Power BI Hands-on Assessment

Scenario: Sales Performance Analysis

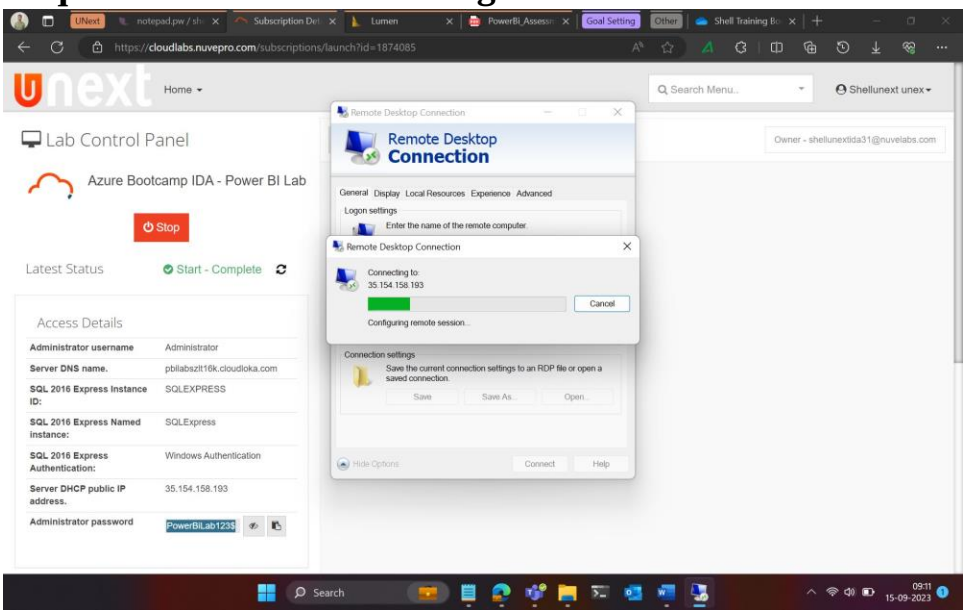
Submitted by **Omeir Fawaz, Room 7**

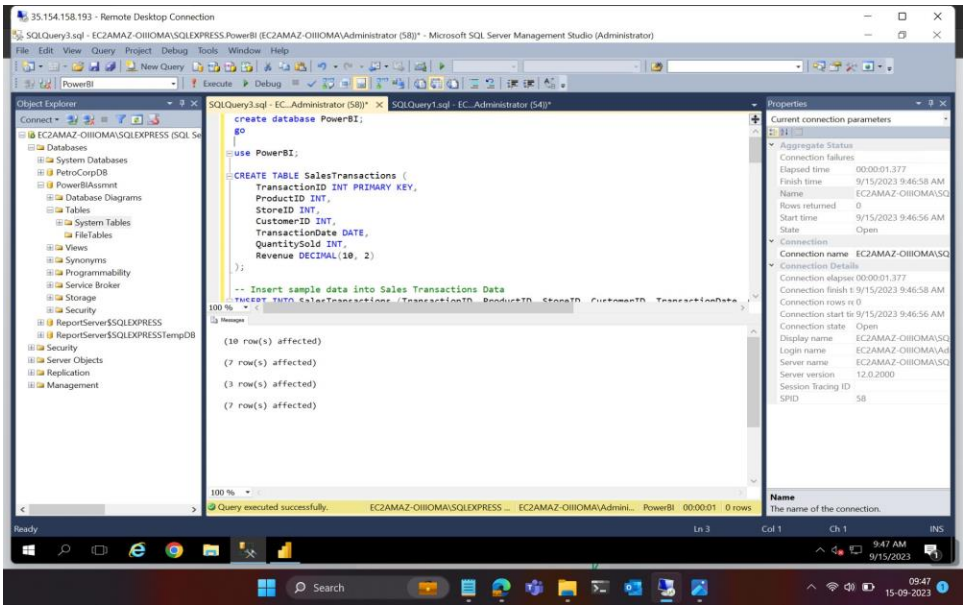
In this scenario, let's imagine you work for a retail company, and you've been tasked with analyzing the sales performance of your products and stores using Power BI. You have multiple data sources and tables to work with, and your goal is to provide actionable insights to improve sales strategies.

