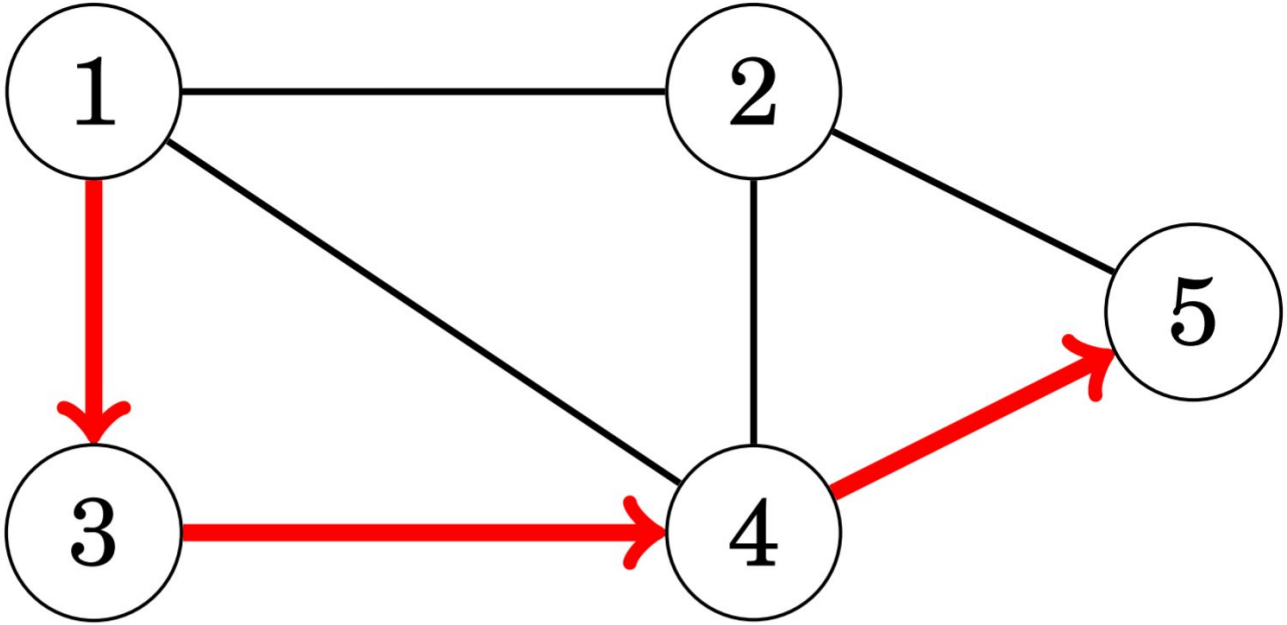
Grafo de la relación: Estar enamorado de



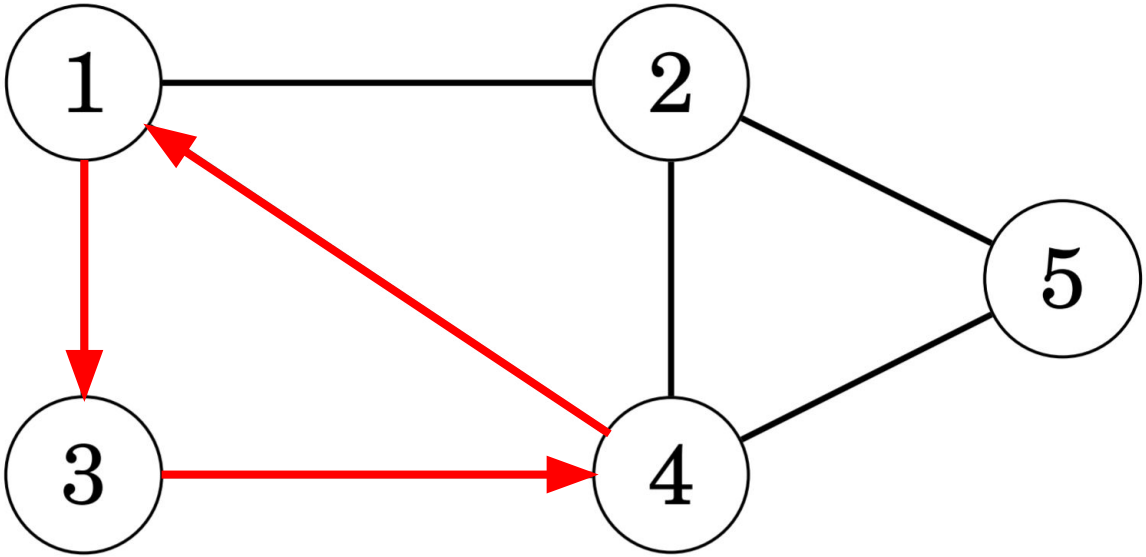
Árbol de la relación: ser mejor en ping pong



