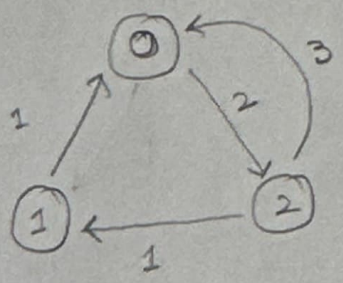
Floyd Warshall

Optimization structure

* path from i to k must be shortest path from i to k.
* path from k to j must be shortest path from k to j

Eg:



	0	1	2
0	0	∞	2
1	1	0	∞
2	3	1	0

⇒
```
for k in range(n):
    for i in range(n):
        for j in range(n):
            cost = mat[i][k] + mat[k][j]
            mat[i][j] = min(cost, mat[i][j])
```

⇒ k = 0

i = 0, j = 0 1 2

00 + 00 = 0

00 + 01 = ∞

00 + 02 = 2

i = 1, j = 0 1 2

10 + 00 = 1

10 + 01 = 0

10 + 02 = 3

i = 2 j = 0 1 2

20 + 00 = 3

20 + 01 = 1

20 + 02 = 0

0	∞	2
1	0	3
3	1	0

$k=1$

$i=0,\ j=0\ 1\ 2$

$01+10=1$

$01+11=\infty$

$01+12=2$

$i=1,\ j=0\ 1\ 2$

$11+10=1$

$11+11=0$

$11+12=3$

$i=2,\ j=0\ 1\ 2$

$21+10=2$

$21+11=1$

$21+12=0$

0	∞	2
1	0	3
2	1	0

$k=2$

$i=0,\ j=0\ 1\ 2$

$02+20=0$

$02+21=3$

$02+22=2$

$i=1,\ j=0\ 1\ 2$

$12+20=1$

$12+21=0$

$12+22=3$

$i=2,\ j=0\ 1\ 2$

$22+20=2$

$22+21=1$

$22+22=0$

0	3	2
1	0	3
2	1	0