



Information
Technology
Institute

Analytical SQL Case Study

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Data integration & Visualization (Intake 44)
New capital branch

Analytical SQL Case Study

Objective:

This documentation outlines the implementation details and purpose of an Analytical SQL project designed to analyze the OnlineRetail dataset. The project focuses on deriving insights from the dataset using SQL queries to understand customer behavior, sales patterns, and segmentation.

Queries Overview:

Question 1:

Query 1: Total Sales Calculation

Purpose: Calculate the total sales amount.

Screen shot:

TOTAL_SALES
255718.38

Query 2: Sales per Customer

Purpose: Calculate the total sales amount per customer and order customers by their sales in a descending order.

Screen shot:

CUSTOMER_ID	CUSTOMER_SALES
12931	42055.96
12748	33719.73
12901	17654.54
12921	16587.09
12939	11581.8
12830	6814.64
12839	5591.42
12971	5190.74
12955	4757.16
12747	4196.01
12949	4167.22
12749	4090.88
12867	4036.82
12841	4022.35
12957	4017.54



Query 3: Profit per Item

Purpose: Calculate the profit generated per item and identify the most profitable items.

Screen shot:

STOCKCODE	STOCK_PROFIT
84879	9114.69
22197	4323.1
21787	4059.35
22191	3461.2
23203	3357.44
21479	2736.01
23215	2697.36
22970	2493.6
22570	2458.08
22992	2308.05
85099B	2237.41
23084	2187.72
22569	2162.64
21977	2063.69
22991	2047.05

Query 4: Yearly Sales

Purpose: Calculate the total sales amount per year.

Screen shot:

YEAR	YEARLY_SALES
2011	242295.42
2010	13422.96



Query 5: Monthly Sales

Purpose: Calculate the total sales amount per month per year.

Screen shot:

MONTH	YEAR	MONTHLY_SALES
11	2011	45633.38
8	2011	38374.64
9	2011	27853.82
10	2011	19735.07
5	2011	19496.18
3	2011	17038.01
7	2011	15664.54
6	2011	13517.01
12	2010	13422.96
2	2011	13336.84
12	2011	11124.13
4	2011	10980.51
1	2011	9541.29

Query 6: Average Items per Invoice

Purpose: Calculate the average number of items per invoice.

Screen shot:

AVG_ITEMS_PER_INVOICE
17.2747559

Query 7: Average Profit and Quantity per Customer

Purpose: Calculate the average profit and quantity of items bought by each customer.

Screen shot:

CUSTOMER_ID	STOCKCODE	PROFIT	ITEMS
12749	23111	37.5	3
12749	23245	34.65	7
12749	22169	34	4
12749	21843	32.85	3
12749	23232	31.5	75
12749	22297	30	24
12749	23402	30	8
12749	23228	30	24
12749	23226	30	24
12749	23227	30	24
12749	22770	29.9	2
12749	22776	29.85	3
12749	22768	29.85	3
12749	22767	29.85	3
12749	23404	29.7	6

Query 8: Monthly Profit Difference

Purpose: Calculate the monthly difference in profit and the percentage change.

Screen shot:

MONTH_YEAR	MONTHLY_PROFIT	PREVIOUS_MONTH_SALES	sales_percentage_difference%
01-DEC-10	13422.96	0	1342296
01-JAN-11	9541.29	13422.96	-28.92
01-FEB-11	13336.84	9541.29	39.78
01-MAR-11	17038.01	13336.84	27.75
01-APR-11	10980.51	17038.01	-35.55
01-MAY-11	19496.18	10980.51	77.55
01-JUN-11	13517.01	19496.18	-30.67
01-JUL-11	15664.54	13517.01	15.89
01-AUG-11	38374.64	15664.54	144.98
01-SEP-11	27853.82	38374.64	-27.42
01-OCT-11	19735.07	27853.82	-29.15
01-NOV-11	45633.38	19735.07	131.23
01-DEC-11	11124.13	45633.38	-75.62

Question 2:

Query 9: RFM Analysis

Purpose: Perform RFM (Recency, Frequency, Monetary) analysis and segment customers based on their behavior.

Screen shot:

	CUSTOMER_ID	RECENCY	FREQUENCY	MONETARY	RECENCY_SCORE	AVG_FM_SCORE	CUST_SEGMENT
	12829	336	2	293	1	1	Lost
	12847	22	1	871.54	4	3	Potential Loyalists
	12854	78	3	1324.5	2	4	At Risk
	12967	358	2	1660.9	1	4	Cant Lose Them
	12831	262	1	215.05	1	1	Lost
	12827	5	3	430.15	5	2	Potential Loyalists
	12748	0	210	33719.73	5	5	Champions
	12885	63	3	1175.22	3	4	Loyal Customers
▶	12884	88	1	309.05	2	1	Lost
•	12881	275	1	298	1	1	Lost
•	12857	210	2	1106.4	1	3	At Risk
•	12906	11	5	2919.81	4	5	Champions
•	12970	7	4	452.24	5	2	Potential Loyalists
•	12950	2	3	1843	5	4	Champions
	12867	26	7	4036.82	4	5	Champions



Question 3:

Query 10: Consecutive days

Purpose: Maximum number of consecutive days a customer made purchases

Screen shot:

iii	CUST_ID	MAX_CONSECUTIVE_DAYS
▶	26592	35
	66688	5
	175749	2
	625527	19
	710264	12
	924314	2
	1073321	3
	1444226	3
	1490919	3
	1659669	2
	1798791	6
	1822477	8
	1916912	7
	2208179	12
	2284100	61

Query 11: Average days

Purpose: Average number of days/transactions to reach a spent threshold (250\$)

Screen shot:

iii	AVERAGE_DAYS
▶	9.7705