Data Sources:

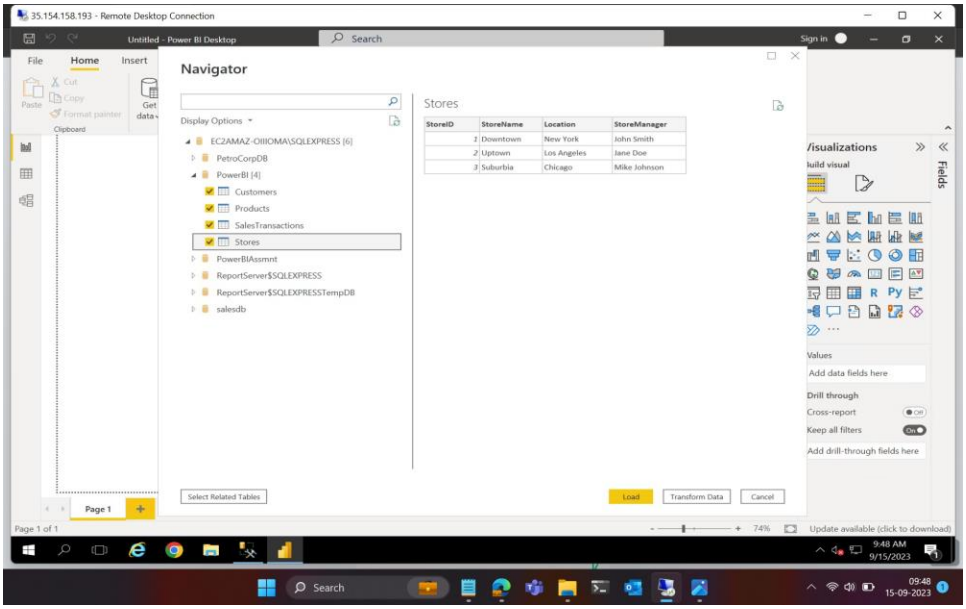
1. Sales Transactions Data: Contains information about each sale, including product ID, store ID, date, quantity sold, and revenue generated.
2. Product Data: Includes details about each product, such as product ID, name, category, and price.
3. Store Data: Provides information about the stores, including store ID, location, and store manager.

Requirement 1: Data Loading – 10 Marks




35.154.158.193 - Remote Desktop Connection
SQLQuery3.sql - EC2AMAZ-OIIIOMA\SQLEXPRESS.PowerBI (EC2AMAZ-OIIIOMA\Administrator (58))* - Microsoft SQL Server Management Studio (Administrator)
create database PowerBI;
go
use PowerBI;
CREATE TABLE SalesTransactions (
TransactionID INT PRIMARY KEY,
ProductID INT,
StoreID INT,
CustomerID INT,
TransactionDate DATE,
QuantitySold INT,
Revenue DECIMAL(10, 2)
);
-- Insert sample data into Sales Transactions Data
(10 row(s) affected)
(7 row(s) affected)
(3 row(s) affected)
(7 row(s) affected)
Query executed successfully.


