1. Army Strength of Allies of Mughal Empire

During the Akbar's regime, there were several small kingdoms across India, as allies of Mughal Empire. Each ally has its own direct allies. In order to know the **Army Strength** of allies, Akbar has asked each of his allies to share information about the number of soldiers it has and its other direct allies..

The information of N allies was stored in N different lines, each ally was given a unique ID, number of soldiers (in thousands) and IDs of its other smaller allies.

Army Strength of an ally is sum of its army and sum of armies of its direct allies.

Given the total number of allies (N), ally information (Unique ID, total army, Unique IDs of its direct allies) and ID of ally to query, write a program to find the ***Army Strength*** of that ally.

Note:

1. An ally has at most one direct ally and may have several indirect allies.
2. The maximum number of allies won't exceed 2000.

Input/Output

4 **1 6 2 4** **2 4 3** **3 5** **4 2** **2**	**9**	**Input :** First line indicate total number of allies (**N**) Next **N** lines indicates **Ally Unique ID -> Total Soldiers (in thousands) -> Unique IDs of direct allies** • 1 ->6->2,4 • 2->4->3 • 3->5->4 • 4->2->**Last line has the ID of the ally whose Army Strength needs to calculated.** • **2** **Explanation** • 2->4 // 4 is the total army of 2 and it has an ally of 3. • 3->5 // 5 is the total army of 3. • **Army Strength of 2 is 4 + 5 = 9**
6 **10 7 8 9 2** **8 5 3 4** **2 6** **9 4 3** **3 5** **4 8**	**40**	First line indicate total number of allies (**N**) Next **N** lines indicates **Ally Unique ID -> Total Soldiers (in thousands) -> Unique IDs of direct allies** • 10->7->8,9,2 • 8->5->3,4 • 2->6-> • 9->4->3

10		● 3->5-> ● 4->8->**Last line has the ID of the ally whose Army Strength needs to calculated.** ● **10** **Explanation** ● 10->**7** : 8->**5**, 9->**4**, 2->**6** // total armies of 10 & its direct allies ● 8 : 3->**5**,4->**8** // total armies of 8 & its direct allies ● 9 : 3->**5** // total armies of 9 & its direct allies ● **7+5+5+8+4+5+6 = 40**

2. Strikedout in Baseball

In a base ball match, ChicagoCubs is playing BostonRedSox. As is the rule of the game, if batsman misses the ball thrice in a row, he is striked-out (out). Considering that there are only two options - a ball can either be hit or not-hit , given the number of balls to be faced by the batsman, what are the number of the ways in which batsman cannot be striked-out?

Input	Output	Comments
4	**13**	**INPUT:** An integer N denoting the number of times the batsman faces the ball. **Explanation:** H and N are the possibilities H- **Hit** N- **Not Hit** For 4 balls, the HITTING possibilities are – HHHH, HHHN, HHNH, HHNN, HNHH, HNHN, HNNH, HNNN, NHHH, NHHN, NHNH, NHNN, NNHH, NNHN, NNNH, NNNN **Output: total combinations (16)-combinations of striked-out(3) = 13**
5	**24**	**Explanation:** For 5 balls, the HITTING possibilities are – HHHHH, HHHHN, HHHNH, HHHNN, HHNHH, HHNHN, HHNNH, HHNNN, HNHHH, HNHHN, HNHNH, HNHNN, HNNHH, HNNHN, HNNNH, HNNNN NHHHH, NHHHN, NHHNH, NHHNN, NHNHH, HNHN, NHNNH, NHNNN, NNHHH, NNHHN, NNHNH, NNHNN, NNNHH, NNNHN, NNNNH, NNNNN **Output: total combinations (32)-combinations of striked-out(8) = 24**

3. Hercule Poirot's encryption

The famous fictional detective Hercule Poirot is to solve a murder mystery wherein he has to find out the number of ways a multi digit number can be decrypted into text (message).

Let us help him. From a non-empty string containing only digits, find out the total number of ways Poirot can decrypt it

Input	Output	Comments
21	2	It could be decrypted as BA (2 1) or U (21).
123	3	It could be decrypted as AB (12),C(3) or L(12), C(3) or A(1), W(23)