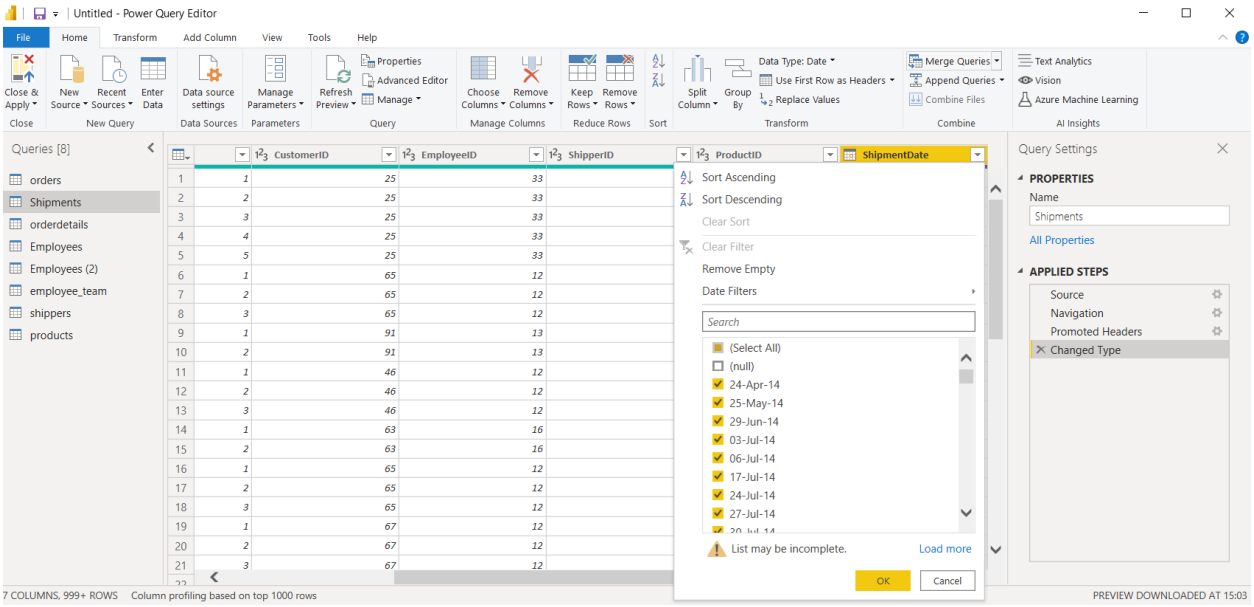
Problem Statement:

How can we maximize profit and make our products easily accessible for our customers?

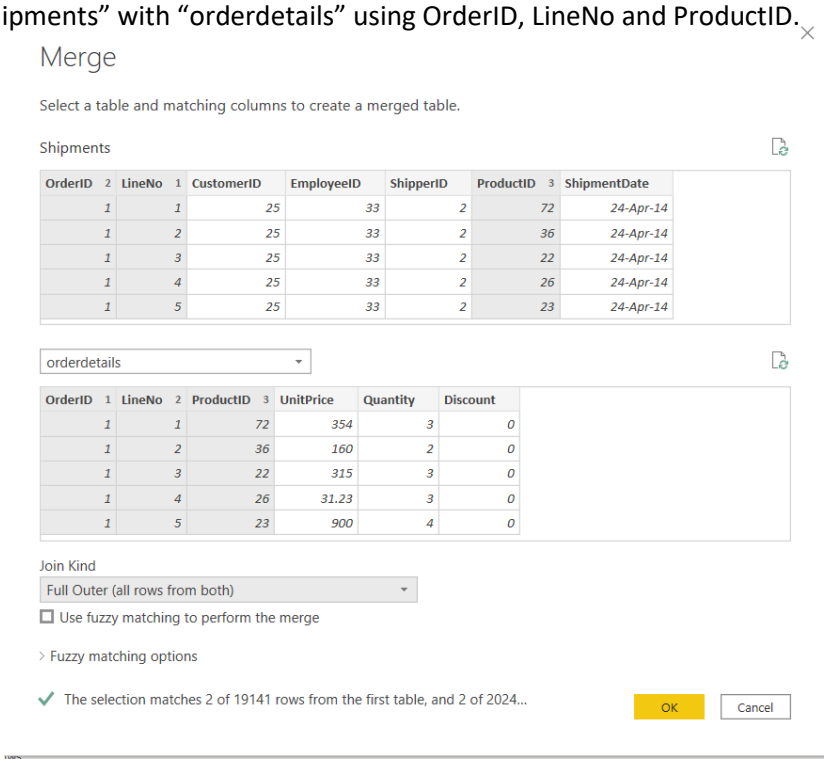
Data Exploration and Dimensional Model Building:

Steps described below are taken to transform, merge, and clean given datasets –

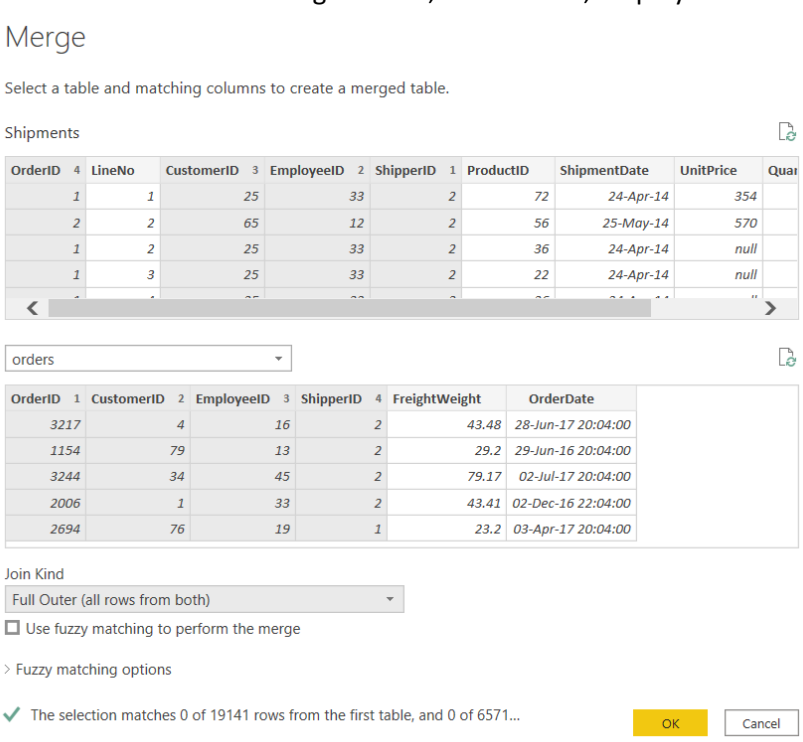
Step 1: Dropping NaNs from column ShipmentDate.



Step 2: Merge “shipments” with “orderdetails” using OrderID, LineNo and ProductID.