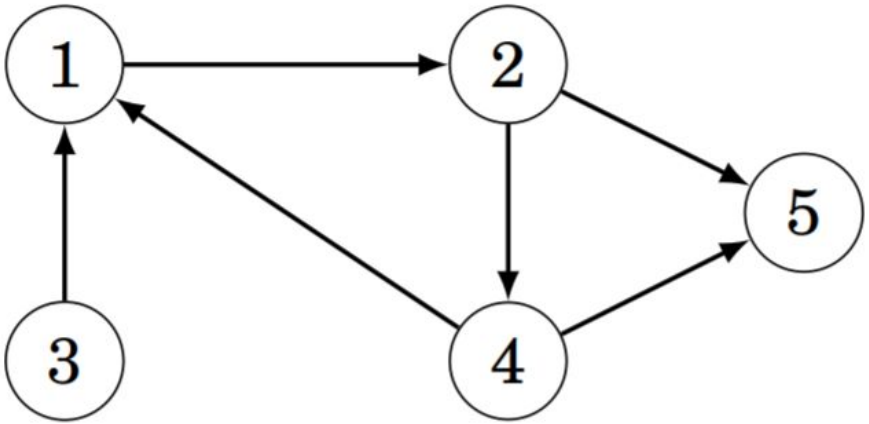
Path



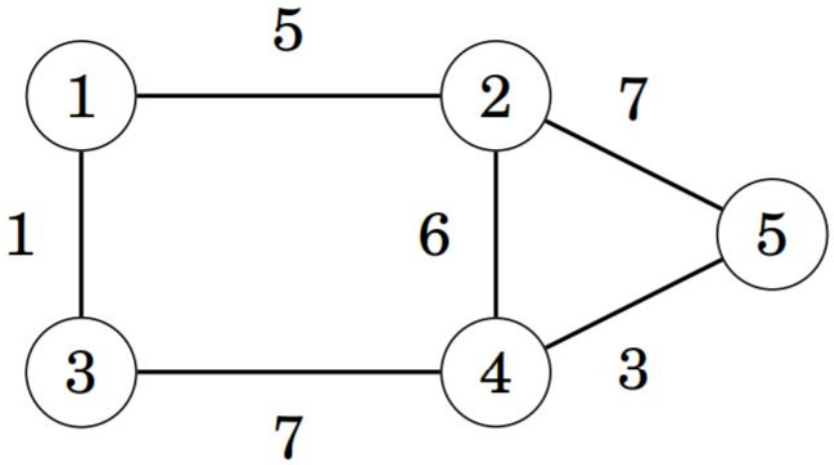
Cycle



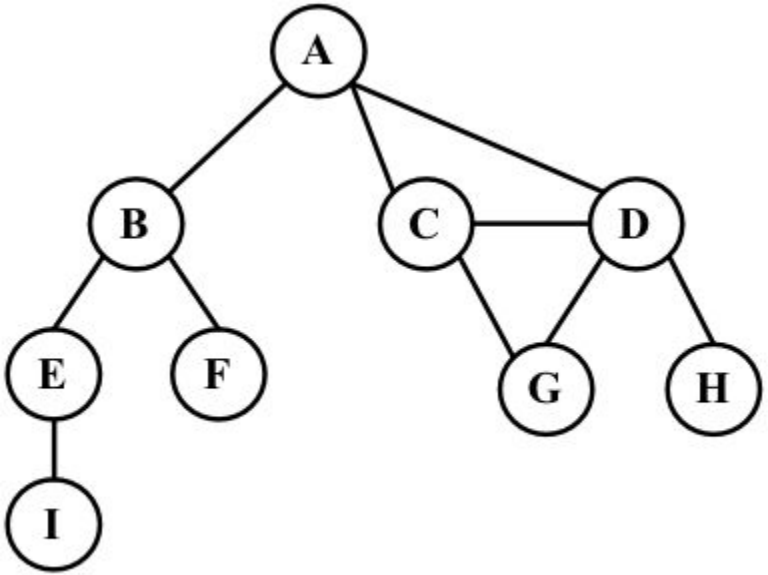
Edge directions



Edge weights



Lista de adyacencia

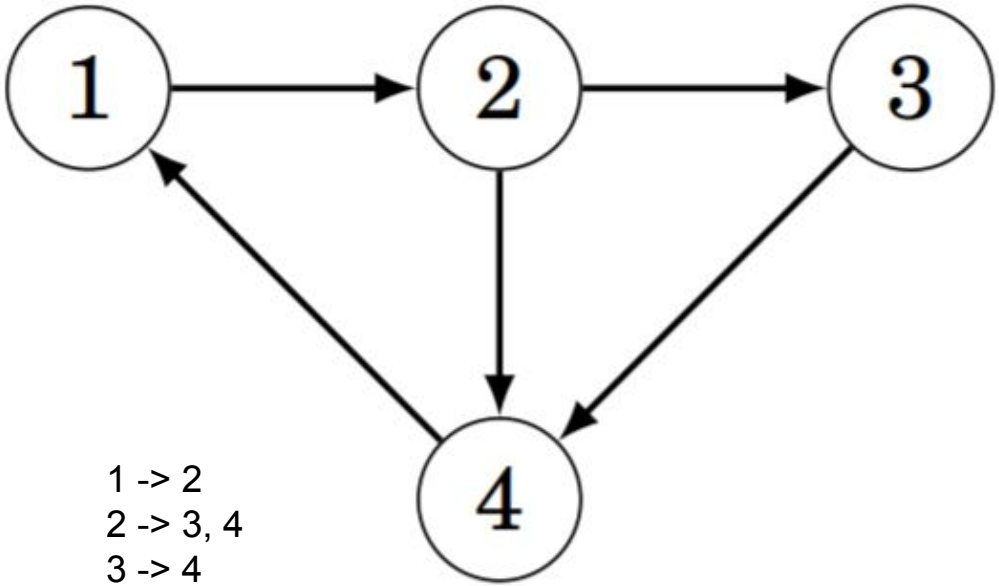


A	B	C	D	
B	A	E	F	
C	A	D	G	
D	A	C	G	H
E	B	I		
F	B			
G	C	D		
H	D			
I	E			

Lista de adyacencia

```
vector<int> adj[N];

adj[1].push_back(2);
adj[2].push_back(3);
