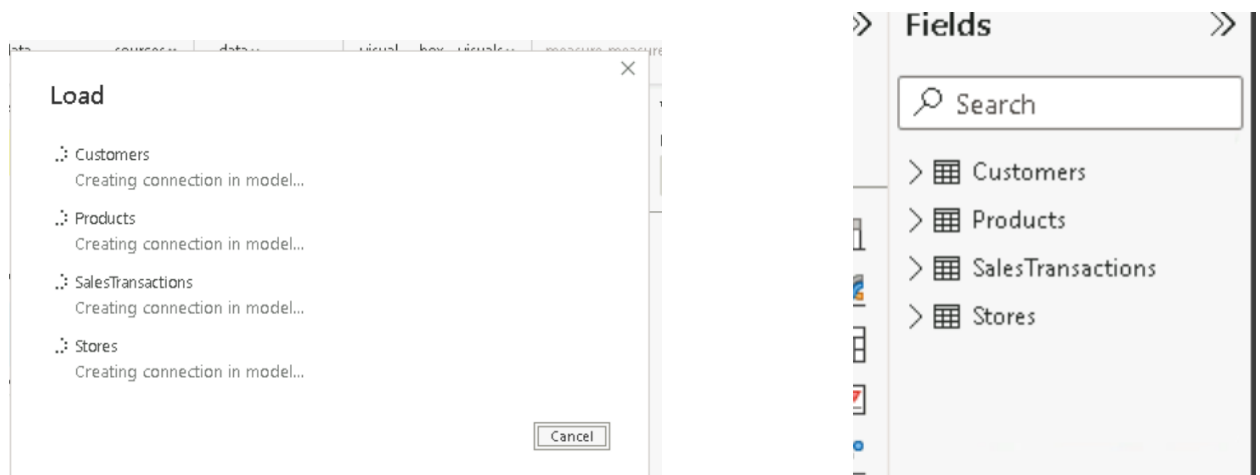
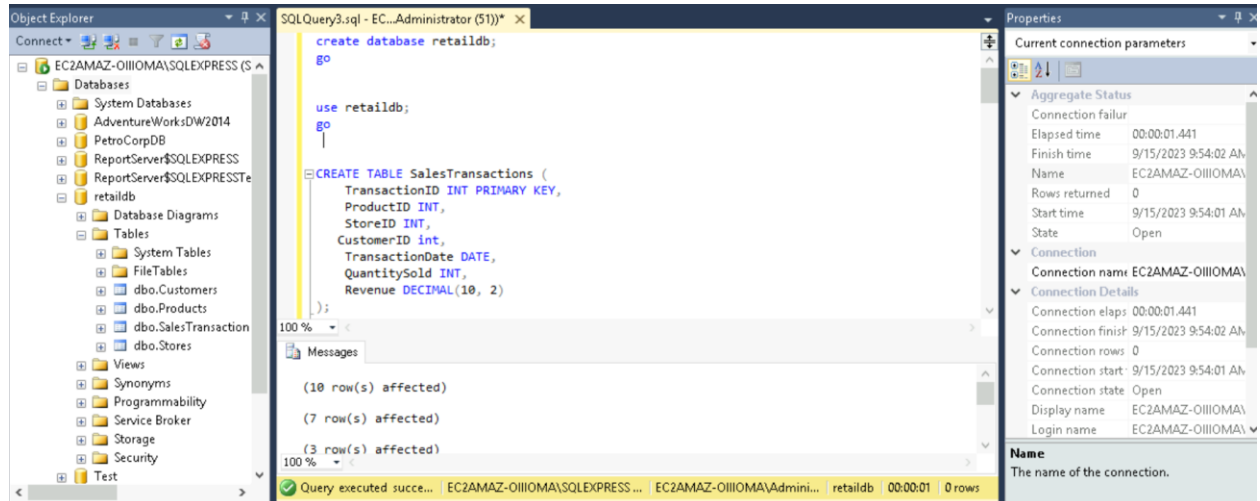


# Hands On Assessment

## Requirement 1: Data Loading

Creating and Loading data in power Bi



## Requirement 2: Data Transformation

### Cleaning

ProductID	ProductName	Category	Price
101	Laptop XYZ	Electronics	800
102	T-Shirt Blue	Clothing	15
103	Smartphone ABC	Electronics	400
104	Sofa Set	Furniture	1200
105	Tablet PQR	Electronics	300
106	Jeans Black	Clothing	40
107	Chair	Furniture	80

