# Problem 4. Anonymous Cache

The Anonymous are storing data on their dataservers about their activities. The CIA has higher the greatest hacker in the world – You. Your job is to extract their data and send it to the CIA. It won’t be an easy task, Get Ready!

You will receive **several input lines** in one of the following formats:

* {dataSet}
* {dataKey} -> {dataSize} | {dataSet}

The dataSet and dataKey are both strings. The dataSize is an **integer**. The dataSets hold dataKeys and their dataSizes.

If you receive only a dataSet you should **add** it. If you receive a dataKey and a dataSize, you should add them to the **given** dataSet.

And here’s where the fun begins. If you receive a dataKey and a dataSize, but the given dataSet **does NOT exist**, you should **STORE** those **keys** and **values** in a cache. When the corresponding dataSet is **added**, you should **check** if the cache holds any **keys** and **values** referenced to it, and you should **add** them to the dataSet.

You should end your program when you receive the command “thetinggoesskrra”. At that point you should extract the dataSet from the data with the **HIGHEST** dataSize (**SUM** of all its dataSizes), and you should print it.

**NOTE**: Elements in the cache, **should be CONSIDERED NON-EXISTANT**. You should **NOT** count them in the **final output**.

In case there are **NO** dataSets in the data, you **should** **NOT** **do anything**.

### Input

* The input comes in the form of commands in one of the formats specified above.
* The input ends when you receive the command “thetinggoesskrra”.

### Output

* As output you must print the dataSet with the **HIGHEST** **SUM** of all dataSizes.
* The output format is:

Data Set: {dataSet}, Total Size: {sumOfAllDataSizes}

$.{dataKey1}

$.{dataKey2}

...

* In case there are **NO** dataSets in the data, print **nothing**.

### Constrains

* The dataSet and dataKey are **both strings** which may contain **ANY ASCII** character except ‘ ’, ‘-’, ‘>’, ‘|’.
* The dataSize is a **valid integer** in **range [0, 1.000.000.000]**.
* There will be **NO invalid input lines**.
* There will be **NO** dataSets with **EQUAL SUMMED** dataSize.
* There will be **NO DUPLICATE** keys.
* Allowed working **time/memory**: **100ms / 16MB**.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Users  BankAccounts  ADDB444 -> 23111 | BankAccounts  Students -> 2000 | Users  Workers -> 24233 | Users  thetinggoesskrra | Data Set: Users, Total Size: 26233  $.Students  $.Workers |
| Cars  Car1 -> 233333 | Cars1  Car23 -> 266666 | Cars1  Warehouse2 -> 10000 | Buildings  Warehouse3 -> 480000 | Buildings  Warehouse5 -> 100000 | Buildings  Buildings2  Buildings2  Warehouse3 -> 480000 | Buildings1  Warehouse5 -> 100000 | Buildings1  thetinggoesskrra | Data Set: Buildings, Total Size: 590000  $.Warehouse2  $.Warehouse3  $.Warehouse5 |

*...Why the Gunpowder treason*

*Should ever be forgot!...*

***V***