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SQL

PROJECT

********** BUSINESS REPORT **********

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1. Introduction

- **1.1 Introduction to Reliant Retail Limited:**

  Reliant Retail Limited is a prominent chain of online retail stores. The organisation is committed to enhancing its business operations through insightful data analysis. By leveraging its extensive database of customer orders and product information, Reliant Retail Limited aims to gain a competitive edge in the e-commerce market. The company's goal is to optimise customer experience, streamline inventory management, and improve sales strategies through informed decisions.

- **1.2 Objective of the Project:**

  The main objective of this project is to utilise SQL queries to analyse the "orders" database provided by Reliant Retail Limited. The analysis is focused on extracting key insights that can lead to strategic improvements in various aspects of the business. These ṣinsights will empower the company to make informed decisions in areas such as customer segmentation, inventory optimization, product pricing, sales strategies, and logistics management. Ultimately, the project seeks to facilitate data-driven decision-making to boost profitability and market presence.

- **1.3 Scope of Analysis:**

  The project's scope includes formulating and executing a series of SQL queries designed to answer specific business questions provided by Reliant Retail Limited. Each question targets a different facet of the business operation, ensuring a comprehensive analysis. Queries will explore customer categorization based on account creation dates, evaluate unsold products to optimise inventory, analyse sales patterns, and assess logistics efficiency by examining shipping data. The analysis aims to cover all critical components of the retail operations, providing a holistic view of the company's business performance and opportunities for improvement.

- **1.4 Key Business Questions:**

  The analysis seeks to address the following critical business questions:

- How can customers be segmented based on their account creation date?

- Which products have high inventory but remain unsold, and what pricing adjustments should be made?

- How can product classes be optimised based on inventory value?

- Which customers have cancelled all their orders, and what actions can be taken?

- How effectively does the DHL shipper service cater to customers across different cities?

- How do cash payments correlate with customer names starting with 'G' and their order behaviour?

- What is the largest order that fits within a specific carton size?

- What is the inventory status across various product categories, and what actions are needed based on sales performance?

- Which products are typically sold together with product ID 201, and what is their sales performance outside specific cities?

- How do shipping patterns correlate with specific order IDs and addresses?

● 1.5 Outcome and Business Impact:

The outcome of this analysis will provide Reliant Retail Limited with a clearer understanding of customer behaviour, inventory management, and logistical performance. By implementing the insights gained from this analysis, the company can:

- Tailor marketing strategies to different customer segments.
- Optimise inventory management by adjusting prices and stock levels.
- Improve operational efficiency in shipment and delivery services.
- Increase overall sales and customer satisfaction.

2. Query Results

Query 1: Customer Categorization Based on Creation Date

Description:

This query categorises customers based on the year their account was created, displaying their full name (with title, both first and last name in uppercase), email ID, creation date, and the assigned category.

full_name	email_id	creation_date	customer_category
MS. JENNIFER WILSON	jen_w@gmail.com	1991-06-01	A
MR. JACKSON DAVIS	dave_jack@gmail.com	2001-06-12	A
MS. KOMAL CHOUDHARY	ch_komal@yahoo.co.IN	2002-06-26	A
MR. WILFRED JEAN	w_jean@gmail.com	2006-01-12	B
MS. ANITA GOSWAMI	agoswami@gmail.com	2006-03-13	B

(Table 1: Customer Categorization by Creation Date)

- The results indicate customers categorised into groups 'A' and 'B' based on their creation date. Most customers created earlier fall under category 'A', likely indicating long-term, valuable customers.

Query 2: Product Discount and Inventory Values

Description:

This query retrieves the details of unsold products, showing product information such as ID, description, available quantity, price, and the inventory value. It also applies a discount based on the price range and shows the new price.

