Lab2 Solution

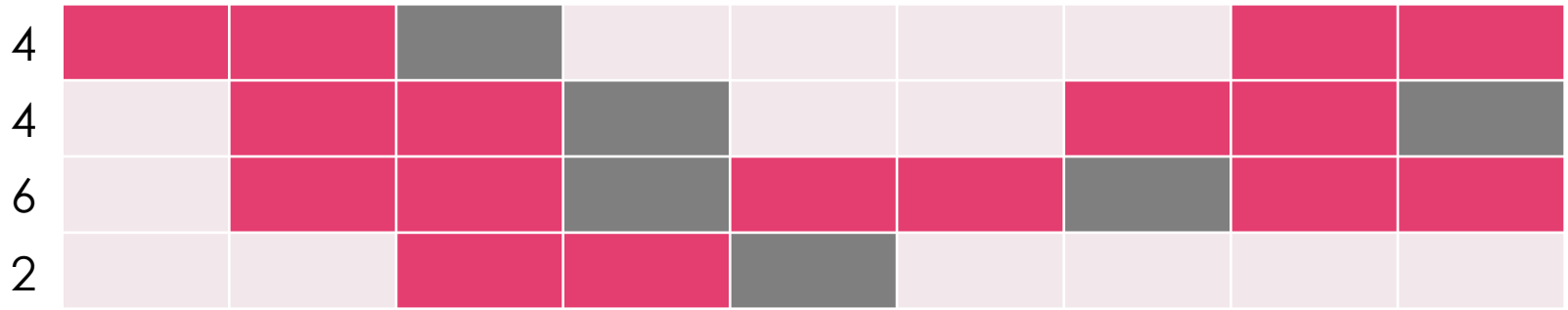
YAO ZHAO

Lab2.A:Chain Stores

- Satori's bunny store was a huge success! She soon accumulated enough money to open up chain stores around SUSTech.
- Satori opened up N bunny stores recently. For some unknown reasons, Satori must observe the following rules:
  - Each store opens for only consecutive W days, and
  - Each store can open again after it has closed for at least H days.
  - Satori also made up a plan for the following M days. In day i, exactly d_i stores should be open and store i should open exactly w_i days among all M days. Now she is wondering if she can accomplish her plan without breaking the rules.