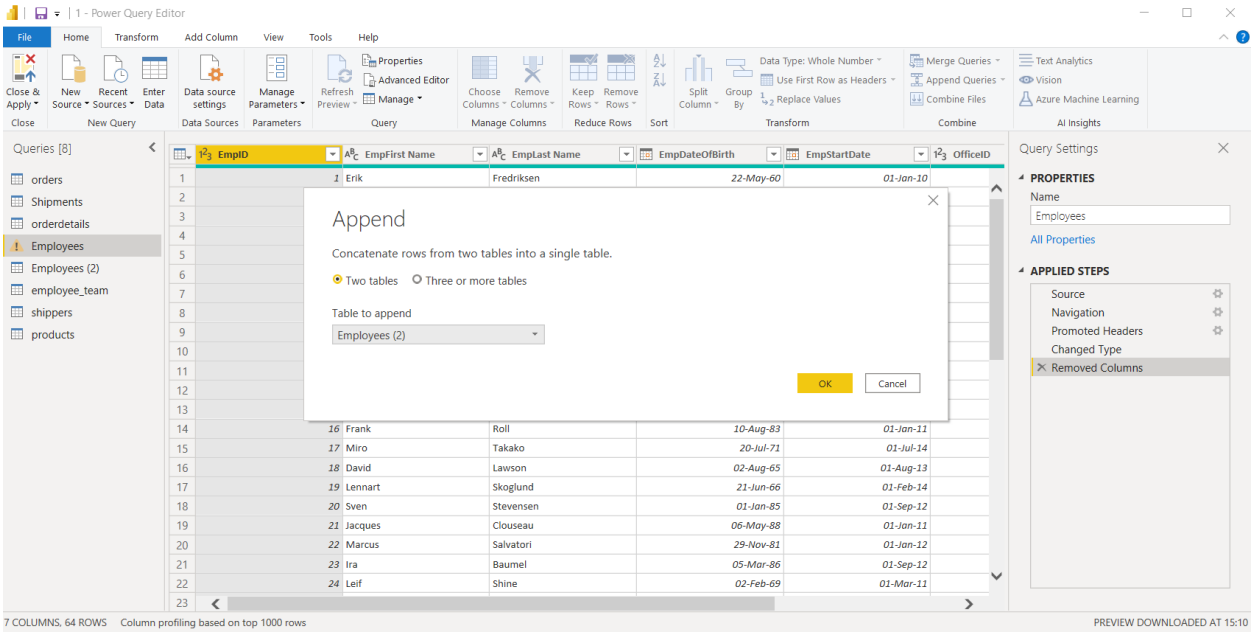


Step 3: Merge “shipments” and “orders” using OrderID, CustomerID, EmployeeID and ShipperID.

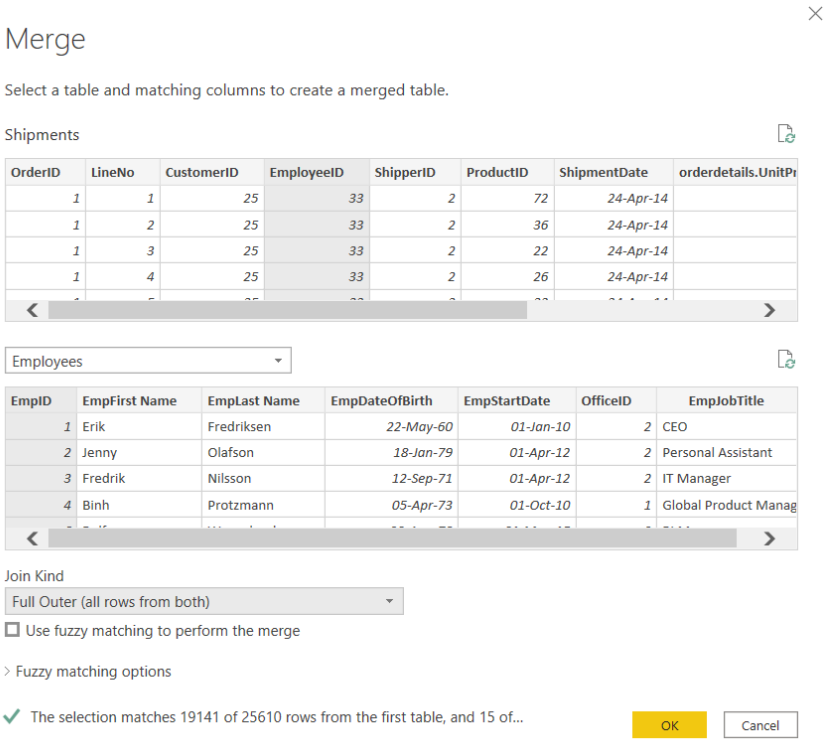


Step 4: Dropping Freight Weight and Order Date because they have lot of NaNs.

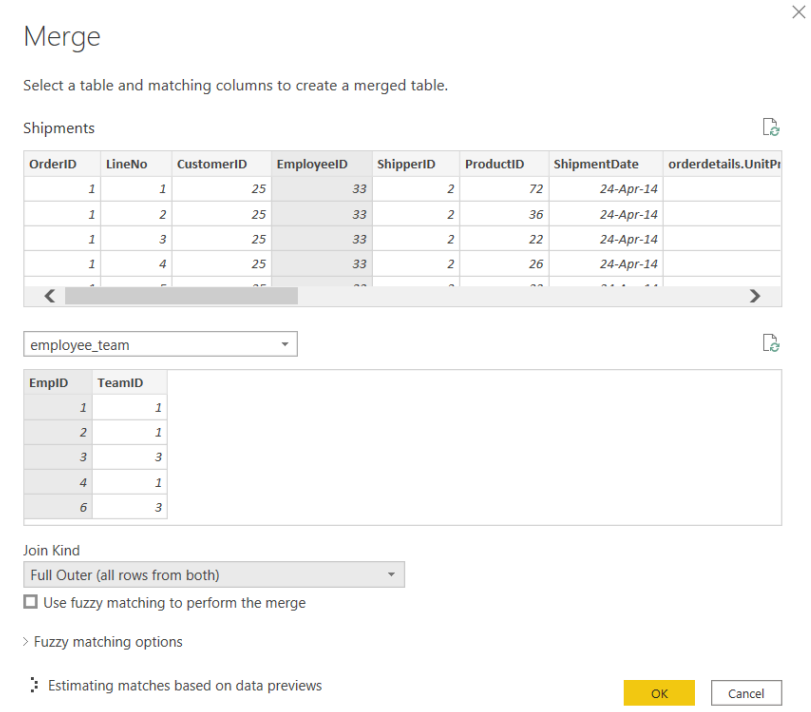
Step 5: Append “employees” with rows in “employees_new”.