PRODUCT_ID	PRODUCT_DESC	PRODUCT_QUANTITY_AVAIL	PRODUCT_PRICE	INVENTORY_VALUE	NEW_PRICE
99999	Samsung Galaxy Tab 2 P3100	50	19300	965000	16405
99997	Sony Xperia U (Black White)	50	16499	824950	14024.15
99998	Nikon Coolpix L810 Bridge	50	14987	749350	12738.95
99995	LG MS-2049UW Solo Microwave	100	4800	480000	4320
99996	Nokia Asha 200 (Graphite)	100	4070	407000	3663

(Table 2: Product Discount and Inventory Details)

- This output highlights the products with available quantities, prices, and total inventory value. It also shows the new discounted prices, with products like the Samsung Galaxy Tab 2 and Sony Xperia U reflecting significant price cuts.

Query 3: Product Class Inventory and Count

Description:

This query displays product class information, counting the number of product types in each class and calculating the total inventory value for those classes that have more than 100,000 in inventory value.

PRODUCT_CLASS_CODE	PRODUCT_CLASS_DESC	COUNT_OF_PRODUCT_TYPE	INVENTORY_VALUE
3000	Promotion-High Value	4	2564300
2050	Electronics	4	1665600
3001	Promotion-Medium Value	3	1261900
2055	Mobiles	2	1092500
3002	Promotion-Low Value	3	749250

(Table 3: Product Class Inventory Summary)

- The table summarises the inventory distribution across different product classes. Promotion-High Value and Electronics have the highest count and inventory value, signifying these are important categories for the business.

Query 4: Customers with All Orders Cancelled

Description:

This query retrieves customer details (ID, full name, email, phone number, and country) for those customers who have cancelled all the orders they placed.

CUSTOMER_ID	FULL_NAME	CUSTOMER_EMAIL	CUSTOMER_PHONE	COUNTRY
13	RAVI SRINIVASN	r_srinivasn@yahoo.co.in	9945466015	India
15	JYOTI SINHA	jyotisinha@gmail.com	9987795155	India
16	VIJAY BOLLINENI	vbollineni@gmail.com	7829012228	India
20	KESHAV JOG	kesjog@yahoo.co.in	7942536789	India
22	ANDREW STANTON	andrew_stanton@yahoo.com	9806980253	USA

(Table 4: Customers with All Orders Cancelled)

- The result lists customers whose orders were entirely canceled. These customers, primarily from India and the USA, may be worth investigating to understand the reasons behind the cancellations and improve retention.

Query 5: DHL Shipment Data by City

Description:

This query displays information about DHL shipments, including the shipper's name, the city they cater to, the number of customers served in the city, and the number of consignments delivered by DHL in that city.

SHIPPER_NAME	CITY	NUM_CUSTOMERS_CATERED	NUM_CONSIGNMENTS_DELIVERED
DHL	Abington	1	1
DHL	Amherst	1	1
DHL	Bangalore	3	5
DHL	Birmingham	1	1
DHL	Brooklyn	1	1

(Table 5: DHL Shipment Data by City)

- The results show that DHL caters to multiple cities, with Bangalore having the highest number of consignments. This suggests Bangalore may be a key area for logistics focus.

Query 6: Cash Payment Orders with Last Name Starting with 'G'

Description:

This query shows the customer details (ID, full name), total quantity of products shipped, and total value (quantity * price) for customers whose last name starts with 'G' and who used cash as their mode of payment.

CUSTOMER_ID	FULL_NAME	TOTAL_QUANTITY	TOTAL_VALUE
6	ANITA GOSWAMI	25	93237
24	BRIAN GRAZER	4	4010

(Table 6: Cash Payment Orders (Customers with Last Name 'G'))

- This query identifies customers with last names starting with 'G' who paid in cash. Anita Goswami stands out with the highest order quantity and value, indicating she might be a significant customer.

Query 7: Largest Order that Fits in Carton ID 10

Description:

This query retrieves the order ID and the volume of the largest order (in terms of volume) that can fit in carton ID 10.

ORDER_ID	TOTAL_VOLUME
10064	14988000

(Table 7: Largest Order Fitting in Carton ID 10)

- This output shows the largest order volume that fits in Carton ID 10, providing insights into packaging efficiency for large orders.

Query 8: Inventory Status Based on Category and Sales

Description:

This query displays product information for electronics, computers, mobiles, watches, and other categories, showing the inventory status based on current sales and available inventory.

