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Salaar Ahmed

**Business Questions & Associated SQL Queries**

Overview:

Q. How many distinct categories are there in the products table?

SELECT DISTINCT category\_name, COUNT(\*)

FROM products

GROUP BY category\_name

Results: 70 distinct categories

Q. How many distinct vendors are there in the products table?

SELECT DISTINCT vendor\_name

FROM products;

Results: 271 distinct vendors

Q. How many distinct items are there in the products table?

SELECT DISTINCT item\_no, COUNT(\*)

FROM products

GROUP BY item\_no

Results: 9,977 distinct items

Sales & Market Share by Vendor:

Q. Which vendors have the highest sales and greatest percentage of market share?

Highest Sales & Greatest % of Market Share by Vendor:

SELECT vendor, SUM(CAST(total AS MONEY)) AS total\_sales, ROUND(SUM(total)/(SELECT SUM(total) FROM sales),2) AS pct\_mkt\_share

FROM sales

GROUP BY vendor

ORDER BY SUM(total) DESC

LIMIT 5;

Q. Which vendors have the lowest sales and smallest percentage of market share?

Lowest Sales by Vendor:

SELECT vendor, SUM(CAST(total AS MONEY)) AS total\_sales, ROUND(SUM(total)/(SELECT SUM(total) FROM sales),2) AS pct\_mkt\_share

FROM sales

GROUP BY vendor

ORDER BY SUM(CAST(total AS MONEY)) ASC

LIMIT 5;

Profit Margin by Vendor:

What is the profit margin by vendor? Is there a difference in the margins of the top 5 vendors with most market share and the average margin of all vendors?

First method:

SELECT vendor, state\_btl\_cost, btl\_price

FROM vendor;

Exported to Excel and calculated average profit margin

Second method:

SELECT DISTINCT vendor,

ROUND(AVG(CAST(state\_btl\_cost AS DECIMAL)),2) AS Cost,

ROUND(AVG(CAST(btl\_price AS DECIMAL)),2) AS Price

FROM sales

GROUP BY vendor

ORDER BY ROUND(AVG(CAST(state\_btl\_cost AS DECIMAL)),2);

Results: Average profit margin is 50%-- regardless of vendor’s market share

Sales & Market Share by Category Name:

Q. Which categories have the highest sales and largest percentage of market share?

Highest Sales & Greatest % of Market Share by Category Name:

SELECT category\_name, SUM(CAST(total AS MONEY)) AS total\_sales, ROUND(SUM(total)/(SELECT SUM(total) FROM sales), 2) AS pct\_mkt\_share

FROM sales

GROUP BY category\_name

ORDER BY SUM(total) DESC

LIMIT 5;

Q. Which categories have the lowest sales and smallest percentage of market share?

Lowest Sales & Smallest % of Market Share by Category Name:

SELECT category\_name, SUM(CAST(total AS MONEY)) AS total\_sales, ROUND(SUM(total)/(SELECT SUM(total) FROM sales), 2) AS pct\_mkt\_share

FROM sales

GROUP BY category\_name

ORDER BY SUM(total) ASC

LIMIT 5;

Categories & Items:

Q. What are the top three selling Rum products that have sales greater than $10,000?

SELECT item\_description, AS rum\_products COUNT(\*) AS no\_of\_sales

FROM products

JOIN sales

ON products.item\_no = sales.item

WHERE item\_description ILIKE '%rum%'

AND total > 10000

GROUP BY item\_description

ORDER BY COUNT(\*) DESC

LIMIT 3;

Q. What are the top three selling Whiskey products that have sales greater than $10,000?

SELECT item\_description AS whiskey\_products, COUNT(\*) AS no\_of\_sales

FROM products

JOIN sales

ON products.item\_no = sales.item

WHERE item\_description ILIKE '%whisk%'

AND total > 10000

GROUP BY item\_description

ORDER BY COUNT(\*) DESC

LIMIT 3;

Q. What are the top three selling Gin products that have sales greater than $10,000?

SELECT item\_description, AS gin\_products COUNT(\*) AS no\_of\_sales

FROM products

JOIN sales

ON products.item\_no = sales.item

WHERE item\_description ILIKE '%gin%'