SQL Server database
Server
EC2AMAZ-OIIIOMA\SQLEXPRESS
Database (optional)
Data Connectivity mode
Import
DirectQuery
Advanced options
OK
Cancel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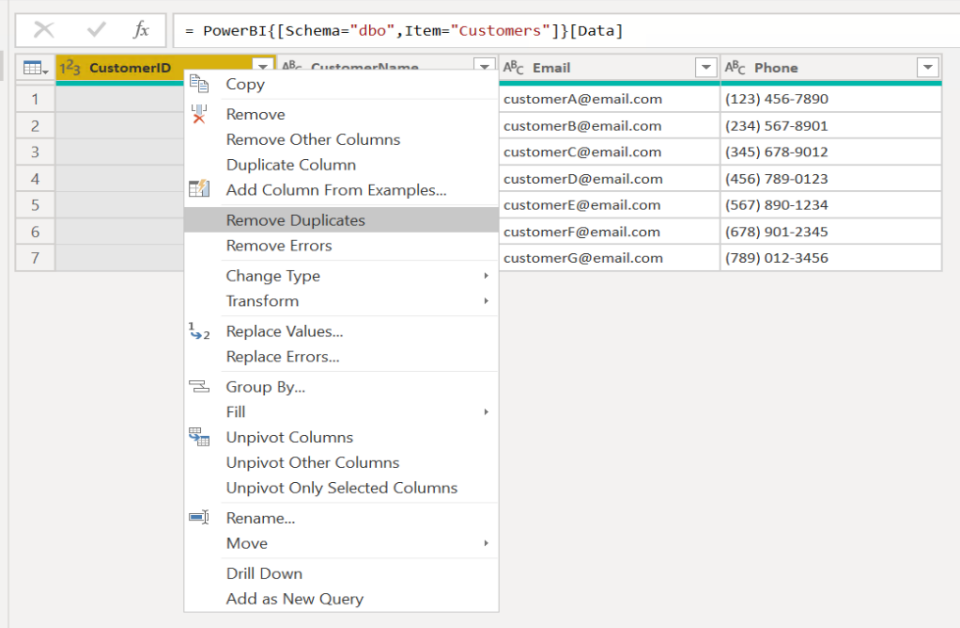
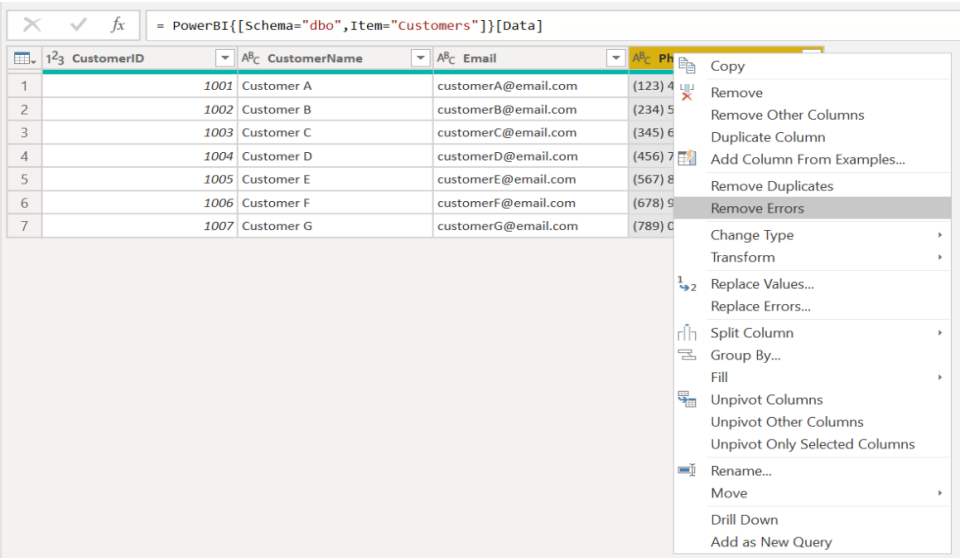
Untitled - Power BI Desktop
Navigator
Stores
StoreID
StoreName
Location
StoreManager
1 Downtown New York John Smith
2 Uptown Los Angeles Jane Doe
3 Suburbia Chicago Mike Johnson
EC2AMAZ-OIIIOMA\SQLEXPRESS [6]
PetroCorpDB
PowerBI [4]
Customers
Products
SalesTransactions
Stores
PowerBIAssmnt
ReportServer$SQLEXPRESS
ReportServer$SQLEXPRESSTempDB
salesdb
Select Related Tables
Load
Transform Data
Cancel
Page 1
Page 1 of 1
Update available (click to download)

