B. Inventory Management

Time Limit: 3 seconds

Problem description

ABC analysis is an inventory management technique that determines the value of inventory items based on their importance to the business. ABC ranks items on demand, cost and risk data, and inventory mangers group items into classes based on those criteria. The Pareto principle says that most results come from only 20% of efforts or causes in any system. Based on Pareto's 80/20 rule, ABC analysis identifies the 20% of goods that deliver about 80% of the value. The below table provide information about goods belong to class A, class B, class C.

Classes in ABC analysis of Inventory Management

Type	Importance	Percentage of Total Inventory	Annual Revenue Value
Class A	High dollar value	20%	80%
Class B	Medium dollar value	30%	15%
Class C	Low dollar value	50%	5%

Assume that, we use the following table format to control the data of goods in inventory

Product Id	Unit cost	Annual demand

The following table is an example data:

Product Id	Unit cost	Annual demand
101	5	48,000
102	11	2,000

103	15	300
104	8	800
105	7	4,800
106	16	1,200
107	20	18,000
108	4	300
109	9	5,000
110	12	500

So, the products are belong to class A which be sorted in ascending order are {101,107} because the **Percentage of Total Inventory** (2 product types / 10 product types) <= 20% and the **Annual Revenue Value** (5*48.000 + 20*18.000 = 600.000 / Total Revenue = 737.000) = 81.3% >= 80%

As a talent programmer, you are asked to program to determine which product(s) is/ are belonged to **class A** based on given data and ABC analysis technique.

Input:

Line 1: an integer N which describes number of products ($N<10^6$)

Line from 2 to N+1: each line describes the information of each saled products, and has the following format: ProductId UnitCost AnnualDemand

where the parts are separated by spaces

ProductId could be a string.

Output:

Output a set of product id which is/ are belong to class A and sorted in ***ascending order*** of product id (*case insensitive*) following ABC analysis technique, each product is separated by comma. For example:

{ProductId_K,ProductId_X,ProductId_Y}

{p101,P107}

Example 1:

Input	Output
10 p101 5 48000 p102 11 2000 p103 15 300 p104 8 800 p105 7 4800 p106 16 1200 P107 20 18000 P108 4 300 P109 9 5000 p110 12 500	{p101,P107}

Example 2:

Input	Output
1 P01 30 100	{}

Example 3:

Input	Output
2 W01 30 100 W02 35 90	{}

Example 4:

Input	Output
5 W01 30 100 W02 35 90 W03 5 10 W04 100 520 W05 2 1000	{W04}