Tutoring Project #1

Problem – At the end of each day, our company receives a list of customer orders to fulfill. We need to process these orders, output invoices, and send any inventory resupply orders for the day

Customer Orders Table (example)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Order\_ID** | **Product\_ID** | **Qty** | **Price\_Per\_Item** | **Region** | **Customer\_ID** |
| 113 | 1045 | 20 | 4.00 | Northeast | 3A448 |
| 113 | 943 | 5 | 12.50 | Northeast | 3A448 |
| 113 | 2258 | 15 | 50.00 | Midwest | 3A448 |
| 114 | 1045 | 24 | 4.00 | South | 6G732 |

Inventory Table (example)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Product\_ID** | **Qty\_Available** | **Region** | **Shipping\_Time (Days)** | **Reorder Batch Size** |
| 1045 | 10 | Northeast | 5 | 100 |
| 1045 | 20 | Midwest | 3 | 100 |
| 1045 | 20 | South | 7 | 100 |
| 943 | 1 | Northeast | 4 | 30 |
| 943 | 0 | Midwest | 1 | 30 |
| 943 | 0 | South | 1 | 30 |

Invoice Table (example)

|  |  |  |  |
| --- | --- | --- | --- |
| **Customer ID** | **Order\_ID** | **Total Price** | **Days to Fulfillment** |
| 3A448 | 113 | 892.5 | 7 |
| 6G732 | 114 | 96 | 9 |

Inventory Resupply Orders Table (example)

|  |  |  |
| --- | --- | --- |
| **Product\_ID** | **Region** | **Qty** |
| 1045 | Northeast | 100 |
| 943 | Northeast | 30 |

Notes

1. This program will be run once a day, once all of the days’ orders are in
2. Only completed orders will appear in the table, assume all orders that appear are complete
3. Orders should be fulfilled in numerical order (by order ID #)
4. There are currently three regions: Northeast, Midwest, South
5. An order can have items delivered to multiple regions
6. Products can only be delivered within the same region. For example, Product #1045 in Order #113 above is being delivered to the Northeast region, thus inventory can only be shipped from the Northeast region
7. If there is insufficient inventory in the region, a new supply of product must be ordered. To maintain lean inventory, only order the minimum amount of new supply based on the batch size. E.g. if 20 units of product 1045 are available, 20 are needed, and the minimum reorder batch size is 100, only order 100.
8. An order can still be processed with insufficient inventory. The amount of time needed to receive a new supply of the product will be included in the invoice.
9. Days to fulfillment represents the amount of time needed for all products in the order to be delivered. Our company can deliver any in-stock product in two days. So days to fulfillment should represent the longest it will take for any inventory to be delivered to the customer, combining any reorder shipping time plus the two day delivery time
10. The functions to read and write to the tables will already be created, you just need to write code for processing the customer orders, checking inventory, processing invoice, and determining resupply orders