Requirement 2: Data Transformation – 20 Marks

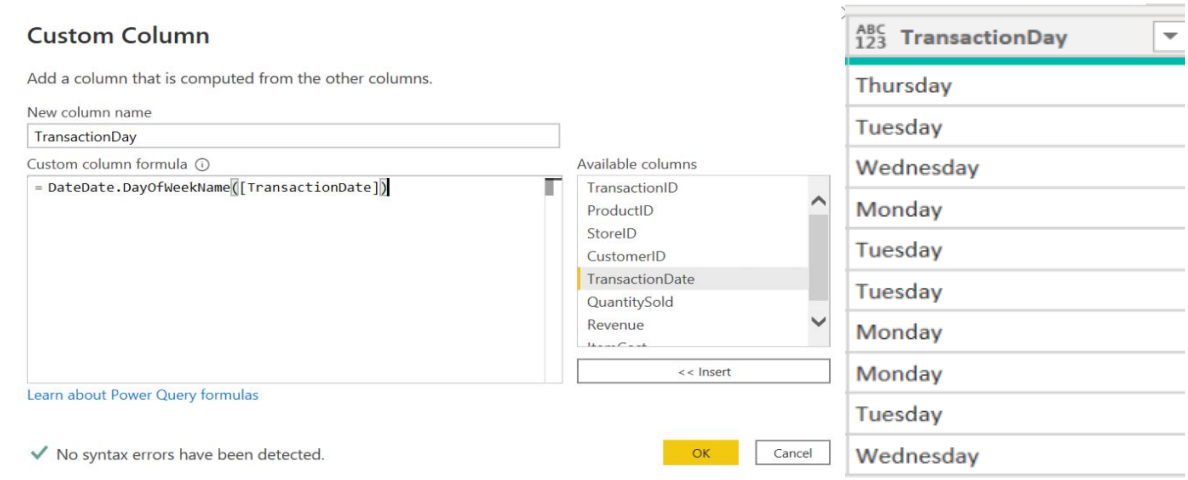
• Merge Tables

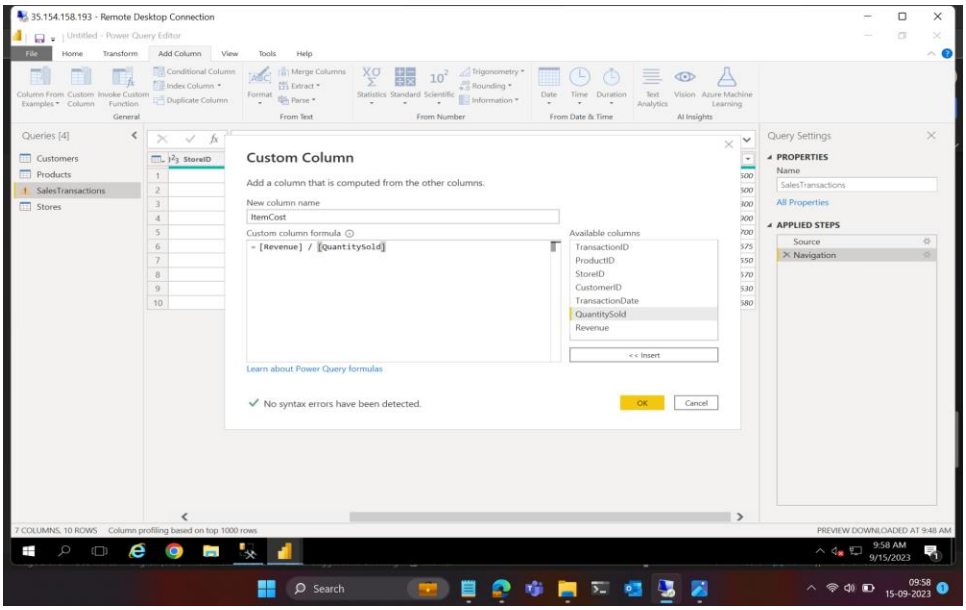
• Clean Data





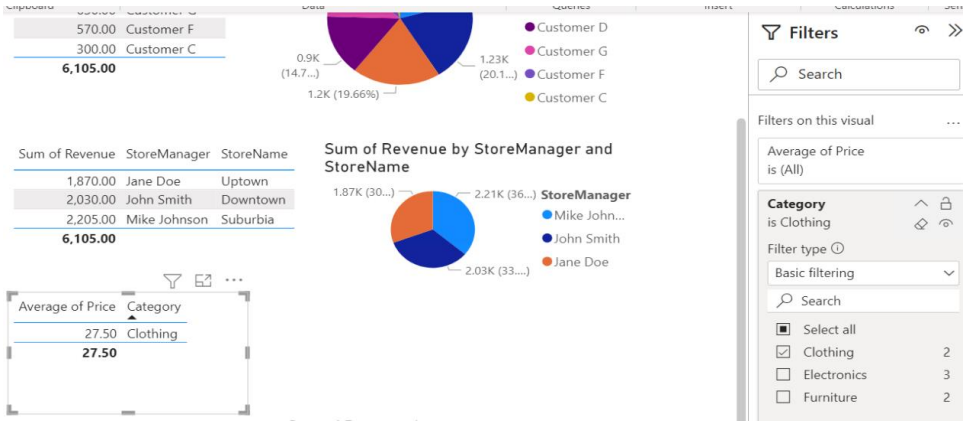
• Create Calculated Columns





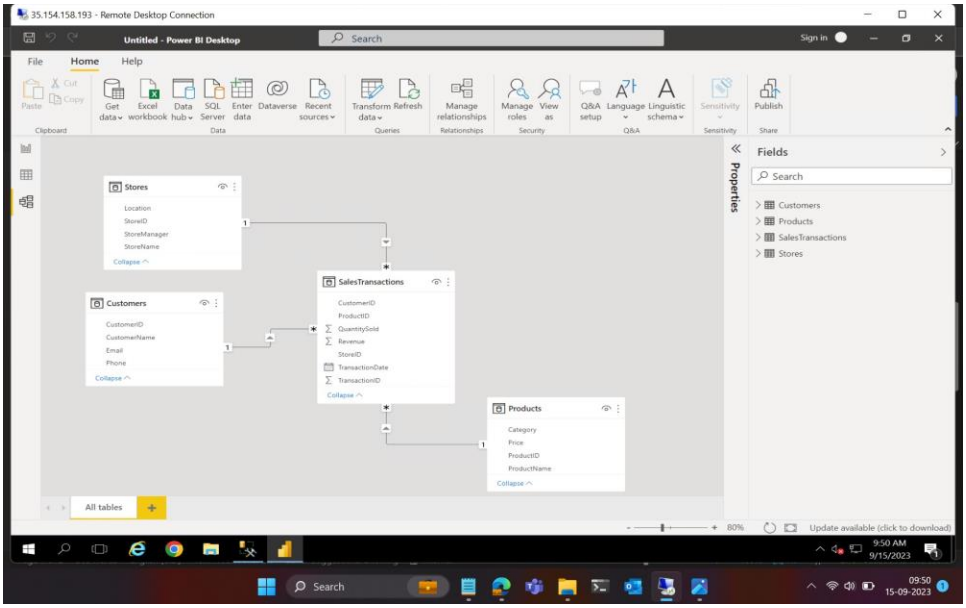
QuantitySold	Revenue	ItemCost
50	500	10
40	600	15
30	300	10
60	900	15
70	700	10
45	675	15
55	550	10
38	570	15