adj[2].push_back(4);
adj[3].push_back(4);
adj[4].push_back(1);
```

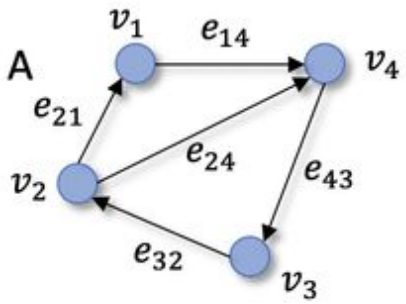


1 -> 2
2 -> 3, 4
3 -> 4
4 -> 1

vector<pair<int,int>> adj[N];
(a quien voy, peso)

Matriz de adyacencia

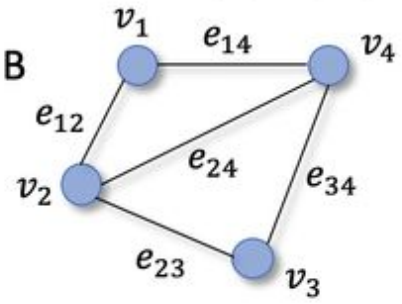
Directed graph G(V,E)



E

	v_1	v_2	v_3	v_4
v_1	0	0	0	1
v_2	1	0	0	1
v_3	0	1	0	0
v_4	0	0	1	0

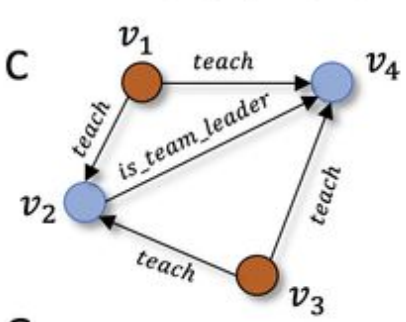
Undirected graph G(V,E)