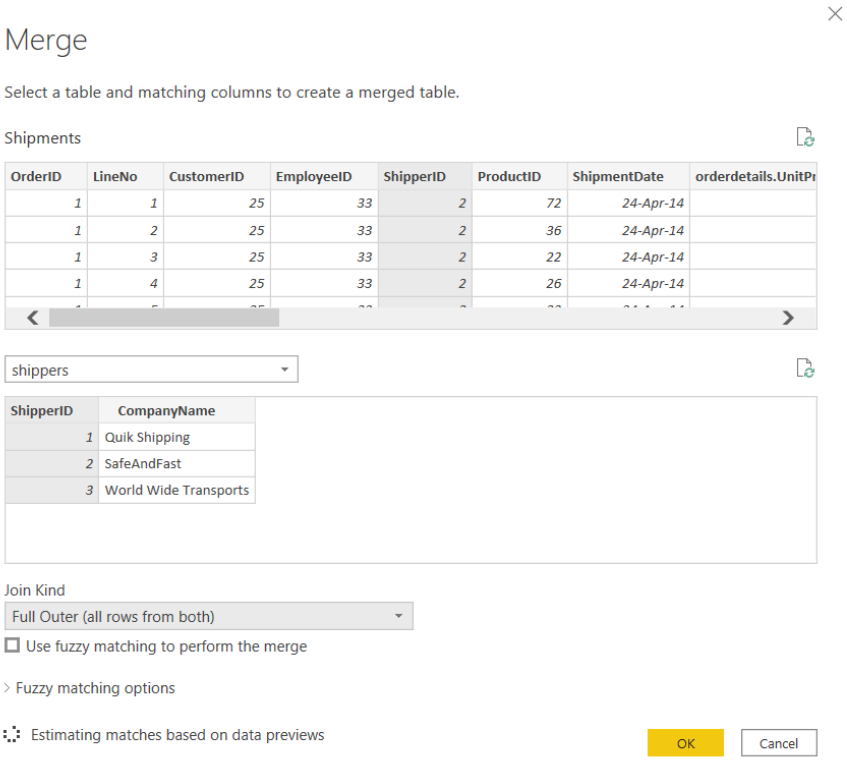
Step 6: Merge “shipments” and “employees” using EmpID.



Step 7: Merge shipments with “employee_team” using EmpID.

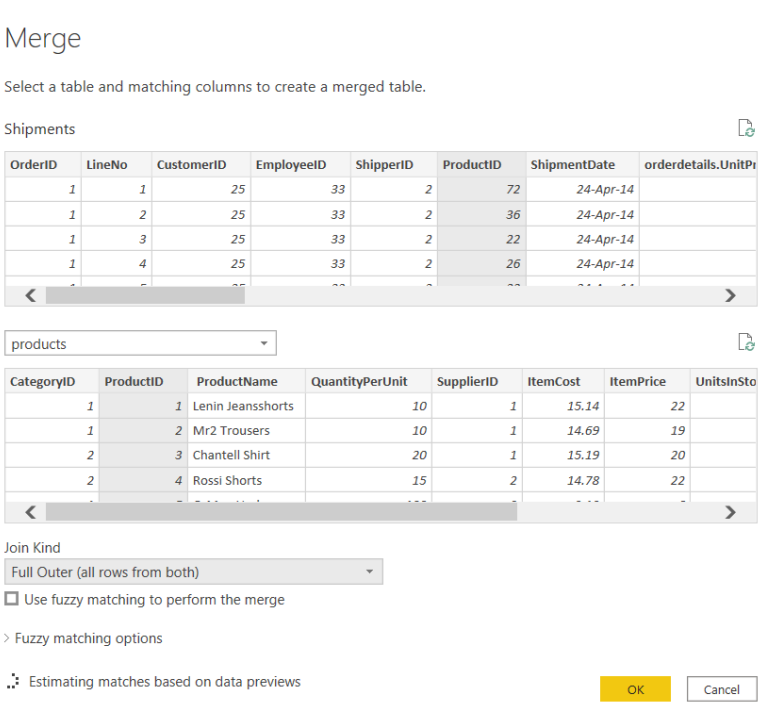


Step 8: Merge “shipments” with “shippers” using ShiperrID.