42	630	15
68	680	10

• Filter Data

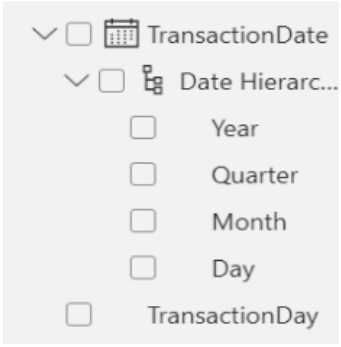


Requirement 3: Data Modelling – 30 Marks

• Create Relationships



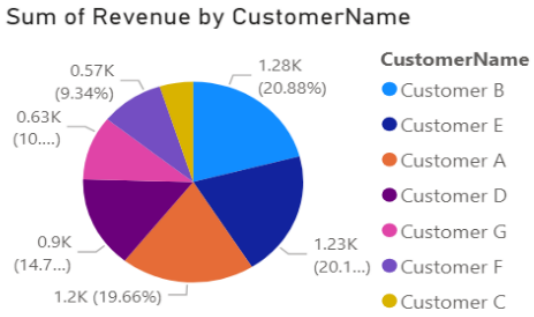
• Create Hierarchies



Requirement 4: Business Queries and Analysis – 20 Marks

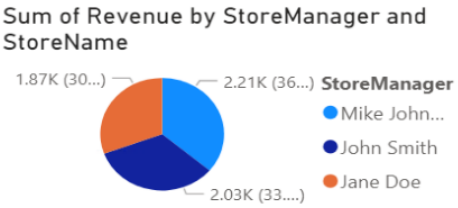
1. Who are the top-spending customers based on their total purchase amount?