F

	v_1	v_2	v_3	v_4
v_1	0	1	0	1
v_2	1	0	1	1
v_3	0	1	0	1
v_4	1	1	1	0

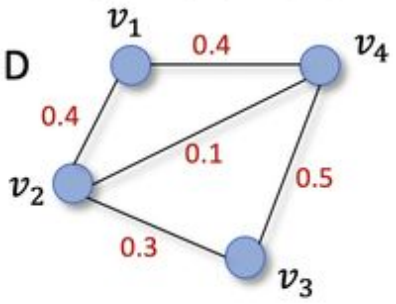
Knowledge graph G(V,E)



G

	v_1	v_2	v_3	v_4
v_1	0	1	0	1
v_2	0	0	0	1
v_3	0	1	0	1
v_4	0	0	0	0

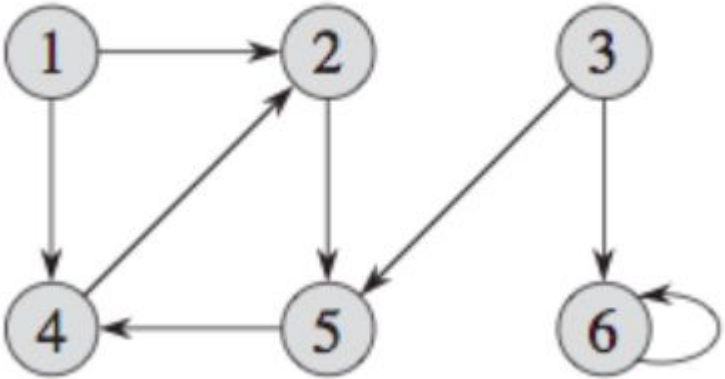
Weighted graph G(V,E)



H

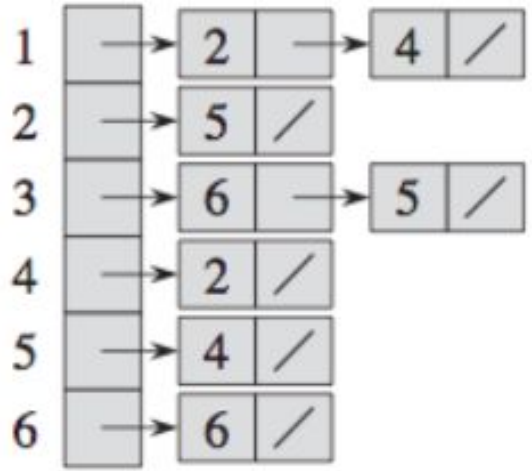
	v_1	v_2	v_3	v_4
v_1	0	0.4	0	0.4
v_2	0.4	0	0.3	0.1
v_3	0	0.3	0	0.5
v_4	0.4	0.1	0.5	0

Tarea: Hacer la lista de adyacencia y matriz de adyacencia del siguiente grafo.



ESPACIO: VERTICES+ARISTAS
CONEXION: O(VERTICES)
PRINT CONE: O(ARISTAS)