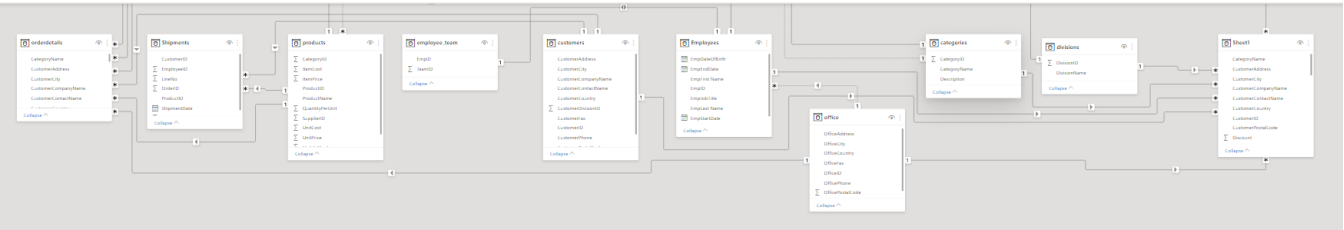


Step 9: Drop NaNs from shippers.CompanyName.

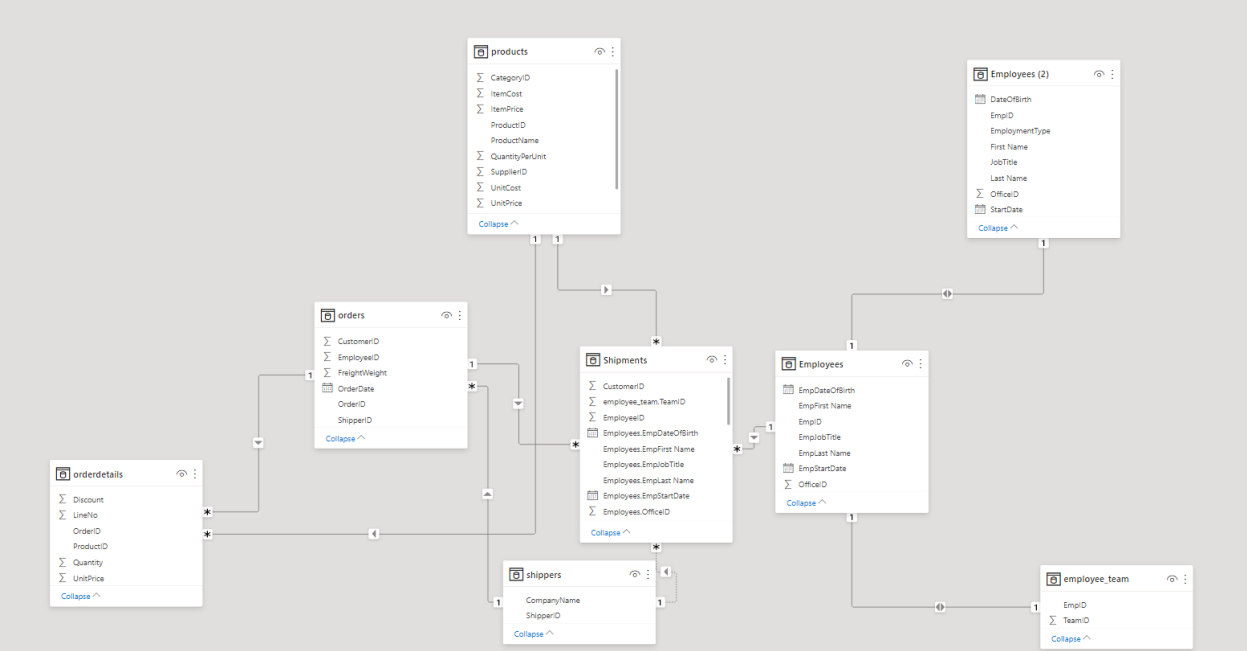
Step 10: Merge “shipments” with “products” using ProductID.