Sum of Revenue	CustomerName
1,275.00	Customer B
1,230.00	Customer E
1,200.00	Customer A
900.00	Customer D
630.00	Customer G
570.00	Customer F
300.00	Customer C
6,105.00	



2. How is sales revenue distributed among different store managers?

Sum of Revenue	StoreManager	StoreName
1,870.00	Jane Doe	Uptown
2,030.00	John Smith	Downtown
2,205.00	Mike Johnson	Suburbia
6,105.00		

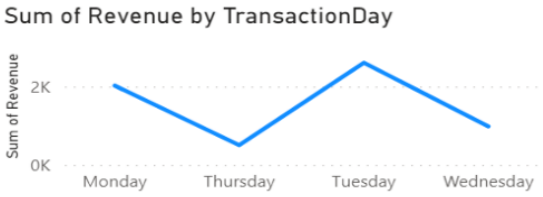


3. What is the average price of products in each category?

Average of Price	Category
27.50	Clothing
500.00	Electronics
640.00	Furniture
405.00	

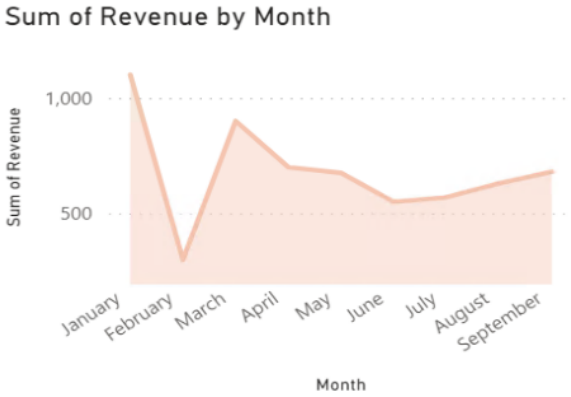
4. Are there specific days of the week when sales are higher?

TransactionDay	Sum of Revenue
Monday	2,020.00
Thursday	500.00
Tuesday	2,605.00
Wednesday	980.00
Total	**6,105.00**

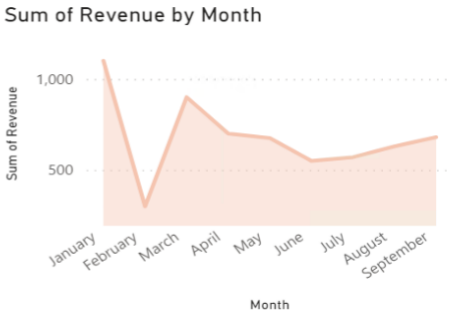


5. How do sales trends vary by product category on a monthly basis?

Month	Sum of Revenue
January	1,100.00
February	300.00
March	900.00
April	700.00
May	675.00
June	550.00
July	570.00
August	630.00
September	680.00
Total	**6,105.00**



Category	Month	Sum of Revenue
Clothing	January	600.00
Electronics	January	500.00
Electronics	February	300.00
Furniture	March	900.00
Electronics	April	700.00
Clothing	May	675.00
Electronics	June	550.00
Clothing	July	570.00
Furniture	August	630.00
Electronics	September	680.00
Total		**6,105.00**



6. What percentage of products account for 80% of total sales revenue?

The top 5 selling products (T-Shirt Blue, Tablet PQR, Laptop XYZ, Sofa Set, Chair) are responsible for 80% of the sales.