TransactionID	ProductID	StoreID	CustomerID	TransactionDate	QuantitySold	Revenue
1	101	1	1001	Thursday, January 5, 2023	50	500
2	102	2	1002	Tuesday, January 10, 2023	40	600
3	103	1	1003	Wednesday, February 15, 2023	30	300
4	104	3	1004	Monday, March 20, 2023	60	900
5	101	2	1001	Tuesday, April 25, 2023	70	700
6	102	3	1002	Tuesday, May 30, 2023	45	675
7	105	1	1005	Monday, June 5, 2023	55	550
8	106	2	1006	Monday, July 10, 2023	38	570
9	107	3	1007	Tuesday, August 15, 2023	42	630
10	105	1	1005	Wednesday, September 20, 2023	68	680

StoreID	StoreName	Location	StoreManager
1	Downtown	New York	John Smith
2	Uptown	Los Angeles	Jane Doe
3	Suburbia	Chicago	Mike Johnson

CustomerID	CustomerName	Email	Phone
101	Customer A	customerA@email.com	(123) 456-7890
102	Customer B	customerB@email.com	(734) 567-8901
103	Customer C	customerC@email.com	customerA@email.com
104	Customer D	customerD@email.com	(456) 789-0123
105	Customer E	customerE@email.com	(567) 890-1234
106	Customer F	customerF@email.com	(678) 901-2345
107	Customer G	customerG@email.com	(789) 012-3456

In all the tables there are no “NULL” values, and no anomalies present. Hence, we can consider that the data is clean.

## Merging

### Merge

Select a table and matching columns to create a merged table.

Products

ProductID	ProductName	Category	Price
101	Laptop XYZ	Electronics	800
102	T-Shirt Blue	Clothing	15
103	Smartphone ABC	Electronics	400
104	Sofa Set	Furniture	1200
105	Tablet PQR	Electronics	300

SalesTransactions

TransactionID	ProductID	StoreID	CustomerID	TransactionDate	QuantitySold	Revenue
1	101	1	1001	1/5/2023	50	500
2	102	2	1002	1/10/2023	40	600
3	103	1	1003	2/15/2023	30	300
4	104	3	1004	3/20/2023	60	900
5	101	2	1001	4/25/2023	70	700

Join Kind  
Inner (only matching rows)

☐ Use fuzzy matching to perform the merge

Fuzzy matching options

✓ The selection matches 7 of 7 rows from the first table, and 10 of 10 rows from the second table.

OK Cancel

Product details are merged with sales transactions using the Product ID

The screenshot shows the Power BI Desktop interface. The main view displays a table with 10 rows and 6 columns: TransactionID, QuantitySold, Revenue, ProductName, Category, and Price. The table is titled "Table.ExpandTableColumn('Merged Queries', 'Products', {'ProductName', 'Category', 'Price'})". The right-hand pane shows the "Query Settings" for the "Expanded Products" query, with the "Source" set to "SalesTransactions".

TransactionID	QuantitySold	Revenue	ProductName	Category	Price
1	50	500	Laptop XYZ	Electronics	800
2	40	600	T-Shirt Blue	Clothing	15
3	30	300	Smartphone ABC	Electronics	400
4	60	900	Sofa Set	Furniture	1200
5	70	700	Laptop XYZ	Electronics	800
6	45	675	T-Shirt Blue	Clothing	15
7	55	550	Tablet PQR	Electronics	300
8	38	570	Jeans Black	Clothing	40
9	42	630	Chair	Furniture	80
10	68	680	Tablet PQR	Electronics	300

New Column that is "RevenueCustom" has been created with the formula:

RevenueCustom = SalesTransactions[QuantitySold]\*SalesTransactions[Price]

