Here is the first step in our hiring process. Below is a programming problem. Please read the description thoroughly then create a program to solve the problem.

**Note :**

         For the solution, we request that you use **Java**.

         There must be a way to supply the application with input data via text file.

         The application must run.

         You should provide sufficient evidence that your solution is complete by indicating that it works correctly against supplied test data.

         Upload your code to **Github** and **share** **the repository url**.

         Please include a brief **explanation** of your **design and assumptions**, along with your code, as well as detailed **instructions to run your application**.

         We assess a number of things including the design aspect of your solution and the **OOP** skills. While these are small problems, we expect you to submit what you believe is **production-quality code**; code that you’d be able to **run, maintain and evolve**.

         We want our hiring process to be fair, and everyone to start from the same place. To enable this, we request that you do not share or publish the problem.

**Discounts on apparel**

This shopping season you are having fun at the Mall. The Mall owner, himself, is quite stressed out having to manage the influx of customers.

He is struggling to calculate the discounts that he has on his clothing line. You decide to help him out by building a system that calculates the discounts on all the applicable items a customer has bought.

There are several categories of products. In fact, categories have subcategories which themselves can have subcategories. Below is a diagram.

Casuals is a subcategory of Trousers, which by itself is a subcategory of Men's wear. Some categories have discounts.

            Men's wear                 Women's wear (50% off)

            |- Shirts                          |- Dresses

            |- Trousers                    |- Footwear

             |- Casuals (30% off)

            |- Jeans   (20% off)

Each product you have belongs to a brand which by themselves are running discounts. Below is a table that lists them:

Brands Discounts:

Wrangler             10%

Arrow                   20%

Vero Moda        60%

UCB                       None

Adidas                  5%

Provogue            20%

This way, a product can have three types of discounts applicable:

1. Discount on the brand

2. Discount on the category

3. Discount on the ancestor category (e.g. Footwear doesn't have a discount, but it's parent category Women's wear has 50% off). It is worth noting, that it is an ancestor: not just a direct parent, anyone in the lineage.

The discount that is applied is the greatest of the above three. For example, if the customer buys a Jeans of Wrangler Brand, the discounts are:

1. Discount on brand: 10%

2. Discount on category (Jeans): 20%

3. Discount on parents (Trousers, Men's wear): None

So, the discount that is applied 20%.

Inventory (the list of items that shop has):

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Id | Brand            | Category          | Price   | Discounted Price           |

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1  | Arrow            | Shirts                 | 800      | 640                                      |

2  | Vero Moda | Dresses             | 1400  | 560                                      |

3  | Provogue     | Footwear         | 1800   | 900                                      |

4  | Wrangler      | Jeans                 | 2200  | 1760                                   |

5  | UCB                | Shirts                 | 1500  | 1500                                   |

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You will be given the above table (without discounted price) in CSV form as standard input. This is the shop inventory.

You'll also get the customer options as comma separated Id's after a newline. In the example below, 1,2,3,4 are the customer choices.

Sample Input:

5

1, Arrow,Shirts,800

2, Vero Moda,Dresses,1400

3, Provogue,Footwear,1800

4, Wrangler,Jeans,2200

5, UCB,Shirts,1500

2

1,2,3,4

1,5

Expected output:

3860

2140

**Note :**

As a general rule, we allow three days from the date that you receive these instructions to submit your code, but you may request more time if needed. We expect you to complete this problem and revert by Friday – 3rd Nov, 2017.