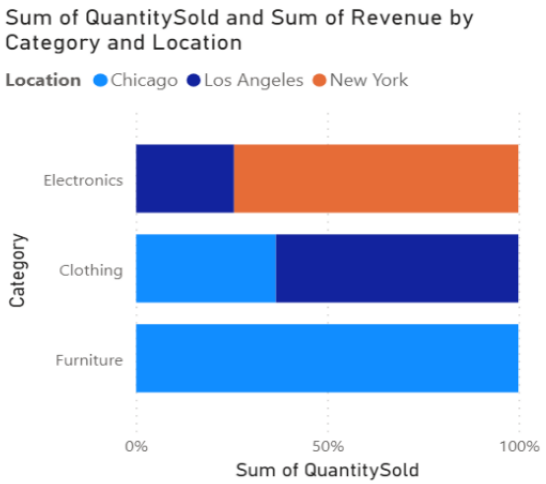
Sum of Revenue	ProductID	ProductName
1,275.00	102	T-Shirt Blue
1,230.00	105	Tablet PQR
1,200.00	101	Laptop XYZ
900.00	104	Sofa Set
630.00	107	Chair
570.00	106	Jeans Black
300.00	103	Smartphone ABC
6,105.00		

7. Are there any trends in repeat customer purchases?

CustomerName	Count of TransactionID
Customer A	2
Customer B	2
Customer C	1
Customer D	1
Customer E	2
Customer F	1
Customer G	1
Total	**10**

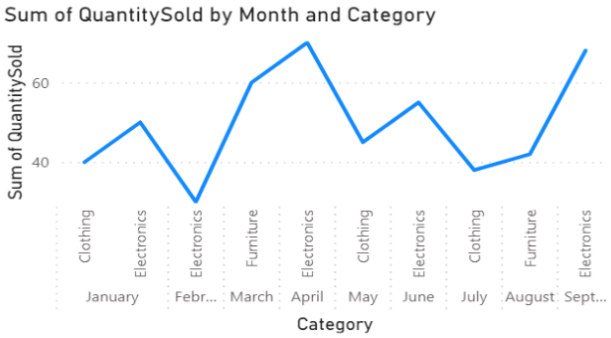
8. Which product categories perform best at each store location?

Category	Location	Sum of QuantitySold	Sum of Revenue
Electronics	New York	203	2,030.00
Furniture	Chicago	102	1,530.00
Clothing	Los Angeles	78	1,170.00
Electronics	Los Angeles	70	700.00
Clothing	Chicago	45	675.00
Total		**498**	**6,105.00**

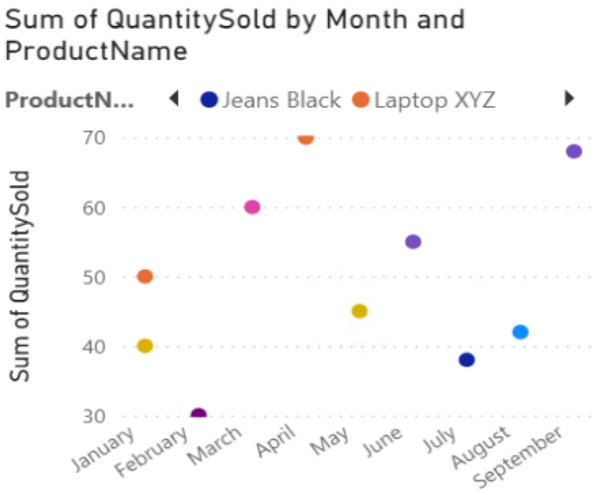


9. Are there any seasonal patterns or trends in sales for specific products or categories?

Category	Month	Sum of QuantitySold
Clothing	January	40
Clothing	May	45
Clothing	July	38
Electronics	January	50
Electronics	February	30
Electronics	April	70
Electronics	June	55
Electronics	September	68
Furniture	March	60
Furniture	August	42
Total		**498**



Month	ProductName	Sum of QuantitySold
January	Laptop XYZ	50
January	T-Shirt Blue	40
February	Smartphone ABC	30
March	Sofa Set	60
April	Laptop XYZ	70
May	T-Shirt Blue	45
June	Tablet PQR	55
July	Jeans Black	38
August	Chair	42
September	Tablet PQR	68
Total		**498**



10. Can customers be segmented into high, medium, and low-value segments based on their purchase history.

Requirement 5: Data Insights and Recommendations – 20 Marks

• Analyze Patterns: Identify patterns and trends in the data, such as seasonality or regional variations and show it or mark it.

