Lab11 Questions

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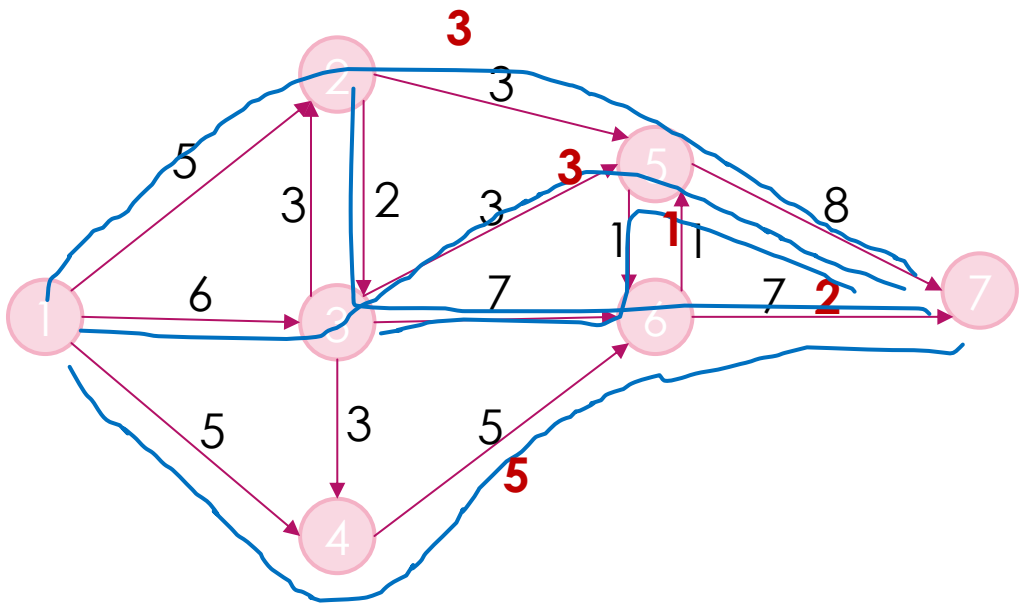
Lab11.A: Flowwwww

- Given a graph with N nodes and M directed edges with capacity.
- Find the maximum flow from node S to node T.

Sample Input

```
7 14 1 7
1 2 5
1 3 6
1 4 5
2 3 2
2 5 3
3 2 2
3 4 3
3 5 3
3 6 7
4 6 5
5 6 1
6 5 1
5 7 8
6 7 7
```



1→4→6→7: 5
1→2→5→7: 3
1→2→3→6→7: 2
1→3→5→7: 3
1→3→6→5→7: 1

Sample Output

14

Lab11.B: Barefoot Cinderella

- 2N students at Turing Class are attending a ball. They are originally separated into N pairs according to their number, where student 1 and 2 is a pair, student 3 and 4 is a pair, ... student 2N-1 and student 2N is a pair.
- Yet the students can choose to dance or not dance with their partner. In a single pair, if either of the two students choose "not to dance", the two students won't dance at the final stage; **And if both choose "dance", they can freely choose to dance or not at the final stage.**
- For student i, the "dance" choice would give him c_i unhappiness, and "not to dance" choice would give him d_i unhappiness; And if he chooses "dance" but his partner chooses "not to dance", he will receive e_i unhappiness.
- What's more, an undercurrent is working among the students. There are M unrequited lovelines which also influence the students' mood. For example, say, if CC loves Lida Pu, and
  - If CC fail to dance with his partner, but Lida Pu chooses "dance", CC will receive a_i unhappiness;
  - If CC chooses "not to dance", but Lida Pu and his partner dance at the final stage, CC will receive b_i unhappiness.
- As you see, the situation would be complicated if CC and Lida Pu are partners originally. But as the students' numbers are distributed by FluffyBunny, who is a SVIP in FFF group, cases like this would never happen.
- Now you wonder the minimum sum of unhappiness among all possible situations.

