# Problem 4 – Heroes Selection

Have you seen the unseen magic? Right… It doesn’t actually matter, but there is something growing beneath the northen icecap and it’s growing fast, changing everything on it’s way. The magic changed its colour too and it's, well, we can say prefferences, are not what they used to be. First of all magic preffers to be treated as a lady. “She” can handle the monstrous uprise but she needs your help to find the most worthy hero of them all to join magic and traits in the final blow.

You will receive **input lines with information about current hero in the following format:**

* {hero’s name} {trait} {traitValue}

The name and trait are a one-word strings. The trait value is an integer in the range [0…100].

If you receive a **trait** for the same **hero** twice, you should replace the existing **trait value** only if the new one is greater.

The magic wielders are to be chosen with great responsibility so if the **trait is** any of the following **its** **value should become a negative integer**:

* **Greedy**
* **Rude**
* **Dumb**

Since the magic is hard to understand and to reason with, some **traits** seems to be worth more than other**, those are considered special and must be multiplied as it follows:**

* **“Kind” gets its trait value multiplied by a factor of 2**
* **“Handsome” gets its trait value multiplied by a factor of 3**
* **“Smart” gets its trait value multiplied by a factor of 5**

**There may be input lines in the following format:**

* {hero’s name} does Gyubek!

If you receive the command "{hero’s name} does Gyubek!", The mighty magic – “She” recognizes weakness within this hero’s behavior, because “Gyubek!” is a dark sorcery that should never be performed. If this hero is already added to the data, all of his positive trait’s values are deleted! If the hero doesn’t exist in the database yet, he won`t be affected if added later.

The input ends when you receive the command "Make a decision already!". You must **print all heroes**, **ordered** by **the total sum of their traits’ values** in **descending order**, and **then alphabetically.**

The **traits** must be ordered by their value in **descending order**.

## Input

* The input consists of several input lines in one of the formats specified above.
* The input ends when you receive the command "Make a decision already!".

## Output

* As an output you must print all the heroes ordered in the way specified above.
* The format is:

# {hero’s name}: {total sum of traits values}

**!!! {trait} -> {traitValue}**

## Constraints

* The **hero’s name and trait** will be strings, consisting of **one** **word each**.
* The **trait value** is an integer in the range **[0; 100]**.
* There will be **no invalid input lines**.
* Allowed working **time** / **memory**: **100ms** / **16MB**.

## Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Tony Handsome 40  Johnny Cool 23  Johnny does Gyubek!  Asen Kind 33  Ivan Greedy 1  Ivan Smart 5  Asen Greedy 20  Make a decision already! | # Tony: 120  !!! Handsome -> 120  # Asen: 46  !!! Kind -> 66  !!! Greedy -> -20  # Ivan: 24  !!! Smart -> 25  !!! Greedy -> -1  # Johnny: 0 |
| Pesho Cool 20  Gosho Rude 20  Kiro Kind 10  Stamat does Gyubek!  Stamat Big 20  Make a decision already! | # Kiro: 20  !!! Kind -> 20  # Pesho: 20  !!! Cool -> 20  # Stamat: 20  !!! Big -> 20  # Gosho: -20  !!! Rude -> -20 |