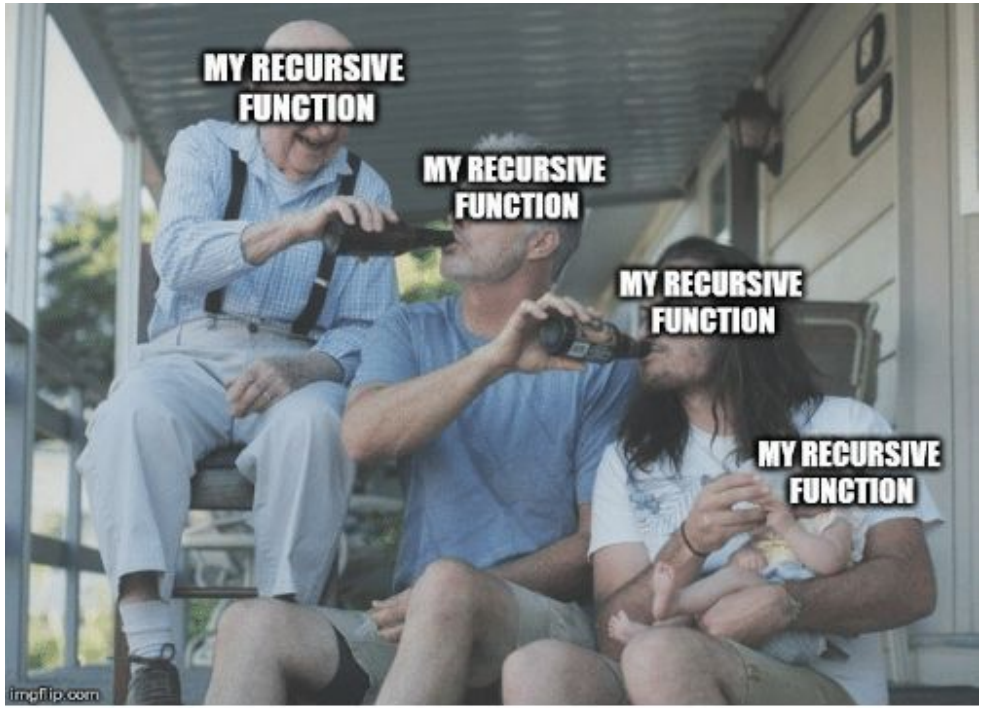
Lista de Adyacencia



VERTICES*VERTICES
O(1)
O(VERTICES*VERTICES)

Matriz de Adyacencia

	1	2	3	4	5	6
1	0	1	0	1	0	0
2	0	0	0	0	1	0
3	0	0	0	0	1	1
4	0	1	0	0	0	0
5	0	0	0	1	0	0
6	0	0	0	0	0	1

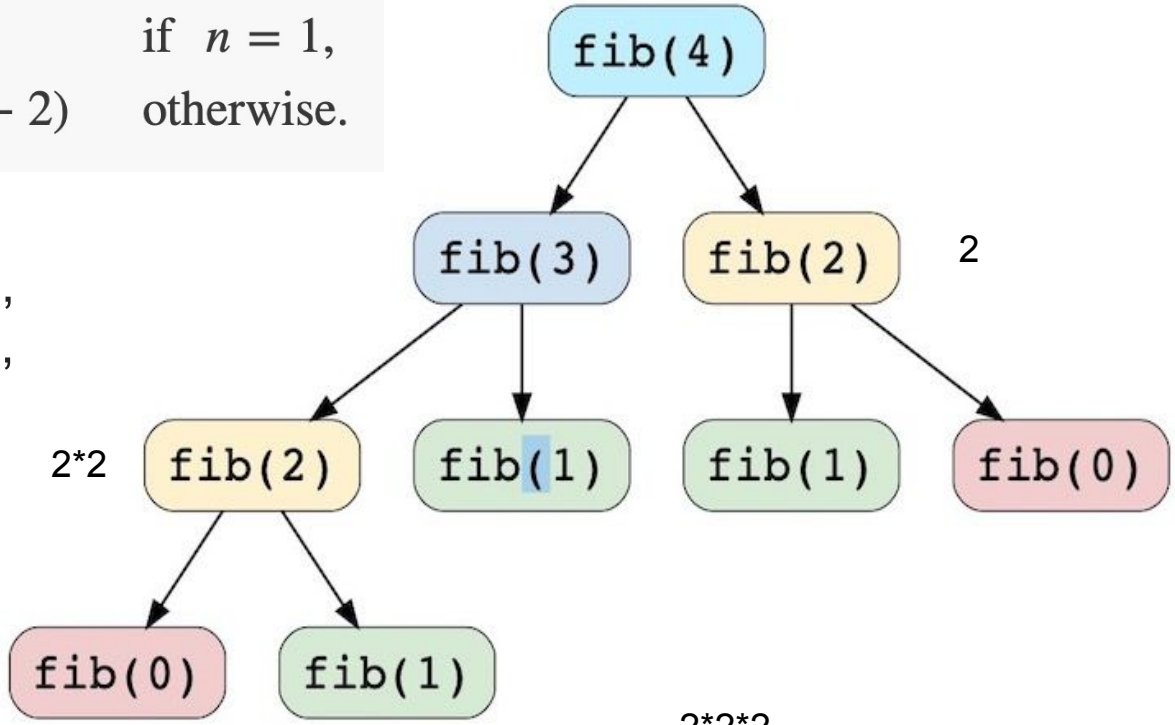


My Recursive Function

Recursion-Backtracking

$$\text{Fib}(n) = \begin{cases} 0 & \text{if } n = 0, \\ 1 & \text{if } n = 1, \\ \text{Fib}(n-1) + \text{Fib}(n-2) & \text{otherwise.} \end{cases}$$

