Problem 3. Present Delivery

Santa has limited time to drop at least some presents for each house. Help him with his mission!

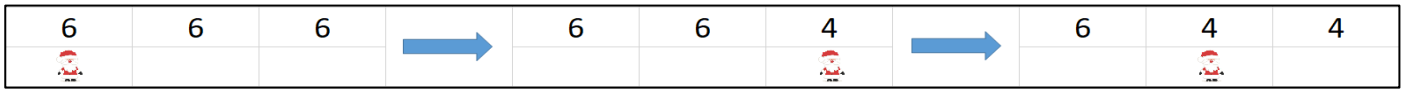
You will receive a **string** with **even integers** separated by **"@"** representing each house with its **number of members** and a series of **Jump** commands until you receive **"Merry Xmas!"**

Santa starts at the position of the **first** house and has to jump by a **given length.** The jump command will be in format: **"Jump {length}"**.

Each time he jumps from one house to another he drops **2 presents** for that house and **decreases** the needed presents for that house. If Santa jumps on a house which **doesn't need** more presents (presents = 0) you should instead print "**House {houseIndex} will have a Merry Christmas.**".

Keep in mind that Santa can have a **bigger jump length** than the **size of the field** and if he does jump **outside** of it he should **start** from the **beginning** again**.**

For example we have a field of size 3 and each house has 6 members. Santa is at the start and jumps with length of 2. He will end up at index 2 and decrease the needed presents by 2 (6 – 2 = 4). Next he jumps again with length of 2 and ends up at index position 1 and again decreases the needed presents.



Input

- On the first line you will receive a **string** with **even integers** separated by **"@" –** houses and their number of members.
- On the next lines until "**Merry Xmas!**" you will receive jump commands in format: "**`Jump {length}`**".

Output

At the end print Santa's **last position** and whether or **not** his mission was successful:

- **`"Santa's last position was {lastPositionIndex}."`**
- If **all members** of **each house** have presents print:
  - **`"Mission was successful."`**
- If **not** print the **count** of all houses that **won't** have a Merry Christmas:
  - **`"Santa has failed {housesCount} houses."`**

Constraints

- The **field** can be of size **[1…20]**
- Each **house** will have an **even number** of **members** [**2** … **10**]
- Each **jump length** will be an integer [**1** … **20**]

Examples

Input	Output
10@10@10@2 Jump 1 Jump 2 Merry Xmas!	Santa's last position was 3. Santa has failed 3 houses.
2@4@2 Jump 2 Jump 2 Jump 8 Jump 3 Jump 1 Merry Xmas!	House 0 will have a Merry Christmas. Santa's last position was 1. Mission was successful.