Exam "Fundamentals of programming with C#" – 27 May 2018

Problem 3. Loot Madness

1. History

Marto is one of the mightiest coders out there. He is so strong he managed to enter into Codecrown Citadel and defeat all the bugs in there all by himself. Nothing can stop him. Ever. With great power also comes great loot. However, Marto doesn't have the time to check all the loot he got from the dungeon, so he needs you to check it and decide what items from his loot can he use and what he can sell for gold. He told you that he will only use Rare and Legendary types of items, all others he will sell. **Your job is to go through Marto's loot and decide what to do with it.**

2. Description

You will receive some information about Marto as well as all items he got as loot, **identified by their name**. There are two types of loot – **armor** and **gold**. Each armor piece will have **quality**, **price** that it can be sold for and a **health bonus** indicating how much it will increase Marto's maximum health if he puts it on. If Marto's loot contains **Gold** you will only be given the **gold amount**. See the examples for more details.

Aside from information about the loot, you will be given some **information about Marto himself**. You will receive his **current health** and **gold he has before any of the loot is processed**.

You need to look at each loot Marto got and decide if he should **keep it or sell it for gold**.
Be aware that the same item can appear MORE THAN ONE time.
Two items are considered the same if their names are the same. An item that has the same name will also have the same stats, so you do not need to check it
The logic for deciding what to do with an item is simple and it consists of the following:

First, Marto only cares about high quality items, so if the **item's quality is NOT Legendary or Rare**, you should sell it. Whenever you come across Gold, you need to simply **increase** Marto's money. No other processing should be done.
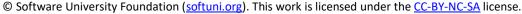
The World of Codecraft does not allow for any person to have **more than 1 of the SAME Legendary or Rare item**.
So if you receive **two or more** of the **SAME** Rare item you must sell it.
Legendary items **cannot be sold**, so if you receive two or more of the **SAME** Legendary item **you must ignore them**.

After inspecting all the loot you need to print marto's **total gold**, his health and all items that he got.

Each item that Marto obtains **increases his total health by the health bonus of that item**. Also, **each item he sells increases his total gold**. Gold is also increased each time the loot is "Gold"

Input

The first two lines are information about Marto

- First line – Marto's current gold. An **integer** number in the range **[0 ... 2^{31-1}]**
- Second line – Marto's **current maximum health**. A decimal number in the range **[0 ... 3.402×10^{38}]**

For the next lines, you will receive loot information, until the string "**NO MORE LOOT**" is reached.

Loot can come in two forms

1. Item loot - **{Name}: {Quality} {Gold} {Health Bonus}**

- Name – A string with one or more words, separated by space. **No special symbols**.
- Quality – One of the following words: **Junk, Damaged, Normal, Rare, Legendary**.
- Health Bonus – A decimal number in the range **[0 … 3.402×10^{38}]**
- Gold **-** An integer number in the range **[0 ... 2^{31-1}]**

2. Gold – **Gold: {Amount}**

- An integer number in the range **[0 ... 2^{31-1}]**

Output

Marto's stats must be printed in the following fomat:

Marto has a total of **{Total Gold}** gold.
Marto's total health is **{Total Health}**.
Marto has collected the following items:
> **{Item Name}** [Quality: **{Quality}**] [HP Bonus: **{Health Bonus}**]
> **{Item Name}** [Quality: **{Quality}**] [HP Bonus: **{Health Bonus}**]
…
…

If for some reason Marto has not obtained any items you do not need to print anything special.
Just print "Marto has collected the following items:" and don't print anything else.

Example

Input	Output	Description
1000 100 Iron Helmet: Normal 200 50 Iron Boots: Normal 100 30 Meat Slicer: Rare 800 150 Gold: 400 Heavy Shield: Rare 800 300 Meat Slicer: Rare 800 150 NO MORE LOOT	Marto has a total of 2500 gold. Marto's total health is 550. Marto has collected the following items: > Meat Slicer [Quality: Rare] [HP Bonus: 150] > Heavy Shield [Quality: Rare] [HP Bonus: 300]	**Marto starts with 1000 Gold and 100 HP.** **First item is Normal so we sell if for 200.** **Second item is Normal so we sell it for 100** **Meat Slicer is Rare so we take it and add 150 to Marto's HP.** **Next we have some gold so we simply add it to marto's gold.** **The Heavy shield is rare so we take it and increase marto's HP by 300.** **We receive the Meat Slicer again, but since we already had a meat slicer we sell it for 800.** **Summing up the starting gold + gold from all sold items we get 1000 + 200 +100 + 400 + 800 = 2500 total gold.** **Summing up the health bonus of all taken items we get 100 + 150 + 300 = 550.**

Input	Output
0 0 Cap: Junk 20 50 Crown: Legendary 4000 500 Crown: Legendary 4000 500 Boots: Damaged 10 10 Gold: 200 Gold: 800 NO MORE LOOT	Marto has a total of 1030 gold. Marto's total health is 500. Marto has collected the following items: > The crown [Quality: Legendary] [HP Bonus: 500]

Input	Output
0 0 Helm: Rare 100 100 Shoulders: Rare 100 100 Chest: Rare 100 100 Chest: Rare 100 100 TheOne: Legendary 5000 5000	Marto has a total of 100 gold. Marto's total health is 5300. Marto has collected the following items:

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TheOne: Legendary 5000 5000 NO MORE LOOT	> Helm [Quality: Rare] [HP Bonus: 100] > Shoulders [Quality: Rare] [HP Bonus: 100] > Chest [Quality: Rare] [HP Bonus: 100] > TheOne [Quality: Legendary] [HP Bonus: 5000]