

## Supply Chain Performance Analysis and Optimization

- Team Members: -Kholoud Hagag      -Reham Sobeeh
- Mahmoud Seera      -Ahmed Hussein
- Team Leader: Kholoud Hagag
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### Checking the Data (Assumptions & Data Quality):

What has been checked	What we found	What we did
One row header	As a CSV file, so it's text	Promoted headers
Missing values	No missing values	
Duplicates	No duplicates	
Totals	No totals	
Column types	Was all text	Changed columns types
Columns were fully understood	24 columns are too hard to get by only looking through the data	Created a dictionary defining each column
Primary key	Unique column SKU is already in the data	

### Applied steps:

The screenshot shows the Power BI Desktop interface with a data table named 'supply\_chain\_data'. The table has 24 columns and 100 rows. The columns are: Product type, SKU, Price, Availability, Number of products sold, Revenue generated, and Customer. The data is displayed in a grid format. The interface includes a ribbon with various tools and a sidebar with query settings and applied steps.

Product type	SKU	Price	Availability	Number of products sold	Revenue generated	Customer
haircare	SKU0	69.80800554	55	802	8661.996792	Non-bir
skincare	SKU1	14.84352328	95	736	7460.900065	Female
haircare	SKU2	11.31968329	34	8	9577.749626	Unknow
skincare	SKU3	61.16334302	68	83	7766.836426	Non-bir
skincare	SKU4	4.805496036	26	871	2686.505152	Non-bir
haircare	SKU5	1.699976014	87	147	2828.348746	Non-bir
skincare	SKU6	4.078332863	48	65	7823.47656	Male
cosmetics	SKU7	42.95838438	59	426	8496.103813	Female
cosmetics	SKU8	68.71759675	78	150	7517.363211	Female
skincare	SKU9	64.01573294	35	980	4971.145988	Unknow
skincare	SKU10	15.70779568	11	996	2330.965802	Non-bir
skincare	SKU11	90.63545998	95	960	6099.944116	Female
haircare	SKU12	71.21338908	41	336	2873.741446	Unknow
skincare	SKU13	16.16019332	5	249	4052.738416	Male
skincare	SKU14	99.17132864	26	562	8653.570926	Non-bir
skincare	SKU15	36.98924493	94	469	5442.086785	Non-bir
skincare	SKU16	7.54717211	74	280	6453.797968	Female
cosmetics	SKU17	81.46253437	82	126	2629.396435	Female
haircare	SKU18	36.44362777	23	620	9364.673505	Unknow
skincare	SKU19	51.12387009	100	187	2553.495585	Unknow
skincare	SKU20	56.34107244	22	320	8128.027697	Unknow
cosmetics	SKU21	84.89368698	60	601	7087.052696	Unknow
haircare	SKU22	27.67978089	55	884	2390.807867	Unknow
cosmetics	SKU23	4.324341186	30	391	8858.367571	Unknow
haircare	SKU24	4.156308359	32	209	9049.077861	Male
haircare	SKU25	39.62934399	73	142	2174.777054	Male
haircare	SKU26	97.44694662	9	353	3716.493326	Male
cosmetics	SKU27	92.55736081	42	352	2686.457224	Unknow

First: promoted headers→from transform →use the first row as headers.

Second: changed data types→ from transform→detect data type.

### Data dictionary:

1	Column Name	Description	Data Type
2	Product type	The category of the product ("cosmetics", "haircare", "skincare").	Text
3	SKU	Stock Keeping Unit, a unique code for each product.	Text
4	Price	The price of a single unit of the product.	Decimal Number
5	Availability	The number of products currently in stock and ready to be sold.	Whole Number
6	Number of products sold	The total quantity of products sold.	Whole Number
7	Revenue generated	The total revenue earned from the sale of the product.	Decimal Number
8	Customer demographics	Information about the customer, such as gender or age group.	Text
9	Stock levels	The current inventory level for the product.	Whole Number
10	Lead times	The duration from order placement to delivery.	Whole Number
11	Order quantities	The number of units ordered in a single transaction.	Whole Number
12	Shipping times	The time taken to ship the product to the customer.	Whole Number
13	Shipping carriers	The company responsible for transporting the products("carrierA", "carrierB", "carrierC").	Text
14	Shipping costs	The cost associated with shipping the product.	Decimal Number
15	Supplier name	The name of the product's supplier.	Text
16	Location	The geographic location of the supply chain node.	Text
17	Lead time	The time it takes for a supplier to deliver products.	Whole Number
18	Production volumes	The number of units produced.	Whole Number
19	Manufacturing lead time	The time it takes to manufacture the product.	Whole Number
20	Manufacturing costs	The cost of producing the product.	Decimal Number
21	Inspection results	The outcome of the quality inspection ( "Pass," "Fail," "Pending").	Text
22	Defect rates	The percentage of products with defects.	Decimal Number
23	Transportation modes	The method of transport used ("Road," "Rail," "Air").	Text
24	Routes	The specific path or route used for transportation.	Text
25	Costs	The overall cost associated with the product.	Decimal Number

### Finally:-

- We obtained clean data with 24 columns and 100 rows, with each row having its unique primary key.
- Created a dictionary describing every column.
- Having a model that contains one table ready for to next step of calculating.