Analyze Data in a Model Car Database with MySQL Workbench

Project Title:
Inventory Analysis for Mint Classics Company

Project Scenario:
In this project, I'll act as an entry-level data analyst at Mint Classics Company, tasked with analysing data in a relational database to support inventory-related decisions, potentially leading to the closure of a storage facility.

Skills Demonstrated:
- SQL query writing for data extraction and analysis.
- Exploratory data analysis to uncover insights.
- Identifying stagnant products and recommending inventory reductions.

Tools Used:
- MySQL Workbench for database exploration and querying.

SQL Scripts and Results:

#Products currently in inventory.

SELECT productCode, productName, quantityInStock
FROM products;

productCode	productName	quantityInStock
S10_1678	1969 Harley Davidson Ultimate Chopper	7933
S10_1949	1952 Alpine Renault 1300	7305
S10_2016	1996 Moto Guzzi 1100i	6625
S10_4698	2003 Harley-Davidson Eagle Drag Bike	5582
S10_4757	1972 Alfa Romeo GTA	3252
S10_4962	1962 LanciaA Delta 16V	6791
S12_1099	1968 Ford Mustang	68
S12_1108	2001 Ferrari Enzo	3619
S12_1666	1958 Setra Bus	1579
S12_2823	2002 Suzuki XREO	9997
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#Determine important factors that may influence inventory reorganization/reduction.

SELECT p.productCode, p.productName, p.quantityInStock, p.productLine, p.buyPrice, p.MSRP,
    w.warehouseName, w.warehousePctCap, COUNT(od.orderNumber) AS totalOrders
FROM products p
JOIN warehouses w ON p.warehouseCode = w.warehouseCode
JOIN productlines pl ON p.productLine = pl.productLine
LEFT JOIN orderdetails od ON p.productCode = od.productCode
GROUP BY p.productCode, p.productName, p.quantityInStock, p.productLine, p.buyPrice, p.MSRP,
    w.warehouseName, w.warehousePctCap
ORDER BY totalOrders DESC;

productCode	Product Name	Quantity In Stock	Product Line	Buy Price	MSRP	Warehouse Name	Warehouse Pct Cap	Total Orders
S18_3232	1992 Ferrari 360 Spider red	8347	Classic Cars	77.9	169.34	East	67	53
S10_1678	1969 Harley Davidson Ultimate Chopper	7933	Motorcycles	48.81	95.7	North	72	28
S10_2016	1996 Moto Guzzi 1100i	6625	Motorcycles	68.99	118.94	North	72	28
S10_4698	2003 Harley-Davidson Eagle Drag Bike	5582	Motorcycles	91.02	193.66	North	72	28
S12_2823	2002 Suzuki XREO	9997	Motorcycles	66.27	150.62	North	72	28
S18_1662	1980s Black Hawk Helicopter*9	5330	Planes	77.27	157.69	North	72	28
S18_2581	P-51-D Mustang	992	Planes	49	84.48	North	72	28
S18_2625	1936 Harley Davidson El Knucklehead	4357	Motorcycles	24.23	60.57	North	72	28
S24_1578	1997 BMW R 1100 S	7003	Motorcycles	60.86	112.7	North	72	28
S24_1785	1928 British Royal Navy Airplane	3627	Planes	66.74	109.42	North	72	28
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#Where are items stored and could a warehouse be eliminated?

SELECT w.warehouseName, COUNT(p.productCode) AS ProductCount, SUM(p.quantityInStock) AS TotalQuantity
FROM products p
JOIN warehouses w ON p.warehouseCode = w.warehouseCode
GROUP BY w.warehouseName
ORDER BY ProductCount;

warehouseName	ProductCount	TotalQuantity
South	23	79380
West	24	124880
North	25	131688
East	38	219183

#How are inventory numbers related to sales figures? Are inventory counts appropriate?

SELECT p.productCode, p.productName, p.quantityInStock, SUM(od.quantityOrdered) AS TotalQuantityOrdered
FROM products p
JOIN orderdetails od ON p.productCode = od.productCode
JOIN orders o ON od.orderNumber = o.orderNumber
GROUP BY p.productCode, p.productName, p.quantityInStock
ORDER BY (p.quantityInStock - TotalQuantityOrdered);

productCode	productName	quantityInStock	TotalQuantityOrdered
S24_2000	1960 BSA Gold Star DBD34	15	1015
S12_1099	1968 Ford Mustang	68	933
S32_1374	1997 BMW F650 ST	178	1014
S32_4289	1928 Ford Phaeton Deluxe	136	972
S72_3212	Pont Yacht	414	958
S700_3167	F/A 18 Hornet 1/72	551	1047
S50_4713	2002 Yamaha YZR M1	600	992
S18_2795	1928 Mercedes-Benz SSK	548	880
S18_2248	1911 Ford Town Car	540	832
S32_3522	1996 Peterbilt 379 Stake Bed with Outrigger	814	988
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#Are we storing non-moving items? Are any items candidates for being dropped?

SELECT p.productCode, p.productName, p.quantityInStock, SUM(od.quantityOrdered) AS TotalQuantityOrdered
FROM products p
LEFT JOIN orderdetails od ON p.productCode = od.productCode
GROUP BY p.productCode, p.productName, p.quantityInStock
ORDER BY TotalQuantityOrdered, p.quantityInStock DESC;

productCode	productName	quantityInStock	TotalQuantityOrdered
S18_3233	1985 Toyota Supra	7733	NULL
S18_4933	1957 Ford Thunderbird	3209	767
S24_1046	1970 Chevy Chevelle SS 454	1005	803
S24_3969	1936 Mercedes Benz 500k Roadster	2081	824
S18_2248	1911 Ford Town Car	540	832
S18_2870	1999 Indy 500 Monte Carlo SS	8164	855
S18_4409	1932 Alfa Romeo 8C2300 Spider Sport	6553	866
S24_4048	1992 Porsche Cayenne Turbo Silver	6582	867
S24_3191	1969 Chevrolet Camaro Z28	4695	870
S24_2887	1952 Citroen-15CV	1452	873
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SELECT p.productCode, p.productName, p.quantityInStock, SUM(od.quantityOrdered) AS TotalQuantityOrdered
FROM products p
LEFT JOIN orderdetails od ON p.productCode = od.productCode
GROUP BY p.productCode, p.productName, p.quantityInStock
ORDER BY TotalQuantityOrdered, p.quantityInStock DESC;

Summary

Utilized SQL analysis techniques to extract insights from Mint Classics' data, enhancing strategic inventory decisions for potential facility closure.

Solution

- The warehouse in the South is the smallest, with only 79,380 quantities in stock.

- The warehouse in the East is the largest, with 219,183 quantities in stock.

- There are a number of products that have been in stock for a long time and have not been ordered very often. These products could be candidates for being dropped from the product line.

- The warehouse in the South could potentially be eliminated, as it only contains a small percentage of the total inventory.

Approach

The approach I took to complete the project was to first understand the business problem that Mint Classics Company was facing. Once I understood the problem, I used the SQL queries to identify the products that were not moving. The queries were able to identify the products that had been in stock for a long time and had not been ordered very often. This information was essential in helping me to identify the products that could be dropped from the product line.

I believe that the solution I have proposed will be effective in reducing inventory at Mint Classics Company. By dropping the products that are not moving, the company will be able to free up space in the warehouses and focus on selling the products that are in demand. This will lead to increased sales and profits for the company.

Project link

https://github.com/AlokRanjanIN/Inventory-Analysis-for-Mint-Classics-Company