Sample Input 1

4 9 2 1
4 4 6 2
1 3 2 1 2 1 1 3 2

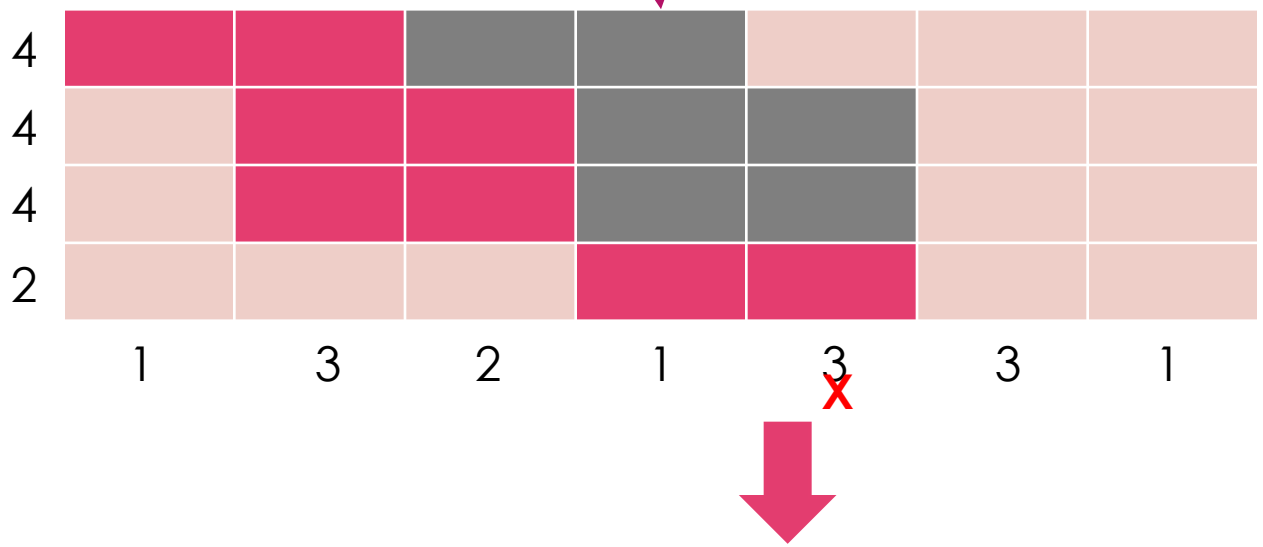


Sample Output 1

Yes

Sample Input 2

4 7 2 2
4 4 4 2
1 3 2 1 3 3 1

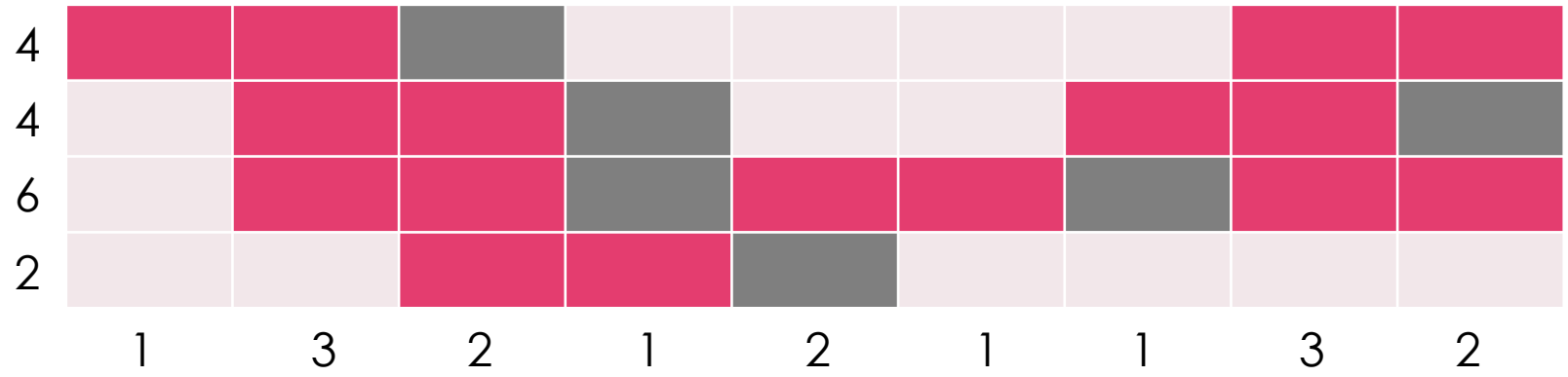


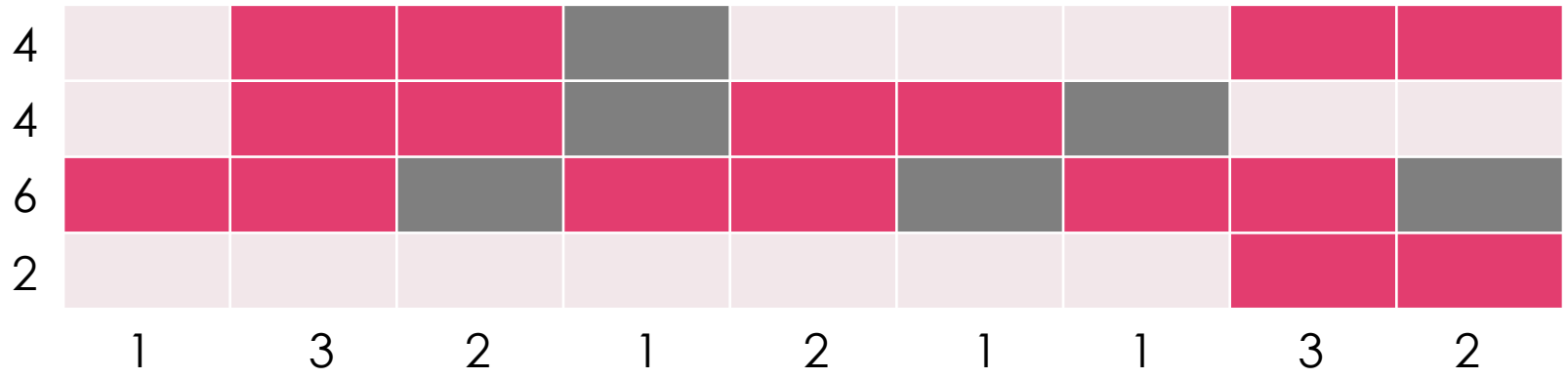
Sample Output 2

No

Sample Input 1

4 9 2 1
4 4 6 2
1 3 2 1 2 1 1 3 2



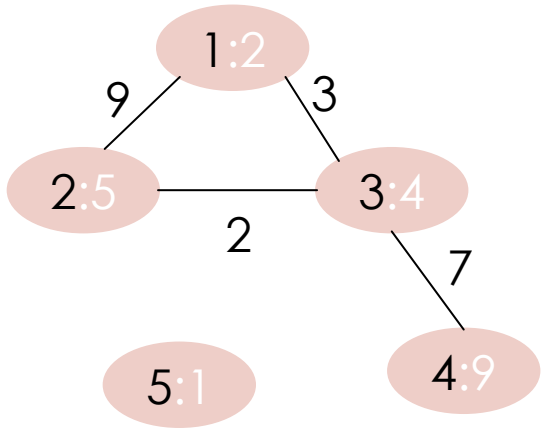


Lab2.B: Bunnytopia

- Satori was obsessed with a game called Bunnytopia recently. Today she invited her friend FluffyBunny to compete.
- There are N villages in the world of Bunnytopia, which are connected by M undirected edges.
- Initially all the villages are free, and the two players take turns to capture villages. Once one player has captured village i, she can gain a_i points and this village cannot be captured by both players ever again. In addition, if the two villages connected by edge j are captured by the same player, she will receive b_j points.
- As FluffyBunny is fairly confident about her skills, she asks Satori to take the first move.
- Assume $P =$ Satori's final points minus FluffyBunny's final points. Satori wants to maximum P while FluffyBunny wants to minimize P. You know the two girls are super smart; they always choose the optimal strategy. Can you calculate P for them?

Sample Input

5 4
2 5 4 9 1
1 2 9
2 3 2
1 3 3
3 4 7



Sample Output
5

Hint: