

Problem Statement - SQL Project - Coded

Project Problem Statement:

You are hired by a chain of online retail stores “**Reliant retail limited**”. They provide you with “**orders**” database and seek answers to the following queries as the results from these queries will help the company in making data-driven decisions that will impact the overall growth of the online retail store.

1. Write a query to display customer full name with their title (mr/ms), both first name and last name are in upper case with customer email id, customer creation date and display customer’s category after applying below categorization rules:
 - i. If customer creation date year <2005 then category a
 - ii. If customer creation date year >=2005 and <2011 then category b
 - iii. If customer creation date year >= 2011 then category c

SOLUTION

```
SELECT CONCAT(B.TITLE, ' ', B.CUSTOMER_FNAME, ' ',  
B.CUSTOMER_LNAME) 'CUSTOMER FULL NAME', A.CUSTOMER_EMAIL,  
A.CUSTOMER_CREATION_DATE, B.CUSTOMER_CATEGORY  
FROM ONLINE_CUSTOMER A  
INNER JOIN
```

```

        (SELECT
CASE WHEN CUSTOMER_GENDER = 'F'
THEN 'Ms'
ELSE 'Mr'
END AS Title,
CUSTOMER_ID,
UPPER(CUSTOMER_FNAME) CUSTOMER_FNAME,
UPPER(CUSTOMER_LNAME) CUSTOMER_LNAME,
CASE
WHEN YEAR(CUSTOMER_CREATION_DATE) < 2005
THEN 'Category A'
WHEN YEAR(CUSTOMER_CREATION_DATE) >= 2005 AND
YEAR(CUSTOMER_CREATION_DATE) < 2011
THEN 'Category B'
WHEN YEAR(CUSTOMER_CREATION_DATE) >= 2011
THEN 'Category C'
ELSE 'UNKNOWN CATEGORY'
END AS CUSTOMER_CATEGORY
FROM online_customer) B
ON A.CUSTOMER_ID = B.CUSTOMER_ID

```

OUTPUT

CUSTOMER FULL NAME	CUSTOMER_EMAIL	CUSTOMER_CREATION_DATE	CUSTOMER_CATEGORY
Ms TANYA CHUA	tanyac@singers.sg	2014-04-14	Category C
Ms JANVI RAJIV	janvi_jha@msn.co.sg	2015-04-14	Category C
Ms TAN BEE SOO	tanbeesoo@yahoo.co.sg	2016-11-15	Category C
Mr YUN ZHU	yunzho@gmail.com	2016-11-15	Category C
Mr WAJDI BIN ABDUL ...	wajdiabdul@gmail.com	2010-06-25	Category B
Ms ANBARA BINTI MUB...	anmubarak@yahoo.co....	2010-08-27	Category B
Ms SRI BINTI YAAKOB	sribinti@yahoo.co.my	2007-12-18	Category B
Mr AHMAD BIN GH AZALI	ahmad_bingh@yahoo....	2010-05-14	Category B
Ms SUCHIRITHAA EKA...	suchiritha@msn.com	2016-11-15	Category C

2. Write a query to display the following information for the products, which have not been sold: product_id, product_desc, product_quantity_avail, product_price, inventory values(product_quantity_avail*product_price), new_price after applying discount as per the below criteria. Sort the output concerning the decreasing value of inventory_value.

i. If product price > 20,000 then apply 20% discount

ii. If product price > 10,000 then apply 15% discount

iii. If product price ≤ 10,000 then apply 10% discount

Hint: use case statement, no permanent change in table required. [note: tables to be used -product, order_items table]

SOLUTION:

[NOTE: TABLES TO BE USED - PRODUCT, ORDER_ITEMS TABLE]

```

SELECT

p.PRODUCT_ID,

p.PRODUCT_DESC,

p.PRODUCT_QUANTITY_AVAIL,

p.PRODUCT_PRICE,

(p.PRODUCT_QUANTITY_AVAIL*p.PRODUCT_PRICE) 'INVENTORY VALUE',

CASE

WHEN p.PRODUCT_PRICE > 20000

THEN (p.PRODUCT_PRICE - (p.PRODUCT_PRICE * 0.20))

WHEN p.PRODUCT_PRICE > 10000

THEN (p.PRODUCT_PRICE - (p.PRODUCT_PRICE * 0.15))

WHEN PRODUCT_PRICE <= 10000

THEN (p.PRODUCT_PRICE - (p.PRODUCT_PRICE * 0.10))

END AS NEW_PRICE

FROM product p

LEFT JOIN ORDER_ITEMS o

ON p.PRODUCT_ID = o.PRODUCT_ID

WHERE o.ORDER_ID IS NULL

ORDER BY PRODUCT_QUANTITY_AVAIL DESC

```

OUTPUT

PRODUCT_ID	PRODUCT_DESC	PRODUCT_QUANTITY_AVAIL	PRODUCT_PRICE	INVENTORY VALUE	NEW_PRICE
99991	Dell Targus Synergy 2.0 Backpack	250	999.00	249750.00	899.1000
99992	Tom Clancy's Ghost Recon: Future Soldier (PC G...	250	999.00	249750.00	899.1000
99993	Nokia 1280 (Black)	250	999.00	249750.00	899.1000
99994	HP Deskjet 2050 All-in-One - J510a Printer	100	3749.00	374900.00	3374.1000
99995	LG MS-2049UW Solo Microwave	100	4800.00	480000.00	4320.0000
99996	Nokia Asha 200 (Graphite)	100	4070.00	407000.00	3663.0000
99999	Samsung Galaxy Tab 2 P3100	50	19300.00	965000.00	16405.0000
99998	Nikon Coolpix L810 Bridge	50	14987.00	749350.00	12738.9500
99997	Sony Xperia U (Black White)	50	16499.00	824950.00	14024.1500
99990	Quanta 4 Port USB Hub	50	500.00	25000.00	450.0000
250	Huwi Wi-Fi Receiver 500Mbps	30	287.00	8610.00	258.3000
249	All-in-one Board Game	20	450.00	9000.00	405.0000
230	Esprit Analog Watch	5	3495.00	17475.00	3145.5000

3.write a query to display product_class_code, product_class_description, count of product type in each product class, and inventory value (p.product_quantity_avail*p.product_price). Information should be displayed for only those product_class_code that have more than 1,00,000 inventory value. sort the output concerning the decreasing value of inventory_value.

SOLUTION

[note: tables to be used -product, product_class][9 ROWS)

```

SELECT

pr.PRODUCT_CLASS_CODE,

pc.PRODUCT_CLASS_DESC,

COUNT (pr.PRODUCT_CLASS_CODE)  'PRODUCT CLASS COUNT',

(pr.PRODUCT_QUANTITY_AVAIL*pr.PRODUCT_PRICE)  'INVENTORY VALUE'

FROM PRODUCT pr

INNER JOIN PRODUCT_CLASS pc

ON pr.PRODUCT_CLASS_CODE = pc.PRODUCT_CLASS_CODE

```

```
WHERE (pr.PRODUCT_QUANTITY_AVAIL*pr.PRODUCT_PRICE) > 100000
```

```
GROUP BY pr.PRODUCT_CLASS_CODE, pc.PRODUCT_CLASS_DESC
```

```
ORDER BY (pr.PRODUCT_QUANTITY_AVAIL*pr.PRODUCT_PRICE) DESC
```

OUTPUT

PRODUCT_CLASS_CODE	PRODUCT_CLASS_DESC	PRODUCT CLASS COUNT	INVENTORY VALUE
2050	Electronics	3	1050000.00
3000	Promotion-High Value	3	965000.00
2055	Mobiles	2	812500.00
3001	Promotion-Medium Value	3	374900.00
2052	Clothes	1	300000.00
3002	Promotion-Low Value	3	249750.00
2057	Watches	1	122395.00

4. Write a query to display customer_id, full name, customer_email, customer_phone and country of customers who have canceled all the orders placed by them(use sub-query)

[note: tables to be used - online_customer, address, order_header]

SOLUTION:

```
SELECT
```

```
oc.CUSTOMER_ID,
```

```
CONCAT(oc.CUSTOMER_FNAME, ' ', oc.CUSTOMER_LNAME) 'FULL NAME',
```

```
oc.CUSTOMER_EMAIL,
```

```
oc.CUSTOMER_PHONE,
```

```
ad.COUNTRY
```

```
FROM ONLINE_CUSTOMER oc
```

```
INNER JOIN ADDRESS ad
```

```

ON oc.ADDRESS_ID = ad.ADDRESS_ID

INNER JOIN ORDER_HEADER oh

ON oc.CUSTOMER_ID = oh.CUSTOMER_ID

WHERE oh.ORDER_STATUS = 'CANCELED'

```

OUTPUT

CUSTOMER_ID	FULL NAME	CUSTOMER_EMAIL	CUSTOMER_PHONE	COUNTRY
8	Neetha Castelina	neetha20@gmail.com	8196236362	India
33	Niseema Zimmer	niseemaz@yahoo.com	8179413840	USA
51	Ahmad Bin Gh Azali	ahmad_bingh@yahoo.co.my	7348292313	Malaysia
34	Hans Zimmer	hans_zimmer@gmail.com	9477272235	USA
41	Tharman Shanmugaratnam	tharshan@yahoo.co.sg	8572898929	Singapore

5. Write a query to display shipper name, city to which it is catering, number of customer catered by the shipper in the city and number of consignments delivered to that city for shipper dhl

[note: tables to be used -shipper, online_customer, address, order_header]

SOLUTION:

```

SELECT

sh.SHIPPER_NAME,

ad.CITY,

COUNT(oh.CUSTOMER_ID) 'CUSTOMER CATERED',

COUNT(oh.ORDER_STATUS) 'CONSIGNMENTS DELIVERED'

FROM SHIPPER sh

INNER JOIN ORDER_HEADER oh

```

```

ON sh.SHIPPER_ID = oh.SHIPPER_ID

INNER JOIN ONLINE_CUSTOMER oc

ON oh.CUSTOMER_ID = oc.CUSTOMER_ID

INNER JOIN ADDRESS ad

ON oc.ADDRESS_ID = ad.ADDRESS_ID

WHERE oh.ORDER_STATUS = 'SHIPPED'

AND sh.SHIPPER_NAME = 'DHL'

GROUP BY sh.SHIPPER_NAME, ad.CITY

```

OUTPUT

SHIPPER_NAME	CITY	CUSTOMER CATERED	CONSIGMENTS DELIVERED
DHL	Bangalore	5	5
DHL	Hyderabad	2	2
DHL	W. Alibio	1	1
DHL	Brooklyn	1	1
DHL	Dharmapuri	1	1
DHL	Abington	1	1
DHL	Amherst	1	1
DHL	Birmingham	1	1
DHL	Hosur	1	1

6. Write a query to display customer id, customer full name, total quantity and total value (quantity*price) shipped where mode of payment is cash and customer last name starts with 'g'

[note: tables to be used -online_customer, order_items, product, order_header]

SOLUTION:

```

SELECT
oh.CUSTOMER_ID,
CONCAT(oc.CUSTOMER_FNAME, ' ', oc.CUSTOMER_LNAME) FULL_NAME,
SUM(oi.PRODUCT_QUANTITY) 'TOTAL QUANTITY',

```



```

(SUM(oi.PRODUCT_QUANTITY) * pr.PRODUCT_PRICE) 'TOTAL VALUE'
FROM ORDER_HEADER oh
INNER JOIN ORDER_ITEMS oi
ON oh.ORDER_ID = oi.ORDER_ID
INNER JOIN PRODUCT pr
ON oi.PRODUCT_ID = pr.PRODUCT_ID
INNER JOIN ONLINE_CUSTOMER oc
ON oh.CUSTOMER_ID = oc.CUSTOMER_ID
WHERE oh.ORDER_STATUS = 'SHIPPED'
AND oh.PAYMENT_MODE = 'CASH'
AND oc.CUSTOMER_LNAME LIKE 'G%'
GROUP BY oh.CUSTOMER_ID

```

OUTPUT

CUSTOMER_ID	FULL_NAME	TOTAL QUANTITY	TOTAL VALUE
6	Anita Goswami	25	700000.00
24	Brian Grazer	4	14000.00

7. Write a query to display order_id and volume of biggest order (in terms of volume) that can fit in carton id 10

-- [note: tables to be used -carton, order_items, product]

SOLUTION:

```

SELECT
    oi.ORDER_ID,
    MAX(pr.LEN * pr.WIDTH * pr.HEIGHT) VOLUME

```

```

FROM PRODUCT pr
INNER JOIN ORDER_ITEMS oi
ON pr.PRODUCT_ID = oi.PRODUCT_ID
LEFT JOIN CARTON c
ON pr.LEN <= c.LEN
AND pr.WIDTH <= c.WIDTH
AND pr.HEIGHT <= c.HEIGHT
WHERE c.CARTON_ID = 10
GROUP BY oi.ORDER_ID
ORDER BY MAX(pr.LEN * pr.WIDTH * pr.HEIGHT) DESC
LIMIT 1

```

OUTPUT

ORDER_ID	VOLUME
10001	17880000

8. Write a query to display product_id, product_desc, product_quantity_avail, quantity sold, and show inventory status of products as below as per below condition:

a. For electronics and computer categories,

i. If sales till date is zero then show 'no sales in past, give discount to reduce inventory',

ii. If inventory quantity is less than 10% of quantity sold, show 'low inventory, need to add inventory',

iii. If inventory quantity is less than 50% of quantity sold, show 'medium inventory, need to add some inventory',

iv. If inventory quantity is more or equal to 50% of quantity sold, show 'sufficient inventory'

b. For mobiles and watches categories,

i. If sales till date is zero then show 'no sales in past, give discount to reduce inventory',

ii. If inventory quantity is less than 20% of quantity sold, show 'low inventory, need to add inventory',

iii. If inventory quantity is less than 60% of quantity sold, show 'medium inventory, need to add some inventory',

iv. If inventory quantity is more or equal to 60% of quantity sold, show 'sufficient inventory'

c. Rest of the categories,

i. If sales till date is zero then show 'no sales in past, give discount to reduce inventory',

ii. If inventory quantity is less than 30% of quantity sold, show 'low inventory, need to add inventory',

iii. If inventory quantity is less than 70% of quantity sold, show 'medium inventory, need to add some inventory',

iv. If inventory quantity is more or equal to 70% of quantity sold, show 'sufficient inventory'

[note: tables to be used -product, product_class, order_items] (use sub-query)

SOLUTION:

```
SELECT
```

```
pr.PRODUCT_ID,
```

```
pr.PRODUCT_DESC,
```

```
pr.PRODUCT_QUANTITY_AVAIL,
```

```
po.QUANTITY_SOLD,
```

```
CASE
```

```
WHEN pc.PRODUCT_CLASS_DESC IN('ELECTRONICS', 'COMPUTER')
```

```
THEN
```

```

        CASE WHEN po.QUANTITY_SOLD = 0
        THEN 'No Sales in past, give discount to reduce inventory'
        WHEN pr.PRODUCT_QUANTITY_AVAIL < (po.QUANTITY_SOLD * 0.10)
        THEN 'Low inventory, need to add inventory'
        WHEN pr.PRODUCT_QUANTITY_AVAIL >= (po.QUANTITY_SOLD * 0.50)
        THEN 'Sufficient inventory'
        END
    WHEN pc.PRODUCT_CLASS_DESC IN('MOBILES', 'WATCHES')
    THEN
        CASE WHEN po.QUANTITY_SOLD = 0
        THEN 'No Sales in past, give discount to reduce inventory'
        WHEN pr.PRODUCT_QUANTITY_AVAIL < (po.QUANTITY_SOLD * 0.20)
        THEN 'Low inventory, need to add inventory'
        WHEN pr.PRODUCT_QUANTITY_AVAIL >= (po.QUANTITY_SOLD * 0.60)
        THEN 'Sufficient inventory'
        END
    ELSE
        CASE WHEN po.QUANTITY_SOLD = 0
        THEN 'No Sales in past, give discount to reduce inventory'
        WHEN pr.PRODUCT_QUANTITY_AVAIL < (po.QUANTITY_SOLD * 0.30)
        THEN 'Low inventory, need to add inventory'
        WHEN pr.PRODUCT_QUANTITY_AVAIL >= (po.QUANTITY_SOLD * 0.70)
        THEN 'Sufficient inventory'

```

```

        END

END INVENTORY_STATUS

FROM PRODUCT pr

INNER JOIN (

        SELECT

        pr.PRODUCT_ID,

        pr.PRODUCT_DESC,

        SUM(COALESCE(oi.PRODUCT_QUANTITY,0))
QUANTITY_SOLD

        FROM PRODUCT pr

        LEFT JOIN ORDER_ITEMS oi

        ON pr.PRODUCT_ID = oi.PRODUCT_ID

        GROUP BY pr.PRODUCT_ID, pr.PRODUCT_DESC) po

ON pr.PRODUCT_ID = po.PRODUCT_ID

INNER JOIN PRODUCT_CLASS pc

ON pr.PRODUCT_CLASS_CODE = pc.PRODUCT_CLASS_CODE

```

OUTPUT

PRODUCT_ID	PRODUCT_DESC	PRODUCT_QUANTITY_AVAIL	QUANTITY_SOLD	INVENTORY_STATUS
99999	Samsung Galaxy Tab 2 P3100	50	0	No Sales in past, give discount to reduce inventory
99998	Nikon Coolpix L810 Bridge	50	0	No Sales in past, give discount to reduce inventory
99997	Sony Xperia U (Black White)	50	0	No Sales in past, give discount to reduce inventory
99994	HP Deskjet 2050 All-in-One - J510a Printer	100	0	No Sales in past, give discount to reduce inventory
99995	LG MS-2049UW Solo Microwave	100	0	No Sales in past, give discount to reduce inventory
99996	Nokia Asha 200 (Graphite)	100	0	No Sales in past, give discount to reduce inventory
99991	Dell Targus Synergy 2.0 Backpack	250	0	No Sales in past, give discount to reduce inventory
99992	Tom Clancy's Ghost Recon: Future Soldier (PC G...	250	0	No Sales in past, give discount to reduce inventory
99993	Nokia 1280 (Black)	250	0	No Sales in past, give discount to reduce inventory
201	Sky LED 102 CM TV	30	6	Sufficient inventory
202	Sams 192 L4 Single-door Refrigerator	15	6	Sufficient inventory
203	Jockey 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
206	Barbie Fab Gown Doll	20	13	Sufficient inventory
207	Remote Control Car	29	11	Sufficient inventory
208	Doll House	12	4	Sufficient inventory
209	Blue Jeans 34	100	12	Sufficient inventory
210	Blossoms Lehenga Choli set	100	10	Sufficient inventory
211	OnePlus 6 Smart Phone	25	5	Sufficient inventory
212	Samsung Galaxy On6	20	9	Sufficient inventory
213	Alchemist	50	21	Sufficient inventory
214	Harry Potter	50	27	Sufficient inventory
215	Logitech M244 Optical Mouse	10	9	Sufficient inventory
216	External Hard Disk 500 GB	10	7	Sufficient inventory