Fibonacci Sequence: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, …

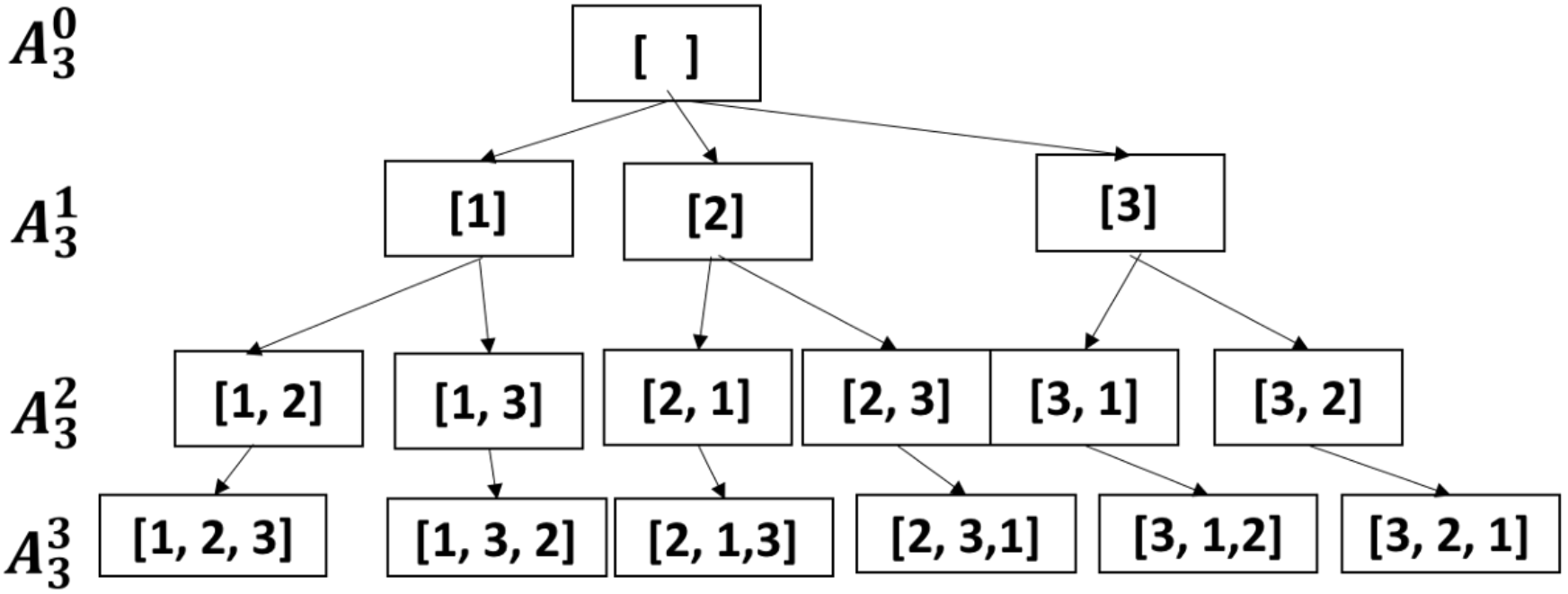


Recursion tree for calculating Fibonacci numbers

Receta

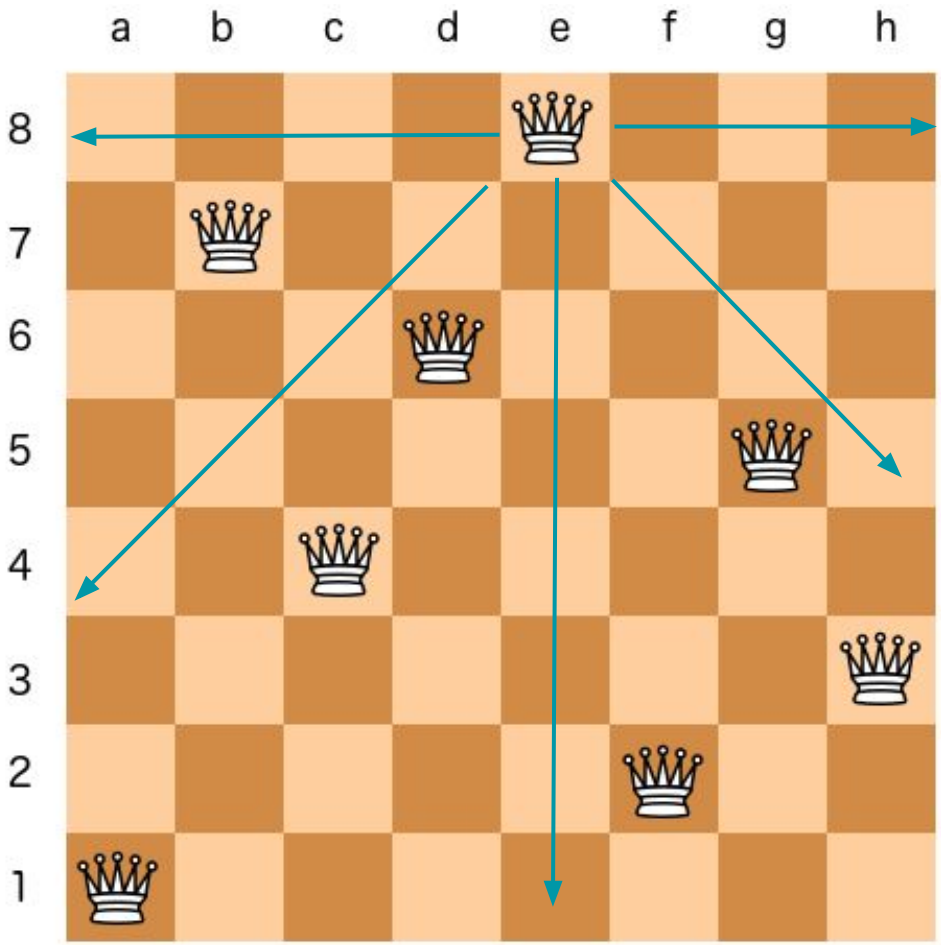
```
void backtracking(estado){
    if(estado no es valido){
        retornar
    }
    if(estado es una solución){
        imprimir estado
        retornar
    }
    for(cambios posible){
        aplicar cambios a estado
        backtracking(estado)
        deshacer cambios de estado
    }
}
```

