Context

Company ABC has a few thousand orders via their website on a daily basis and they have to deliver them as fast as they can. For delivering the goods ordered by the customers, ABC has tied up with multiple courier companies in India who charge them some amount per delivery.

The charges are dependent upon two factors:

- Weight of the product
- Distance between the warehouse (pickup location) and customer's delivery address (destination location)

On average, the delivery charges are Rs. 100 per shipment. So, if ABC ships 100,000 orders per month, they have to pay approximately Rs. 1 crore to the courier companies on a monthly basis as charges.

As the amount that ABC has to pay to the courier companies is very high, they want to verify if the charges levied by their partners per Order are correct.

Content

ABC's internal data spread across three reports:

1. Website order report which will list Order IDs and various products (SKUs) part of each order. Order ID is a common identifier between ABC's order report and courier company invoice.
2. SKU master with the gross weight of each product. This should be used to calculate the total weight of each order and during analysis compare it against one reported by the courier company in their CSV invoice per Order ID. The courier company calculates weight in slabs of 0.5 KG multiples, so first you have to figure out the total weight of the shipment and then figure out applicable weight slabs. For example:
    - If the total weight is 400 grams then the weight slab should be 0.5
    - If the total weight is 950 grams then the weight slab should be 1.
    - If the total weight is 1 KG then the weight slab should be 1
    - If the total weight is 2.2 KG then the weight slab should be 2.5
3. Warehouse Pincode to All India Pincode mapping (this should be used to figure out delivery zone (a/b/c/d/e) and during analysis compare against one reported by courier company in their CSV invoice per Order ID.

Courier company invoice in CSV file:

- Invoice in CSV file mentioning AWB Number (courier company's own internal ID), Order ID (company ABC's order ID), the weight of the shipment, warehouse pickup Pincode, customer delivery Pincode, zone of delivery, charges per shipment, type of shipment
- Courier charges rate card at weight slab and Pincode level. If the invoice mentions "Forward charges" then only forward charges ("fwd") should be applicable as per the zone and fixed & additional weights based on weight slabs.

- If the invoice mentions "Forward and RTO charges" then forward charges ("fwd") and RTO charges ("RTO") should be applicable as per the zone and fixed & additional weights based on weight slabs.

- For the first 0.5 KG, a "fixed" rate as per the slab is applicable.
- For each additional 0.5 KG, "additional" weight in the same proportion is applicable. Total charges will be "fixed" +"total additional" if any.