Sample Input

2 1
8 6 7
5 2 8
7 1 5
6 5 8
1 4 4 3

Sample Output

14

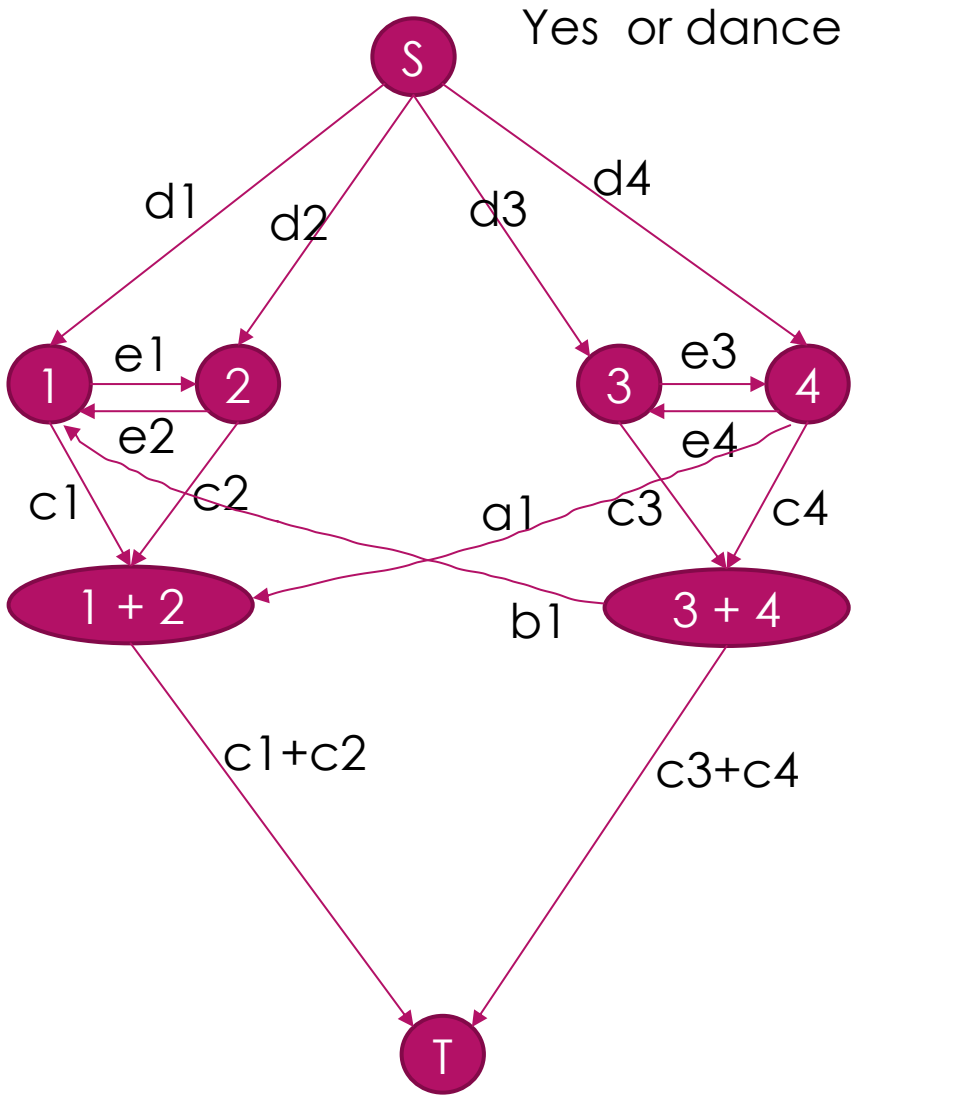
the minimum sum of unhappiness:
1N 2N 3N 4N : d1+d2+d3+d4=14

a1

b1

1 Y	2 Y	1 2 dance	c1+c2
1 Y	2 Y	12 Not dance	c1+c2
1 Y	2 N	12 Not dance	c1+d2+e1
1 N	2 Y	12 Not dance	d1+c2+e2
1 N	2 N	12 Not dance	d1+d2

3 Y	4 Y	3 4dance	c3+c4
3 Y	4 Y	3 4 Not dance	c3+c4
3 Y	4 N	3 4 Not dance	c3+d4+e3
3 N	4 Y	3 4 Not dance	d3+c4+e4
3 N	4 N	3 4 Not dance	d3+d4


Yes or dance
S
d1
d2
d3
d4
1
e1
2
3
e3
4
e2
e4
c1
c2
a1
c3
c4
1 + 2
b1
3 + 4
c1+c2
c3+c4
T
No or not to dance