# Story

You are working with a software service that handles the replenishment of stores that sell groceries. The service is responsible for creating orders from product data. At the moment a store clerk needs to manually select a batch size for each product before an order can be placed. We would like to add some automation to the service, so that it will be able to create orders without the need of manual input.

# Task

Given products, their batch sizes and quantities, and a boolean flag that determines whether to use the biggest or smallest batch sizes, write a function that produces an order for each given product.

## Input

The function should take as an input (see notes and examples for more details):

- a list or an array of products
- a list or an array of batch sizes
- a list or an array or product batch sizes
- a list or an array of batch quantities
- a boolean flag for batch size selection

### Output

The function should produce an output (see notes and examples for more details):

- a list or an array of orders

## Rules

The batch size for each product should be selected by the following criteria.

- If the boolean flag is true, use the maximum batch size for each product
- If the boolean flag is false, use the minimum batch size for each product
- If a product does not have a batch size mapped to it, use the default batch size

Default batch size

- Has a generated code with the format “BS_GENERATED_{Product code}”
- Has a size of one

If there is no batch quantity for a product, use one as default

# Examples

## Input

| Products | | |
|---|---|---|
| Code | Name | Price per Unit |
| P1 | Milk | 1,99 |
| P2 | Sour Milk | 2,05 |
| P3 | Cream | 3,59 |
| P4 | Yoghurt | 4,99 |
| P5 | Buttermilk | 3,1 |

| Batch sizes | |
|---|---|
| Code | Size |
| BS1 | 20 |
| BS2 | 30 |
| BS3 | 40 |
| BS4 | 50 |
| BS5 | 100 |
| BS6 | 20 |
| BS7 | 50 |

| Product Batch Size | |
|---|---|
| Product Code | Batch Size Code |
| P1 | BS6 |
| P2 | BS1 |
| P2 | BS2 |
| P2 | BS3 |
| P3 | BS4 |
| P3 | BS5 |
| P5 | BS7 |

| Number of Batches | |
|---|---|
| Product Code | |
| P1 | 20 |
| P2 | 500 |
| P3 | 40 |
| P4 | 234 |

# Output

When using max batch sizes the output should be:

| Orders | | | | | |
|---|---|---|---|---|---|
| Product Code | Product Name | Batch Size Code | Batch Size | Batch quantity | Price per Unit |
| P1 | Milk | BS6 | 20 | 20 | 1,99 |
| P2 | Sour Milk | BS3 | 40 | 500 | 2,05 |
| P3 | Cream | BS5 | 100 | 40 | 3,59 |
| P4 | Yoghurt | BS_GENERATED_P4 | 1 | 234 | 4,99 |
| P5 | Buttermilk | BS7 | 50 | 1 | 3,1 |

When using min batch sizes the output should be:

| Orders | | | | | |
|---|---|---|---|---|---|
| Product Code | Product Name | Batch Size Code | Batch Size | Batch quantity | Price per Unit |
| P1 | Milk | BS6 | 20 | 20 | 1,99 |
| P2 | Sour Milk | BS1 | 20 | 500 | 2,05 |
| P3 | Cream | BS4 | 50 | 40 | 3,59 |
| P4 | Yoghurt | BS_GENERATED_P4 | 1 | 234 | 4,99 |
| P5 | Buttermilk | BS7 | 50 | 1 | 3,1 |

# Notes

## Product

Holds the information for an orderable product.

| Property | Type | Description |
|---|---|---|
| Code | string | Unique identifier |
| Name | string | Friendly name of the product |
| Price | decimal | Price per unit |

## Batch size

Represents the size of the single orderable unit.

| Property | Type | Description |
|---|---|---|
| Code | string | Unique identifier |
| Size | integer | Number of products in the unit |

## Product batch size

Maps a batch size to a product.

| Property | Type | Description |
|---|---|---|
| Product code | string | Product identifier |
| Batch size code | string | Batch size identifier |

## Batch quantity

Represents how many batches to order.

| Property | Type | Description |
|---|---|---|
| Product code | string | Product identifier |
| Quantity | integer | Number of batches |

## Order

Holds the order information.

| Property | Type | Description |
|---|---|---|
| Product code | string | Product identifier |
| Batch size code | string | Batch size identifier |
| Product name | string | Friendly name of the product |
| Batch size code | integer | Number of units |
| Batch quantity | integer | Number of batches |
| Price | decimal | Price per unit |

# About the implementation

*You can use a programming language of your choice when implementing this task.* You should have a way of sharing your results (github repository, zip file, …). The code should compile and it should be runnable. Please include instructions for running the code on Windows or macOS. The example inputs can be used to validate your implementation.

# What to expect from the interview

We would appreciate it if you could send the solution in your chosen format to our interviewers by email before the interview. You can find their addresses in the invitation email.

Be prepared to present your solution in the interview. You should be able to walk us through your code and explain your logic and implementation decisions.

Also, be prepared to do some pair-programming with us. We might suggest some changes to your implementation and we will then work with you to implement those. The idea is not to “put you on the spot” but rather to see how we would work together.

Best of luck and have fun with it!