9. Write a query to display product_id, product_desc and total quantity of products which are sold together with product id 201 and are not shipped to city bangalore and new delhi. Display the output in descending order concerning tot_qty. (use sub-query)

[note: tables to be used - order_items, product, order_header, online_customer, address]

Solution:

```

SELECT
po.PRODUCT_ID,
pr.PRODUCT_DESC,
po.TOTAL_QUANTITY
FROM (
    SELECT
        oi.PRODUCT_ID,
        SUM(oi.PRODUCT_QUANTITY) TOTAL_QUANTITY
    FROM ORDER_ITEMS oi

```

```

INNER JOIN ORDER_HEADER oh
ON oi.ORDER_ID = oh.ORDER_ID
INNER JOIN ONLINE_CUSTOMER oc
ON oh.CUSTOMER_ID = oc.CUSTOMER_ID
INNER JOIN ADDRESS ad
ON oc.ADDRESS_ID = ad.ADDRESS_ID
WHERE oi.ORDER_ID IN(SELECT ORDER_ID FROM ORDER_ITEMS WHERE
PRODUCT_ID = 201)
AND ad.CITY NOT IN('BANGALORE', 'NEW DELHI')
GROUP BY oi.PRODUCT_ID
) po
INNER JOIN PRODUCT pr
ON po.PRODUCT_ID = pr.PRODUCT_ID
ORDER BY po.TOTAL_QUANTITY DESC

```

OUTPUT

PRODUCT_ID	PRODUCT_DESC	TOTAL_QUANTITY
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
207	Remote Control Car	2
204	Cricket Set for Boys	2
206	Barbie Fab Gown Doll	2
243	Supreme Fusion Cupboard 02TB	2
202	Sams 192 L4 Single-door Refrigerator	1
212	Samsung Galaxy On6	1
214	Harry Potter	1
203	Jocky Speaker Music System HT32	1
221	Cybershot DWC-W325 Camera	1

10. Write a query to display the order_id, customer_id and customer fullname and total quantity of products shipped for order ids which are even and shipped to address where pincode is not starting with "5"

Solution:

[note: tables to be used - online_customer, order_header, order_items, address]

Solution:

```
SELECT
oca.ORDER_ID,
oc.CUSTOMER_ID,
CONCAT(oc.CUSTOMER_FNAME, ' ', oc.CUSTOMER_LNAME) 'FULL NAME',
oca.TOTAL_QUANTITY
FROM (
    SELECT oh.ORDER_ID, oh.CUSTOMER_ID,
           SUM(oi.PRODUCT_QUANTITY) TOTAL_QUANTITY
    FROM ORDER_HEADER oh
    INNER JOIN ORDER_ITEMS oi
    ON oh.ORDER_ID = oi.ORDER_ID
    INNER JOIN ONLINE_CUSTOMER oc
    ON oh.CUSTOMER_ID = oc.CUSTOMER_ID
    INNER JOIN ADDRESS ad
    ON oc.ADDRESS_ID = ad.ADDRESS_ID
    WHERE oh.ORDER_STATUS = 'SHIPPED'
    AND oh.ORDER_ID % 2 = 0
    AND ad.PINCODE LIKE '5%'
    GROUP BY oh.ORDER_ID, oh.CUSTOMER_ID
) oca
INNER JOIN ONLINE_CUSTOMER oc
ON oca.CUSTOMER_ID = oc.CUSTOMER_ID
```

OUTPUT

ORDER_ID	CUSTOMER_ID	FULL NAME	TOTAL_QUANTITY
10002	2	Jackson Davis	16
10004	5	Ramya Ravinder	6
10006	6	Anita Goswami	15
10010	6	Anita Goswami	11
10012	2	Jackson Davis	23
10014	9	Devika Satish	8
10016	8	Neetha Castelina	9
10018	11	Vikas Jha	40
10038	46	Tan Bee Soo	7
10056	11	Vikas Jha	2
10060	50	Sri binti Yaakob	4