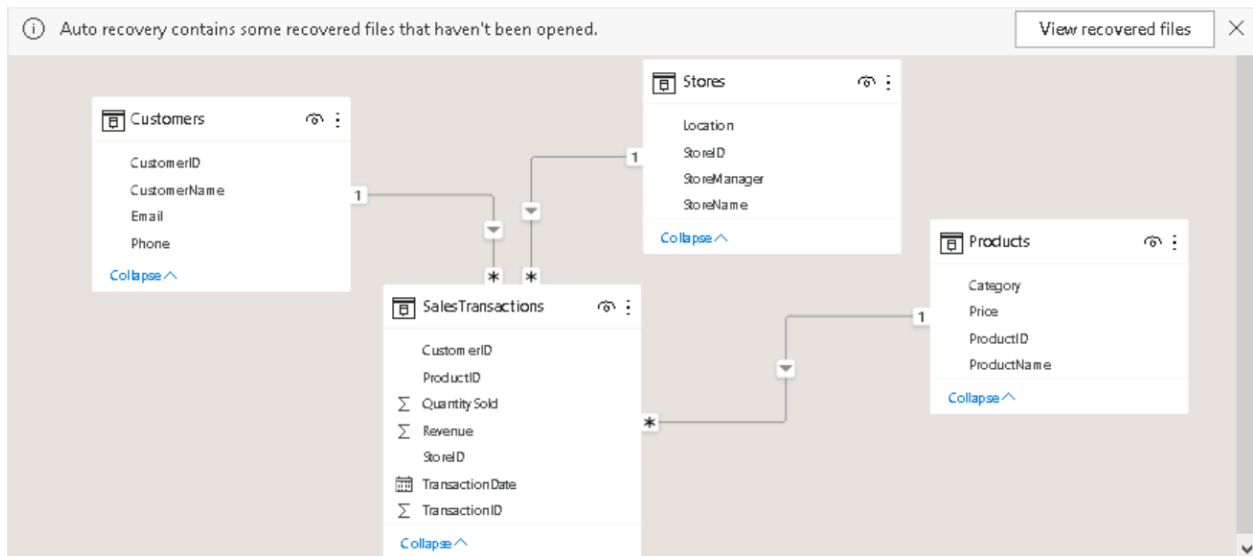
Auto recovery contains some recovered files that haven't been opened. View recovered files

1 RevenueCustom = SalesTransactions[QuantitySold]\*SalesTransactions[Price]

ProductID	StoreID	CustomerID	TransactionDate	QuantitySold	Revenue	ProductName	Category	Price	RevenueCustom
1	101	1	Thursday, January 5, 2023	50	500	Laptop XYZ	Electronics	800	40000
2	102	2	Tuesday, January 10, 2023	40	600	T-Shirt Blue	Clothing	15	600
3	103	1	Wednesday, February 15, 2023	30	300	Smartphone ABC	Electronics	400	12000
4	104	3	Monday, March 20, 2023	60	900	Sofa Set	Furniture	1200	72000
5	101	2	Tuesday, April 25, 2023	70	700	Laptop XYZ	Electronics	800	56000
6	102	3	Tuesday, May 30, 2023	45	675	T-Shirt Blue	Clothing	15	675
7	105	1	Monday, June 5, 2023	55	550	Tablet PQR	Electronics	300	16500
8	106	2	Monday, July 10, 2023	38	570	Jeans Black	Clothing	40	1520
9	107	3	Tuesday, August 15, 2023	42	630	Chair	Furniture	80	3360
10	105	1	Wednesday, September 20, 2023	68	680	Tablet PQR	Electronics	300	20400

## Requirement 3: Data Modelling

### Create Relationships

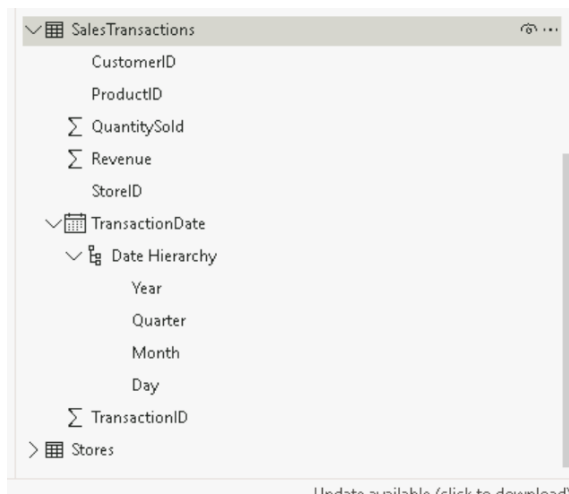


Here we can see that there is a one-to-many relation between products and sales transactions because one product can be part of many transactions.

Also there is a one-to-many relation between stores and sales transactions because one store can have multiple transactions happening.

Also, there is one more one to many relation between customer and sales transactions `because one customer can do many transactions.