Data Schema:

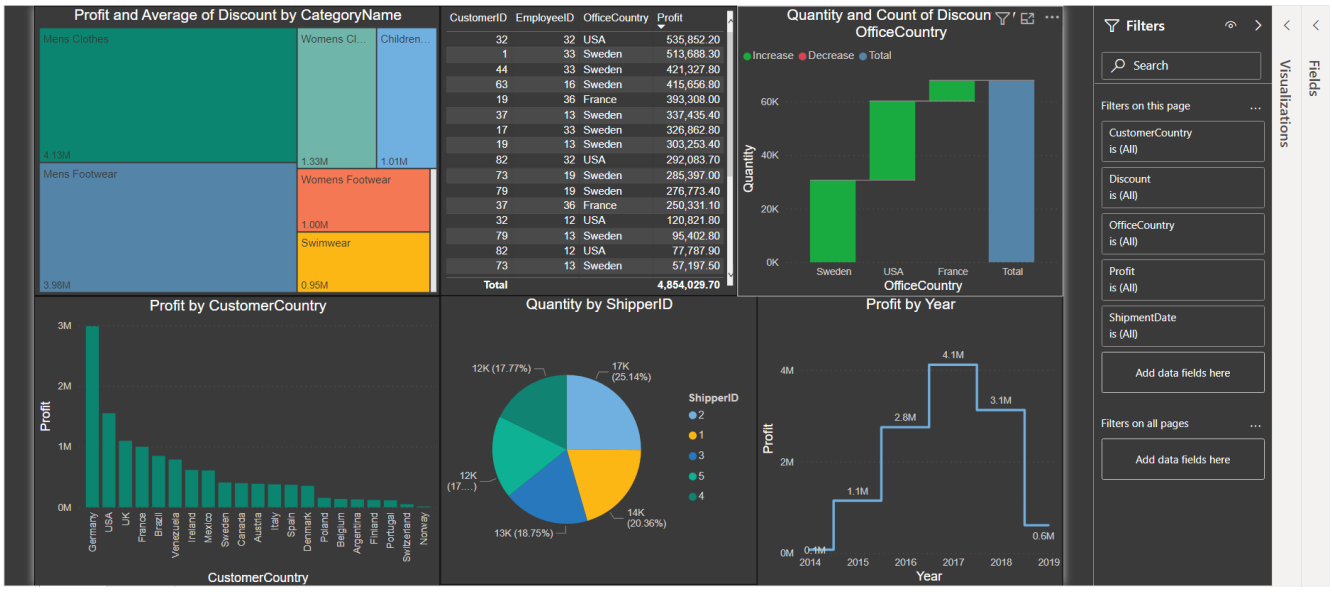


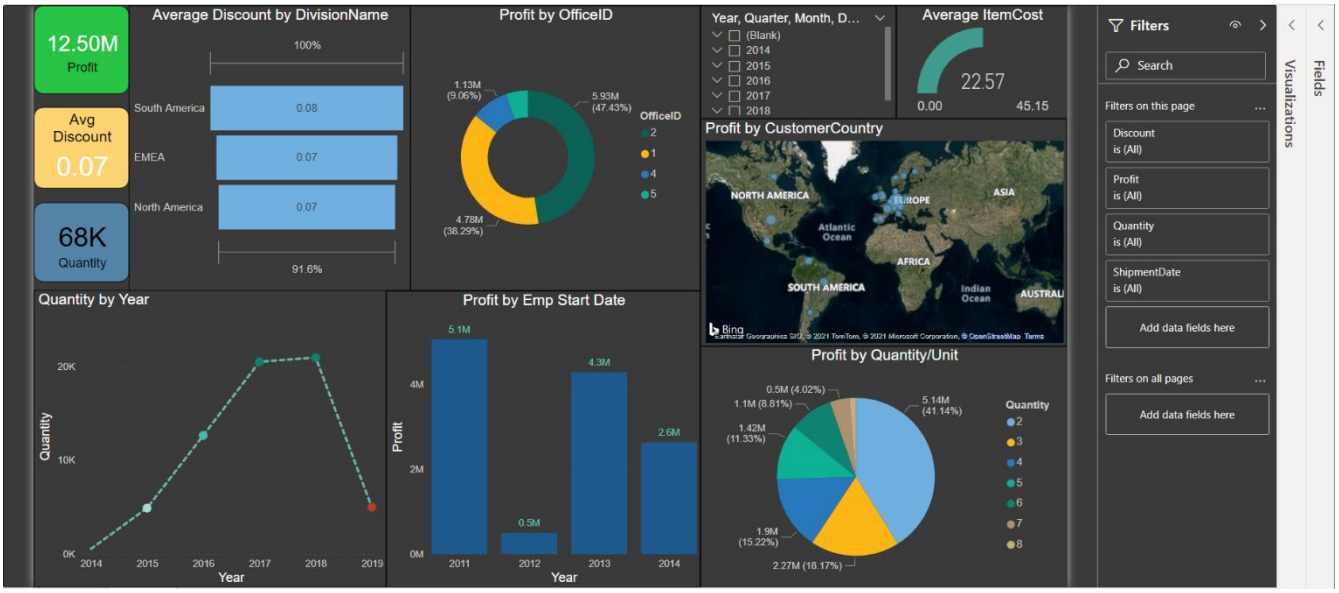
I have combined the data frames like the above schema shows but we can also combine the tables which will form a star schema, like below.



