

## Home Test for Backend Developer

Which is the best warehouse to delivery product to customer?

A product is stored at many warehouses. Each warehouse has an address. The quantity of product of each warehouse is different. An order contains many order line. Each order line has a product with quantity. An order also has the address information of customer.

When customer places an order, system has to choose a set of warehouse to delivery all product. The warehouses are chosen by the some conditions that are prioritized by:

- \* The first: the warehouse has address at the same city with customer.
- \* The second: the warehouse has all product of order
- \* The third: the warehouse has the largest quantity of a product. Exp: iPhone is stored in two warehouses: A, B. There's 10 iPhone at warehouse A, and 20 at warehouse B. B is the better.

Figure out the solution to choose the best warehouses to fulfill an order.

Input:

- \* A set of warehouses, each warehouse has a list of product with quantity.
- \* An order with the quantity of product in each order line and an address of customer

### Example:

A customer is at Hanoi place an order that has two line items:

- 2 books
- 3 pens

Case 1: there are four warehouses:

- Warehouse A, at Hanoi: 1 book
- Warehouse B, at Hanoi: 3 books, 3 pens
- Warehouse C, at Hanoi: 10 books, 7 pens
- Warehouse D, at Hochiminh: 30 books, 70 pens

***Solution: C is the best.***

Case 2: there are three warehouses:

- Warehouse A, at Hanoi: 1 book
- Warehouse B, at Hochiminh: 10 books
- Warehouse C, at Hochiminh, 5 pends

***Solution: A - 1 book, B - 1 book, C - 3 pens***