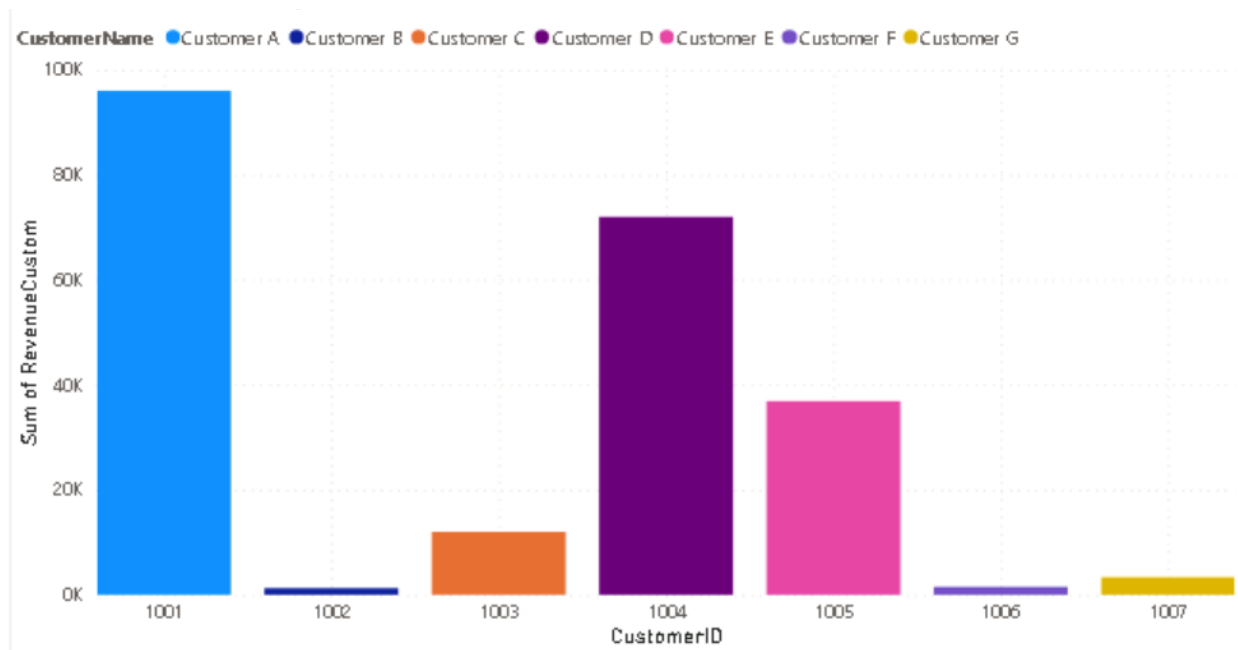
### Creating Hierarchy



Here the date in sales transactions is splitted into year, quarter, month, and day.

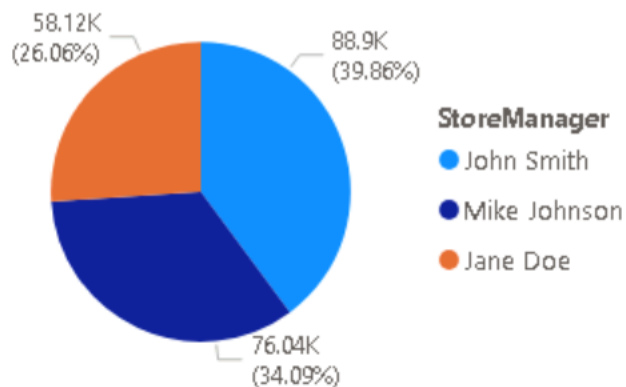
## Requirement 4: Business Queries and Analysis

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



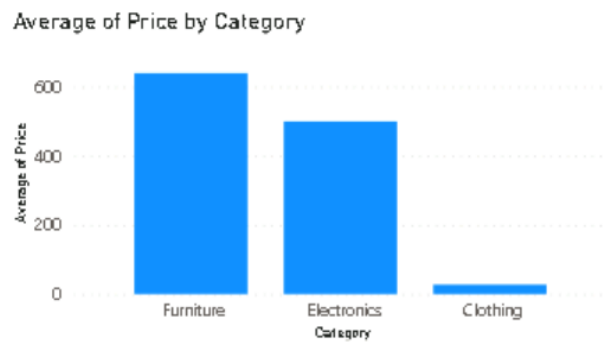
2. How is sales revenue distributed among different store managers?