AND total > 10000

GROUP BY item\_description

ORDER BY COUNT(\*) DESC

LIMIT 3;

Q. What are the top three selling vodka products that have sales greater than $10,000?

SELECT item\_description AS vodka\_products, COUNT(\*) AS no\_of\_sales

FROM products

JOIN sales

ON products.item\_no = sales.item

WHERE item\_description ILIKE '%vodka%'

AND total > 10000

GROUP BY item\_description

ORDER BY COUNT(\*) DESC

LIMIT 3;

Top Performing Stores:

Q. Which stores generate the most revenue? Use $3,000,000 as threshold.

SELECT (stores.name) AS store\_name, SUM(CAST(sales.total AS MONEY))/ AS revenue,

ROUND(SUM(total)/(SELECT SUM(total) FROM sales, 2) AS pct\_mkt\_share

FROM stores JOIN sales

ON stores.store = sales.store

GROUP BY stores.name

HAVING SUM(sales.total) > 3000000

ORDER BY SUM(sales.total) DESC;

Q. Which stores have an average bottle price greater than $20? Limit results to top 10.

SELECT (stores.name), ROUND (AVG (CAST (btl\_price AS DECIMAL)), 2) AS avg\_btl\_price

FROM stores JOIN sales

ON stores.store = sales.store

GROUP BY stores.store

HAVING AVG(CAST(btl\_price AS DECIMAL)) > 20

ORDER BY ROUND (AVG(CAST(btl\_price AS DECIMAL)), 2) DESC

LIMIT 10;

Q. Which stores have the most sales transactions? Limit results to top 10 stores.

SELECT (stores.name) AS store\_name, COUNT(sales.total) AS no\_of\_sales

FROM stores JOIN sales

ON stores.store = sales.store

GROUP BY stores.name

HAVING COUNT(sales.total) > 10000

ORDER BY COUNT(sales.total) DESC

LIMIT 10;

Summary of Data, Findings, and Recommendations:

The Iowa Liquor Sales database comprises of 4 tables containing data on the counties within the state, the types of products sold, the associated transaction and sales information, and the stores at which the products are sold.

The counties table lists the name of each county along with the associated population. The products table contains the item number, category name, item description, vendor information, bottle size, and the price information. It has 271 unique vendors and 70 distinct categories along with 9,977 unique items. The sales table records the timestamp for each transaction, documents the store and county in which the product was sold, and lists the category, item number, vendor information, and description of each item. It also includes data on the cost and price as well as quantities sold and total amount of each transaction. Lastly, the stores table provides each store’s name and number along with its status and address.

Based on total sales, the top five vendors combine for a 48% market share and $193 million in sales. These vendors are as follows: Diageo Americas, Jim Beam Brands, Pernod Ricard USA/Austin Nichols, Brown-Forman Corp, and Luxco St Louis. From a category perspective, the top five categories account for $173 million in sales and possess a combined market share of 43%. Stores have less influence on market share as the top ten stores with high sales combine for 16% of the market. To evaluate stores from other angles, they have also been ranked based on total transaction volume and the average price of products they sell.

An important factor to consider is margin. I hypothesized that vendors with the highest sales and market share would have higher margins compared to other vendors. However, the analysis proves otherwise as the average margin for vendors is 50%- regardless of each vendor’s total sales or percentage of market share.

Based on the top performing categories, certain items within them have been identified as the best. Within the Rum, Whiskey, Vodka, and Gin categories, there are 3 products that have been identified as the most popular based on number of transactions and total sales. For the Rum Category, the products are Captain Morgan Spiced Rum, Bacardi Superior Rum, and Malibu Coconut Rum. As for Whiskey products, the top 3 performers are Crown Royal Canadian Whiskey, Fireball, and Seagrams 7 Crown BI Whiskey. Grey Goose, Absolute Swedish Vodka, and Pinnacle are the top 3 products in the Vodka category. Lastly, the best products in the Gin category are Bailey’s Original Irish Cream, Bombay Sapphire, and Tanqueray.