EXERCISE: MERCHANDISE HANDLING

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A company that is handling different warehouses needs us to implement a piece of software to calculate the value of its inventory. Each warehouse is divided in aisles and in each aisle we might have two types of products:

- Normal Products: they do not require special handling or conservation. The stock value of these products is the market price of it. These products can be conserved during a long time and they don't get rotten.
- Special Caring Products: they require special caring (*e.g.* refrigerated products). The stock value of these products is the market price plus a charge per day of storage. This storage cost is the same for all the instances of the same product (*e.g.* all milk bottles have the same storage price). All the products starts with an amount of storage of 1, to reflect the fact they have been transported to the warehouse.
- Perishable Products: they also require special caring, but they have a limit lifespan. Each day that passes, its value is reduced a percentage. This percentage is the same for the same product (*e.g.* all milk bottles lose a 5% of its value per day).

The products are organised in pallets. Each pallet can have one or more product. They can have also mixed types of product. For example we can have a pallet with 10 boxes of 100g chips, 5 bottles of milk and 7 500g cheese package. All the products in the pallet have arrived the same day to the warehouse.

We want to implement the following use cases:

- Calculate the total stock value of a pallet.
- Calculate the total stock value of a warehouse, and the total stock value of the company.
- Increase the number of days stored for all the products in the company warehouses.
- Report all perishable products that have reduced its market value by more than 55%.
- Report all Special Caring Products and Perishable Products which its total storage cost is more than 30%.