**Sum of RevenueCustom by StoreManager and StoreID**

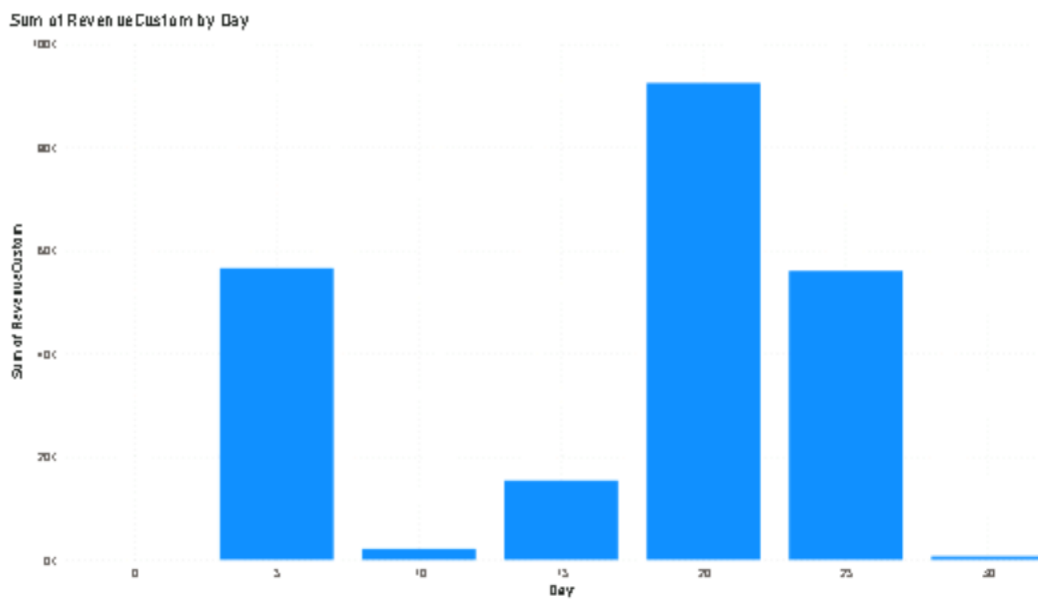


3. What is the average price of products in each category?

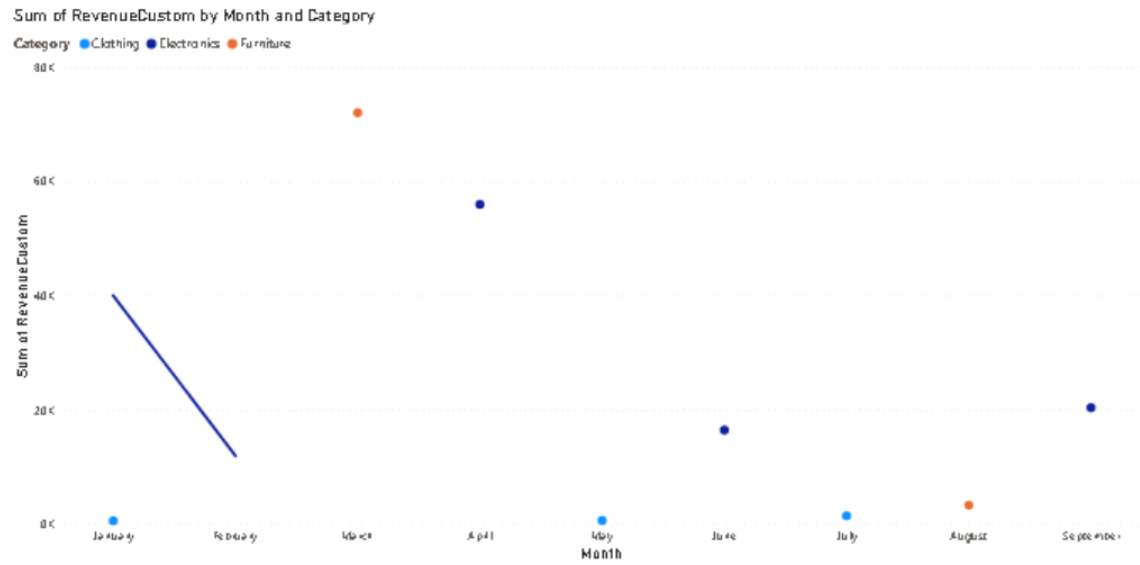
More average for furniture.



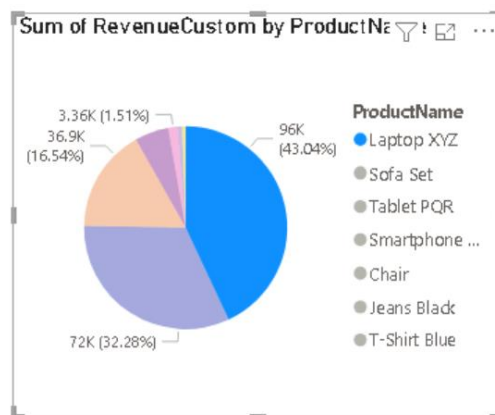
4. Are there specific days of the week when sales are higher?



