Problem 54: Catalog It!

Difficulty: Medium

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Problem Background

You have been tasked with creating a catalog of Lockheed Martin's products. The products are organized in a hierarchy with several categories and subcategories of products. You load this data from a database, but unfortunately the only information you have access to is a listing of each product or category and its immediate parent.

Problem Description

Your task is to convert this flat listing into a nested view that better shows the hierarchy of the products.

Sample Input

The first line of your program's input, received from the standard input channel, will contain a positive integer representing the number of test cases. Each test case will include:

- A The line will consist of the product/category's name followed by a comma and the name of the product/category's parent. If the parent is "None", that indicates that the product/category is at the top of the hierarchy and has no parent. You need to be able to handle a hierarchy any number of levels deep. Names are guaranteed to be unique, and parents will appear in the input file before any of their children. There could also be more than one top level item.

```
11
All Products,None
Space Products,All Products
Aeronautic Products,All Products
Satellites,Space Products
GPS,Satellites
A2100,Satellites
Manned Spacecraft,Space Products
Orion,Manned Spacecraft
Fighter Planes,Aeronautic Products
F-35 Lightning 2,Fighter Planes
F-22 Raptor,Fighter Planes
```

Sample Output

Output a hierarchical listing of all of the products/categories in the input where each item is nested underneath its parent. Each item should be preceded by dashes to show its depth in the hierarchy and should have one more dash than its parent has. All products that share a parent should be listed in alphabetical order. This applies to top level categories as well.

```
All Products
-Aeronautic Products
--Fighter Planes
---F-22 Raptor
---F-35 Lightning 2
-Space Products
--Manned Spacecraft
---Orion
--Satellites
---A2100
---GPS
```