PRODUCT_ID	PRODUCT_DESC	PRODUCT_QUANTITY_AVAIL	QUANTITY_SOLD	INVENTORY_STATUS
201	Sky LED 102 CM TV	30	6	SUFFICIENT INVENTORY
202	Sams 192 L4 Single-door Refrigerator	15	6	SUFFICIENT INVENTORY
203	Jocky Speaker Music System HT32	19	3	SUFFICIENT INVENTORY
204	Cricket Set for Boys	10	10	SUFFICIENT INVENTORY
205	Infant Sleepwear Blue	50	7	SUFFICIENT INVENTORY

(Table 8: Inventory Status by Product Category)

- The result presents products with their available and sold quantities, all marked as having sufficient inventory, ensuring stock availability.

Query 9: Products Sold Together with Product ID 201

Description:

This query retrieves the details of products that were sold together with product ID 201 and were not shipped to Bangalore or New Delhi.

PRODUCT_ID	PRODUCT_DESC	TOT_QTY
218	Shell Fingertip Ball Pen	20
219	Ruf-n-Tuf Black PU Leather Belt	4
201	Sky LED 102 CM TV	3
216	External Hard Disk 500 GB	3
233	HP ODC School Bag 2.5'	3

(Table 9: Products Frequently Bought with Product ID 201)

- This result highlights products frequently purchased along with the Sky LED 102 CM TV. The top product, Shell Fingertip Ball Pen, may suggest complementary buying behavior worth exploring for bundling strategies.

Query 10: Orders Shipped to Addresses Without a Pincode Starting with "5"

Description:

This query displays the order ID, customer ID, full name, and total quantity of products shipped for orders where the pincode does not start with "5" and the order ID is even.

ORDER_ID	CUSTOMER_ID	FULL_NAME	TOTAL_QUANTITY
10008	7	Ashwathi Bhatt	25
10022	23	Anna Pinnock	2
10024	32	Hans Zimmer	2
10028	23	Anna Pinnock	2
10030	52	Suchirithaa Ekar	2

(Table 10: Orders Shipped to Addresses Without Pincode '5')

- The query identifies orders delivered to customers whose addresses don't start with a pin code beginning with '5'. The highest order was placed by Ashwathi Bhatt, indicating geographic diversity in order distribution.

3. Conclusion

The analysis of customer data, product inventory, and order metrics reveals significant insights into customer behaviour and inventory management.

3.1 Summary of Findings

- **Customer Categorization:**
  - The top customers, such as MS. JENNIFER WILSON and MR. JACKSON DAVIS, are primarily categorised as 'A', indicating active engagement since 1991 to 2006.

- **Product Inventory and Value:**
  - Notable products include the Samsung Galaxy Tab 2 P3100 and Sony Xperia U, both with substantial inventory values. The new pricing reflects significant discounts, suggesting strategic pricing adjustments.

- **Product Class Insights:**
  - The Promotion-High Value category has the highest count of product types and overall inventory value, indicating effective promotion strategies for high-value items.

- **Customer Orders:**
  - Customers with all orders cancelled (e.g., RAVI SRINIVASN, JYOTI SINHA) highlight potential areas for engagement to reduce cancellations and improve retention.

- **Shipping Data:**
  - DHL has a wide reach, delivering consignments to cities like Bangalore and Birmingham, indicating strong operational efficiency in urban areas.

3.2 Final Recommendations

- Engagement Strategies: Develop targeted marketing initiatives for high-value customers to enhance loyalty and reduce cancellations.

- Inventory Management: Monitor inventory levels closely, especially for high-demand products, to prevent stockouts and ensure customer satisfaction.

- Promotional Focus: Increase promotions on products in the Promotion-Medium and Promotion-Low Value categories to stimulate sales and clear inventory.

- Shipping Optimization: Explore additional shipping partnerships to improve delivery times and enhance customer experience in key urban areas.

- Customer Feedback Loop: Establish a feedback mechanism to understand reasons behind order cancellations and improve service offerings accordingly.

4. References

- Previous sql files
- Course Resource
- Google