Category	Month	Sum of QuantitySold
Clothing	January	40
Clothing	May	45
Clothing	July	38
Electronics	January	50
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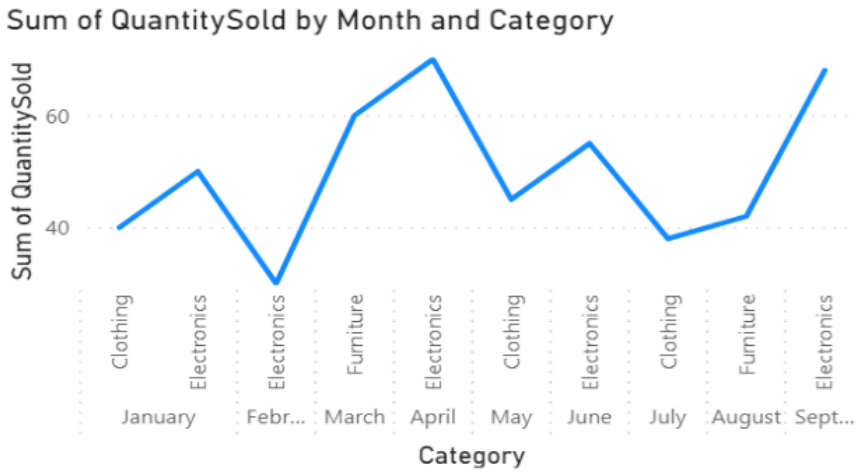
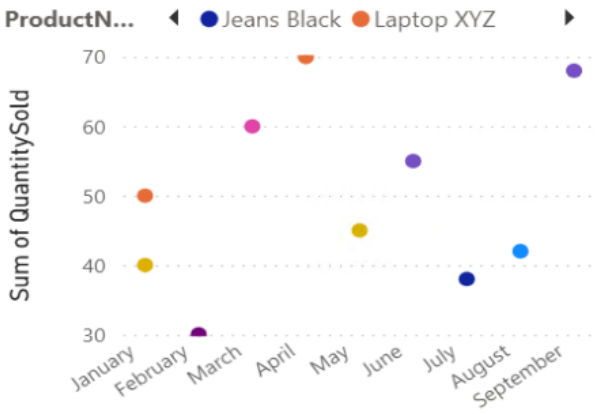


Month	ProductName	Sum of QuantitySold
January	Laptop XYZ	50
January	T-Shirt Blue	40
February	Smartphone ABC	30
March	Sofa Set	60
April	Laptop XYZ	70
May	T-Shirt Blue	45
June	Tablet PQR	55
July	Jeans Black	38
August	Chair	42
September	Tablet PQR	68
Total		**498**

Sum of QuantitySold by Month and ProductName



• Generate Insights: Provide actionable insights based on your analysis. For example, suggest increasing marketing efforts for the most profitable product category.
Discounts can be given on electronics in the month of February to increase sales.

Category	Month	Sum of QuantitySold
Clothing	January	40
Clothing	May	45
Clothing	July	38
Electronics	January	50
Electronics	February	30
Electronics	April	70
Electronics	June	55
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Furniture	August	42
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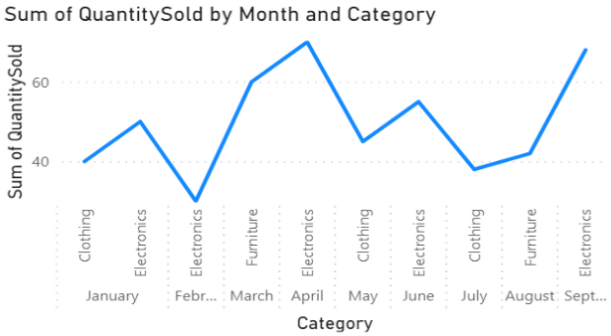

• Create Visual Stories: Use storytelling techniques to communicate your findings effectively in the reports and dashboards.

SQL DB Script as source for Power BI Hands-on Assessment:
`https://github.com/manojkumarsingh77/Shell2023/blob/main/Assessments/PowerBI/Tables`