# Algoritmo de Floyd.

5

3

2

1

4

1. Construir dos tablas D (distancia) y S (secuencia).
2. Iterar N-1 veces, donde N=vértices.
3. Las tablas D y S deben de tener un tamaño N x N.
4. Nomenclatura:
   1. K🡪 iterador.
   2. Dk 🡪La tabla D en la iteración K.
   3. Sk 🡪La tabla S en la iteración K.
   4. dij 🡪 Distancia entre el vértice i y el vértice j.
5. Descartar la diagonal con un -.
6. Llenar la matriz S0, columna j se llena con j.
7. Llenar la matriz D0 con las distancias de i a j.
8. Crear D1 y S1 copiando la k-ésima columna y k-ésima fila de Dk-1 y Sk-1.
9. Tome en cuenta la siguiente condición: Para llenar la tabla Dk con la celda Cij debe cumplir:
   1. ES dij > dik + dkj en Dk-1.

TRUE: Cij = dik + dkj.

False: Cij = dij

**K = 0**

**Iteración = 0**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **D0** | **1** | **2** | **3** | **4** |
| **1** | **-** | 2 | 4 | ∞ |
| **2** | 2 | **-** | 1 | 5 |
| **3** | 4 | 1 | **-** | 3 |
| **4** | ∞ | 5 | 3 | **-** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S0** | **1** | **2** | **3** | **4** |
| **1** | **-** | 2 | 4 | ∞ |
| **2** | 2 | **-** | 1 | 5 |
| **3** | 4 | 1 | **-** | 3 |
| **4** | ∞ | 5 | 3 | **-** |

i =2 dij = d23  d23> d21+d13

j = 3 dik = d21 1 > 2 + 4

k = 1 dkj = d13

i= 2 dij = d24 5 > 2 + ∞

j= 4 dik = d21

k= 1 dkj = d14

K = 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **D1** | **1** | **2** | **3** | **4** |
| **1** | **-** | 2 | 4 | ∞ |
| **2** | 2 | **-** | 1 | 5 |
| **3** | 4 | 1 | **-** | 3 |
| **4** | ∞ | 5 | 3 | **-** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S1** | **1** | **2** | **3** | **4** |
| **1** | **-** | 2 | 3 | 4 |
| **2** | 1 | **-** | 3 | 4 |
| **3** | 1 | 2 | **-** | 4 |
| **4** | 1 | 2 | 3 | **-** |

K = 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **D2** | **1** | **2** | **3** | **4** |
| **1** | **-** | 2 | 3 | 7 |
| **2** | 2 | **-** | 1 | 5 |
| **3** | 3 | 1 | **-** | 3 |
| **4** | 7 | 5 | 3 | **-** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S2** | **1** | **2** | **3** | **4** |
| **1** | **-** | 2 | 2 | 2 |
| **2** | 1 | **-** | 3 | 4 |
| **3** | 2 | 2 | **-** | 4 |
| **4** | 2 | 2 | 3 | **-** |