## Problem 1 – Space Exploration Crew Management

*You are the captain of a space exploration mission. Your team consists of astronauts, each with their assigned spacecraft section and a set of skills they can perform.*

On the **first line** of the input, you will **receive** an integer **n** – the **number of astronauts** in your crew. On the next **n** lines, the **details of each astronaut** will follow in the format:

"{astronaut name} {spacecraft section} {skill 1,skill 2,...}"

The spacecraft section represents the area where the astronaut works (e.g., command module, engineering bay, research lab), and the list of skills includes the tasks they can perform in that section.

After forming your crew, you will receive different commands, separated by " / " (see the example below for clarity on the delimiter), until the command "End" is given. There are three types of actions astronauts can perform:

**"Perform / {astronaut name} / {spacecraft section} / {skill}"**

* If the astronaut is in the correct spacecraft section and can perform the skill, print:

**"{astronaut name} has successfully performed the skill: {skill}!"**

* Otherwise, print:

**"{astronaut name} cannot perform the skill: {skill}."**

**"Transfer / {astronaut name} / {new spacecraft section}"**

* The astronaut changes their assigned spacecraft section. Print:

**"{astronaut name} has been transferred to: {new spacecraft section}"**

**"Learn Skill / {astronaut name} / {new skill}"**

* If the astronaut already knows the skill, print:

**"{astronaut name} already knows the skill: {new skill}."**

* Otherwise, add the skill to their list and print:

**"{astronaut name} has learned a new skill: {new skill}."**

### Input

* On the **first line**, you will receive an integer **n**.
* On the next **n** lines, you will receive **details** about the **astronauts**.
* After that, you will receive **commands** until the "**End**" command.

### Output

* **Print** the results **of each command**.
* At the end, print a list of all astronauts. Show their updated spacecraft sections and skill lists. Arrange the **skills in alphabetical order**:

**"Astronaut: {astronaut name}, Section: {spacecraft section}, Skills: {skill 1, skill 2, ...}"**

### Constraints

* The names of the astronauts will be unique.
* All given commands will be valid.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| [  "2",  "Alice command\_module piloting,communications",  "Bob engineering\_bay repair,maintenance",  "Perform / Alice / command\_module / piloting",  "Perform / Bob / command\_module / repair",  "Learn Skill / Alice / navigation",  "Perform / Alice / command\_module / navigation",  "Transfer / Bob / command\_module",  "Perform / Bob / command\_module / maintenance",  "End"  ] | Alice has successfully performed the skill: piloting!  Bob cannot perform the skill: repair.  Alice has learned a new skill: navigation.  Alice has successfully performed the skill: navigation!  Bob has been transferred to: command\_module  Bob has successfully performed the skill: maintenance!  Astronaut: Alice, Section: command\_module, Skills: communications, navigation, piloting  Astronaut: Bob, Section: command\_module, Skills: maintenance, repair |
| **Input** | **Output** |
| [  "3",  "Tom engineering\_bay construction,maintenance",  "Sara research\_lab analysis,sampling",  "Chris command\_module piloting,communications",  "Perform / Tom / engineering\_bay / construction",  "Learn Skill / Sara / robotics",  "Perform / Sara / research\_lab / robotics",  "Transfer / Chris / research\_lab",  "Perform / Chris / research\_lab / piloting",  "Learn Skill / Tom / diagnostics",  "Perform / Tom / engineering\_bay / diagnostics",  "End"  ] | Tom has successfully performed the skill: construction!  Sara has learned a new skill: robotics.  Sara has successfully performed the skill: robotics!  Chris has been transferred to: research\_lab  Chris has successfully performed the skill: piloting!  Tom has learned a new skill: diagnostics.  Tom has successfully performed the skill: diagnostics!  Astronaut: Tom, Section: engineering\_bay, Skills: construction, diagnostics, maintenance  Astronaut: Sara, Section: research\_lab, Skills: analysis, robotics, sampling  Astronaut: Chris, Section: research\_lab, Skills: communications, piloting |