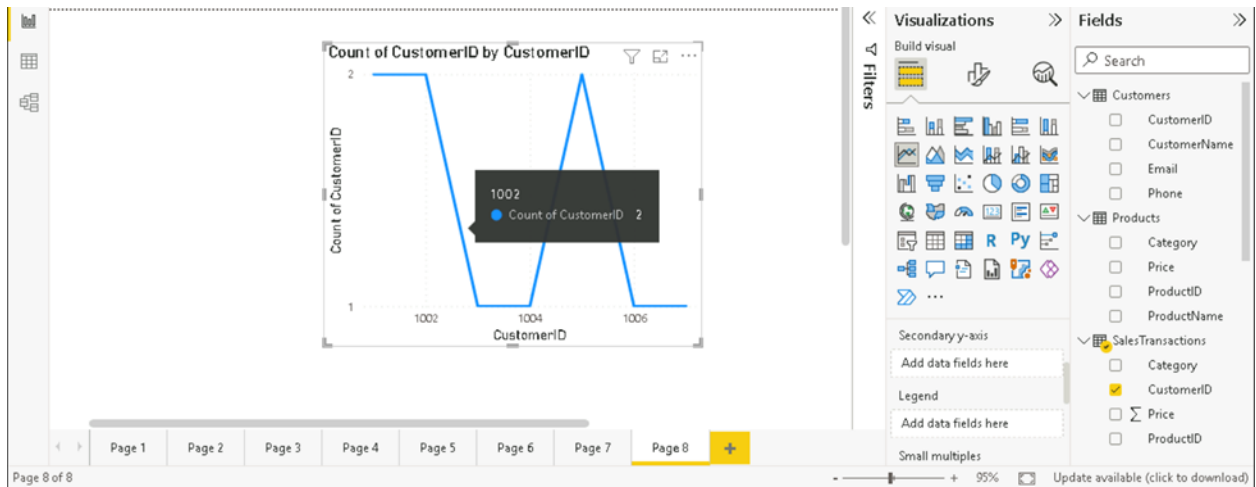
5. How do sales trends vary by product category on a monthly basis?



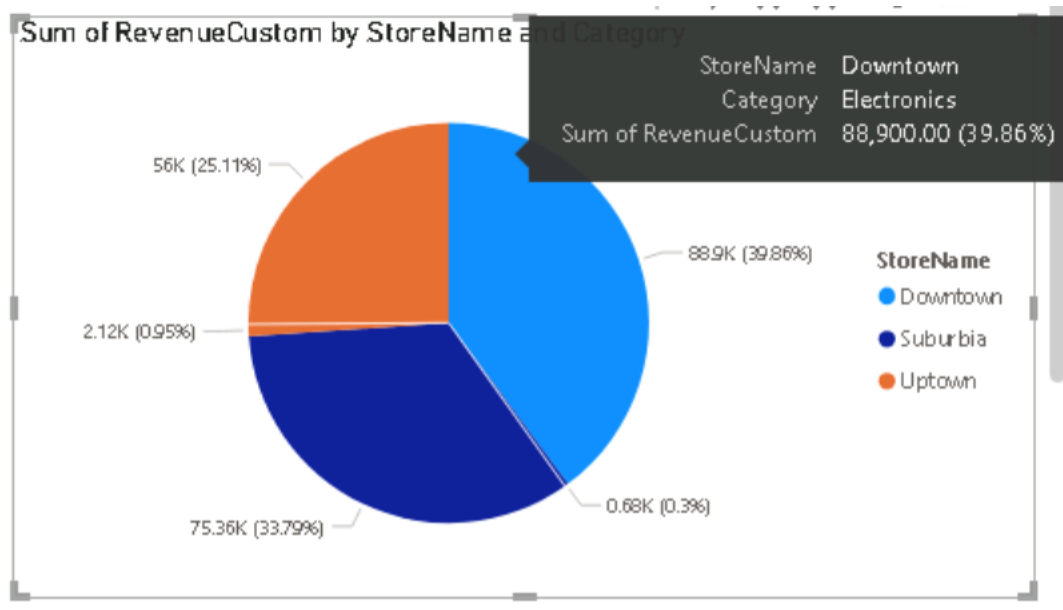
6. What percentage of products account for 80% of total sales revenue?



7. Are there any trends in repeat customer purchases?



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



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

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