PERMUTATIONS



https://leetcode.com/problems/permutations/

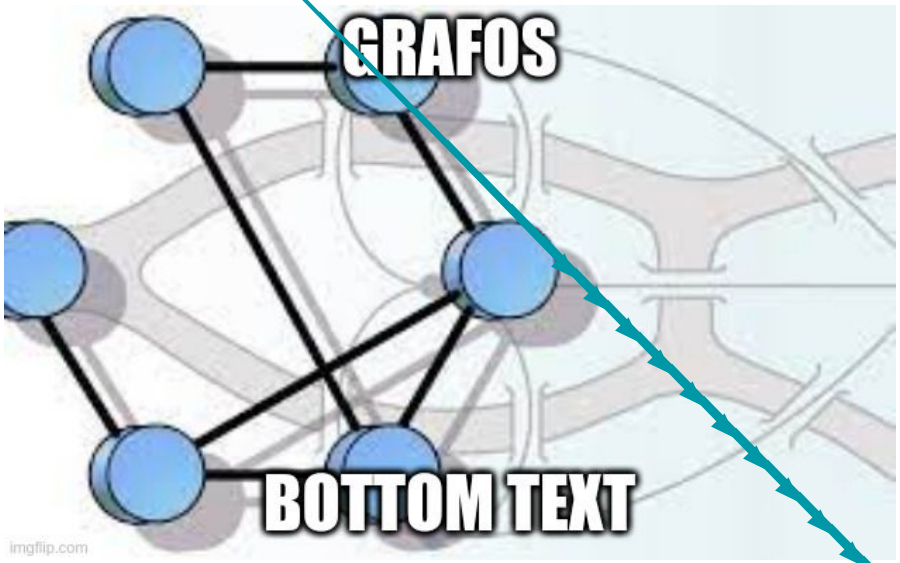
8 QUEENS

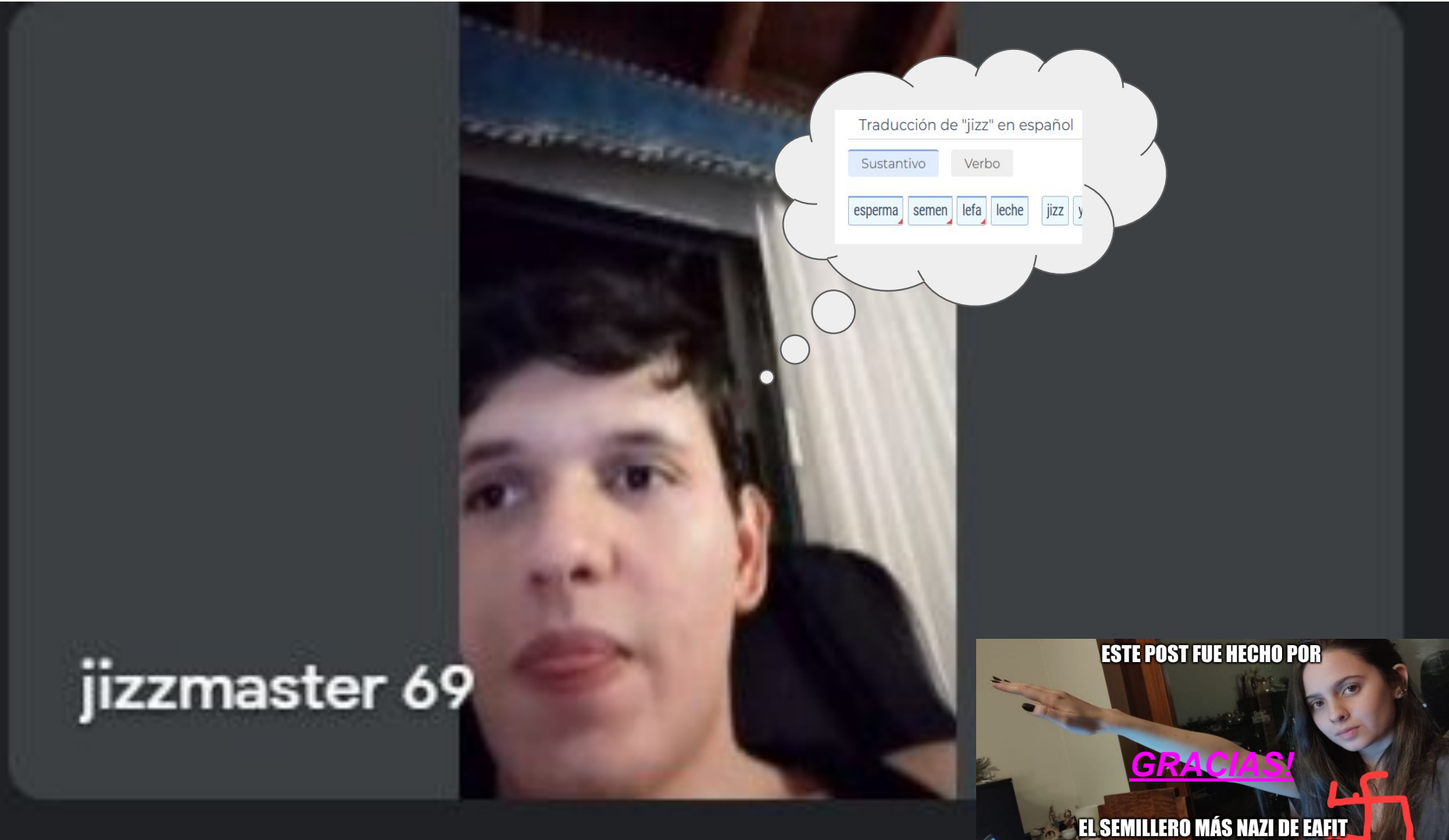


https://leetcode.com/problems/n-queens/

Haz clic para añadir texto

- Haz clic par
-




Traducción de "jizz" en español
Sustantivo
Verbo
esperma
semen
lefa
leche
jizz
jizzmaster 69
ESTE POST FUE HECHO POR
GRACIAS!
EL SEMILLERO MÁS NAZI DE EAFIT