# Problem 1 - Guinea Pig

Problem for exam preparation for the [Programming Fundamentals Course @SoftUni](https://softuni.bg/courses/programming-fundamentals-csharp-java-js-python).

Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/Practice/Index/2031#0>.

*Merry has a guinea pig named Puppy, that she loves very much. Every month she goes to the nearest pet store and buys him everything he needs – food, hay, and cover.*

On the **first three lines**, you will receive **the quantity of food**, **hay**, and **cover**, which Merry buys for a **month (30 days)**. On the **fourth line**, you will receive the **guinea pig's weight**.

**Every day** Puppy eats **300 gr of food**. **Every** **second** day Merry **first feeds the pet**, then gives it a **certain amount of hay** **equal to** **5%** of the rest of the **food**. On **every** **third** day, Merry puts Puppy **cover** with **a quantity of** **1/3** of its **weight**.

**Calculate** whether the quantity of **food, hay, and cover**, will be enough for a **month**.

**If Merry runs out of food, hay, or cover, stop the program!**

## Input

* **On the first line – quantity food in kilograms** - afloating-point number in the range **[0.0 – 10000.0]**
* **On the second line – quantity hay in kilograms** - afloating-point number in the range **[0.0 – 10000.0]**
* **On the third line – quantity cover in kilograms** - afloating-point number in the range **[0.0 – 10000.0]**
* **On the fourth line – guinea's weight in kilograms** - afloating-point number in the range **[0.0 – 10000.0]**

## Output

* If the food, the hay, and the cover are enough, print:
  + **"Everything is fine! Puppy is happy! Food: {excessFood}, Hay: {excessHay}, Cover: {excessCover}."**
* If one of the things is not enough, print:
  + **"Merry must go to the pet store!"**

**The output values must be formatted to the second decimal place!**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 10  5  5.2  1 | Everything is fine! Puppy is happy! Food: 1.00, Hay: 1.10, Cover: 1.87. |
| You receive food – **10000**, hay – **5000**, cover – **5200**, weight – **1000** (in grams).  On the first day, Merry gives Puppy 300gr food – 9700gr food left.  On the second day, the food left is **9400gr**, so the needed hay is **9400 \* 5% = 470**,and thehay left is **4530.**  On the third day, the cover left is **4866.67,** and the food left is **9100**,and so on.  On the last day, Merry has: food – 1.00, hay – 1.10, and cover – 1.87. | |
| 1  1.5  3  1.5 | Merry must go to the pet store! |
| 9  5  5.2  1 | Merry must go to the pet store! |

# Problem 2 - Shopping List

Problem for exam preparation for the [Programming Fundamentals Course @SoftUni](https://softuni.bg/courses/programming-fundamentals-csharp-java-js-python).

Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/Practice/Index/2031#1>.

*It's the end of the week, and it is time for you to go shopping, so you need to create a shopping list first.*

### Input

You will receive an **initial list** with groceries separated by an exclamation mark **"!"**.

After that, you will be receiving **4 types** of commands until you receive **"Go Shopping!"**.

* **"Urgent {item}"** - **add** the item at the **start** of the list. If the item **already exists,** skip this command.
* **"Unnecessary {item}"** - **remove** the item with the given name, only **if it exists** in the list. Otherwise, skip this command.
* **"Correct {oldItem} {newItem}"** - if the item with the given **old name** exists, **change** its name with the **new** one. Otherwise, skip this command.
* **"Rearrange {item}"** - if the grocery exists in the list, **remove** it from its **current position** and **add** it at the **end** of the list. Otherwise, skip this command.

### Constraints

* There won't be any duplicate items in the initial list

### Output

* Print the **list** with all the groceries, joined by **", "**:

**"{firstGrocery}, {secondGrocery}, … {nthGrocery}"**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Tomatoes!Potatoes!Bread  Unnecessary Milk  Urgent Tomatoes  Go Shopping! | Tomatoes, Potatoes, Bread |
| **Input** | **Output** |
| Milk!Pepper!Salt!Water!Banana  Urgent Salt  Unnecessary Grapes  Correct Pepper Onion  Rearrange Grapes  Correct Tomatoes Potatoes  Go Shopping! | Milk, Onion, Salt, Water, Banana |

# Problem 3 - Heart Delivery

Problem for exam preparation for the [Programming Fundamentals Course @SoftUni](https://softuni.bg/courses/programming-fundamentals-csharp-java-js-python).

Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/Practice/Index/2031#2>.

*Valentine's day is coming, and Cupid has minimal time to spread some love across the neighborhood. Help him with his mission!*

You will receive a **string** with **even integers,** separated by a **"@"** - this is our neighborhood. After that, a series of **Jump** commands will follow until you receive **"Love!"**.Every house in the neighborhood needs a certain number of **hearts** delivered by Cupid so it can celebrate Valentine's day. The integers in the neighborhood indicate those needed hearts.

Cupid starts at the position of the **first** **house** (index 0) and must jump by a **given length.** The jump commands will be in this format: **"Jump {length}"**.

Every time he jumps from one house to another, the needed hearts for the visited house are **decreased by 2**:

* If the needed hearts for a certain house become **equal to 0**, print on the console **"Place {house\_index} has Valentine's day."**
* If **Cupid** jumps to a house where the needed hearts are **already** **0,** print on the console **"Place {house\_index} already had Valentine's day."**
* Keep in mind that **Cupid** can have a **larger jump length** than the **size of the neighborhood,** and if he does jump **outside** of it, he should **start** from the **first house** again (index 0)

*For example, we are given this neighborhood: 6@6@6. Cupid is at the start and jumps with a length of 2. He will end up at index 2 and decrease the needed hearts by 2: [6, 6, 4]. Next, he jumps again with a length of 2 and goes outside the neighborhood, so he goes back to the first house (index 0) and again decreases the needed hearts there: [4, 6, 4].*

### Input

* On the first line, you will receive a **string** with **even integers** separated by **"@"** –the neighborhood and the number of hearts for each house.
* On the next lines, until "**Love!**" is received, you will be getting jump commands in this format: "**Jump {length}**".

### Output

In the end, print **Cupid's** **last position** and whether his mission was successful or not:

* "**Cupid's last position was {last\_position\_index}.**"
* If **each house** has had Valentine's day, print:
  + "**Mission was successful.**"
* If **not,** print the **count** of all houses that **didn't** celebrate Valentine's Day:
  + **"Cupid has failed {houseCount} places."**

### Constraints

* The **neighborhood's** size will be in the range [1…20]
* Each **house** will need an **even number** of hearts in the range [2 … 10]
* Each **jump length** will be an integer in the range [1 … 20]

### Examples

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| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 10@10@10@2  Jump 1  Jump 2  Love! | Place 3 has Valentine's day.  Cupid's last position was 3.  Cupid has failed 3 places. | Jump 1 ->> [10, 8, 10, 2]  Jump 2 ->> [10, 8, 10, 0] so we print "Place 3 has Valentine's day."  The following command is "Love!" so we print Cupid's last position and the outcome of his mission. |
| 2@4@2  Jump 2  Jump 2  Jump 8  Jump 3  Jump 1  Love! | Place 2 has Valentine's day.  Place 0 has Valentine's day.  Place 0 already had Valentine's day.  Place 0 already had Valentine's day.  Cupid's last position was 1.  Cupid has failed 1 places. |  |