# 01. Agency

….After the agency have choose their new agents, they have to get their ID numbers.

Every ID number is on a **separate card** o n the desk in a stack.

The agents enter at the registation in queue **one by one.** Each agent **take topmost** **ID**.

Your task is to write a program that can handle the registration process. On the **first line** you will receive ID numbers available for the registration, **separated by white space.** On the **second** - agents who enter the registration room, also **separated by white space.**  After this you start to receive **commands, until** you get the word **"stop",** that you should process to make sure, that every agent get the intended ID number. **Commands,** that you can receive is :

* **"add-ID {ID Number}"-** after the command you will receive an **ID number**, that you should add on the top of the stack with ID's. ***Example:*** "add-ID 2312".
* **"add-agent {Agent Name}" –** You should add an **agent** at the end of the queue. ***Example:*** "add-agent Johnson"
* **"remove-ID" –** you have to remove first **ID number** from the stack, and print the message **"{ID Number} has been removed. "**
* **"remove-agent"-** remove the **last agent** from the queueand print the message**"{Agent Name} has left the queue."**
* **"sort-ID"-** if you receive sort command you have to sort the stack of ID numbers in **descending order.**

## Input

The input data should be read from the console.

* **First line** – ID numbers (as string), separated by **whitespace**.
* **Second line** – agent's names, separated by **whitespace.**
* Strings with commandsuntil the **“stop”** command.

The input will always be valid and in the format described. There is no need to check it explicitly.

## Output

When you receive **"stop"** command you should print at the console:

* for every agent:

**"{Agent Name} takes ID number: {ID Number}"**

* If there are **NO** more agents:

Print message **- "No more agents left."**

And then print every ID numbers left in the stack in following format:

**"ID number: {ID Number}"**

* If there are **NO** ID's left:

Print for every agent left in the queue: **"{Agent Name} does not have an ID."**

## Constraints

* The **input text** will be in the range [1 … 100 chars]
* The **input numbers** will be a 32-bit integer in the range [0 … 2 147 483 647].
* Allowed working time for your program: 0.1 seconds.
* Allowed memory: 16 MB.

## Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 111 222 333  Alpha Bravo Charlie  add-ID 444  add-agent Delta  stop | Alpha takes ID number: 444  Bravo takes ID number: 333  Charlie takes ID number: 222  Delta takes ID number: 111 | Agent Alpha takes the topmost id,which is 444 because it has been added last. Agent Delta was also added to the queue, so he receive an ID as well. |
| 223 8275 9223  Delta India Foxtrot  remove-ID  stop | 9223 has been removed.  Delta takes ID number: 8275  India takes ID number: 223  Foxtrot does not have an ID. | After the "remove-ID", we remove 9223,from the stack, and print the message.Now we have three agents and only two ID's, so we print the appropriate message |
| 008 003 002 001  Widow Delta  sort-ID  add-agent Zulu  remove-ID  remove-agent  stop | 008 has been removed.  Zulu has left the queue.  Widow takes ID number: 003  Delta takes ID number: 002  No more agents left.  ID number: 001 |  |