Data Visualizations Building:

Dashboards:





Business Insight and Recommendation:

- Tree map (above left in Dashboard 1) is showing us the amount of profit we are generating from each category and when we place cursor on each category in tree map, we can see that in the categories “Mens Clothes” and “Mens Footwear” (generating maximum profit) we are giving an average discount of 0.08, which is more than in any other category. We can conclude that, since women’s category and children’s clothes are generating medium amount of profit, if we give a little more discount in those categories we can generate more profit. But this strategy will not work for sportswear because we are giving 0.07 of average discount, and it is still not generating much profit.
- Using table (above middle in Dashboard 1) we can have an insight on which customers purchase the most from us and contribute the most in our profit. From that we can conclude that these customers should be our top priority and the customers that have started purchasing more from us should be given some extra discount so that we can sell them more quantity.
- From the waterfall chart (above right in Dashboard 1) we can say that Sweden, USA and France are taking up majority of quantity of our products, we should take care of the shipment and production facilities there. Employees from these countries should be given some benefits. And by placing cursor we can see that count of discount in France is less in comparison to other two, so we should give some frequent discounts in France so that it can take more quantity of our products.
- From the bar chart (below left in Dashboard 1) we can see the countries that are giving us good amount of profit. The employees from these countries should be given more benefits but employees from Sweden should have more meetings so that

they can make new strategies because Sweden is taking the highest quantity but is not generating profit according to the quantity.

- From the pie chart (in Dashboard 1) we can come to the conclusion that we should see places where ShipperID 4 and 5 are shipping and the offices of those places should make strategies to increase sales.
- From the line chart (in Dashboard 1) we can see that after year 2017, our graph of profit is declining. We should review the strategies that we opted between 2015-2017 because our profit increased by big amount in those years and should correct strategies for the years 2018 and 2019 about what we did wrong.
- We can observe that, we have many filters present for both the dashboards so that we have better insight of the data and can find better strategies and steps to take/implement in future.
- From the map (in Dashboard 2) we can observe that our majority of profit is coming from Europe, we can observe that we are giving average discount of 0.07 (i.e. 7 %) (from funnel chart), whereas we are giving more average discount in South America. We can suggest the offices in South and North America to increase awareness about our products through advertisements and give extra discounts during festival seasons for the customers in North America.
- Since, we have dataset which contains information about various components about the company and its customers from 2014-2019 and in the left corner of the dashboard, we can see that the company/organization has made a total profit of 12.5 million, shipped 68,000+ products and has given an average discount of 7%.
- From the gauge chart we can observe that the company is generating approximately double (200% profit) of the amount it is investing in production.
- From donut chart (in Dashboard 2) we can see those offices having ID 2 has generated maximum profit for the organization, and offices having ID 1 are in the second position. After observation through donut chart and the whole dashboard we can say that, the strategies that offices having ID 1 and 2 are using should also be discussed with other offices and some higher-ranking employees from office 1 and 2 should be directed to have online or offline meetings with other offices (not with all the offices, but with offices situated in different regions), so that we can maximize our profit in other areas/regions.