



"Sales Insights with SQL: Data Analysis Project"

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INTRODUCTION



Project Purpose:

Description: "This project focuses on analyzing sales data using SQL to identify critical business insights. The main goal is to understand patterns in sales trends, identify high-value products, and analyze customer behavior."

Project Goals:

Identify: Top-selling products and high-value customers to help prioritize business efforts.

Analyze: Sales trends, including seasonal peaks and dips, to enable effective planning and promotions.

Recommend: Actions for targeted marketing and inventory planning based on the insights found.

Basic Data Retrieval with SELECT

Objective: “Retrieve all records from the sales table to understand the dataset.”

SQL Query:

```
sql
```

```
SELECT * FROM sales;
```

Filtering Data (WHERE Clause)

Objective: “Filter for transactions above a certain sales amount.”

The screenshot shows a database management interface with the following components:

- Left Sidebar:** A tree view of database objects under the "sales" schema, including tables like customers, date, markets, products, and transactions.
- Query Editor:** Displays the SQL query:

```
1 • select * from sales.transactions
2 where sales_amount > 1000;
```
- Result Grid:** A table showing transaction data filtered by sales_amount > 1000. The columns are product_code, customer_code, market_code, order_date, sales_qty, sales_amount, and currency. The data includes rows for Prod001 through Prod005 and Cus001 through Cus005 across various markets and dates.
- Output Panel:** Shows the execution log with two entries:
 - Action Output: select sales_date,sales_amount,product_code from transactions LIMIT 0, 1000
 - Action Output: SELECT * FROM sales.transactions LIMIT 0, 1000
- Message Panel:** Displays an error message: "Error Code: 1046. No database selected Select the default DB to be used by double-clicking its name in the SCH...".
- Right Sidebar:** A vertical panel with icons for Result Grid, Form Editor, and Field Types, currently set to "Result Grid".

Aggregation (SUM and GROUP BY)

Objective: “Find total sales for each product category.”

The screenshot shows a database interface with a query editor and a results grid.

Query Editor:

```
Query 1
customers transactions products markets transactions transactions
Limit to 1000 rows

1 • select product_code ,
2     sum(sales_amount) as total_sales
3     from sales.transactions
4     group by product_code;
```

Result Grid:

	product_code	total_sales
▶	Prod001	82480
	Prod002	17268
	Prod003	724546
	Prod004	59852
	Prod005	1265146
	Prod006	10100
	Prod007	12436
	Prod008	35408
	Prod009	131160
	Prod010	295006
	Prod011	410060

Using JOINS to Combine Data

Objective: “Combine customer details with sales data.”

The screenshot shows the SQL Server Management Studio interface. The top menu bar includes 'Query', 'Database', 'Server', 'Tools', 'Scripting', and 'Help'. Below the menu is a toolbar with various icons. The main area contains a query window titled 'SQL File 11*' with the following SQL code:

```
1 •  select p.product_type,
2      c.customer_type,
3      sum(t.sales_amount) as total_sales
4  from sales.transactions t
5  join sales.products p
6  on t.product_code=p.product_code
7  join sales.customers c
8  on t.customer_code=c.customer_code
9  group by p.product_type,c.customer_type ;
```

The results grid below the code shows the following data:

	product_type	customer_type	total_sales
▶	Own Brand	Brick & Mortar	264433880
	Own Brand	E-Commerce	107131071
	Distribution	E-Commerce	28076976
	Distribution	Brick & Mortar	117962600

The right side of the interface features a vertical toolbar with icons for 'Result Grid' (selected), 'Form Editor', and 'Field Types'. A status bar at the bottom indicates 'Result 1'.

“Ranking Top 5 Customers”

Objective: “Find the top 5 customers by total spending.”

The screenshot shows a database management interface with the following components:

- SCHEMAS** pane on the left, showing the **sales** schema with tables: customers, date, markets, products, transactions, Views, Stored Procedures, Functions.
- Query Editor** pane in the center, displaying the following SQL query:

```
1 •    select c.customer_name,
2        sum(t.sales_amount) as total_sales
3        from sales.transactions t
4        join sales.customers c
5        on t.customer_code=c.customer_code
6        group by c.customer_name
7        order by total_sales DESC
8        limit 5;
```
- Result Grid** pane at the bottom, showing the results of the query:

	customer_name	total_sales
▶	Electricalsara Stores	413905769
	Electricalslytical	49644189
	Excel Stores	49175285
	Premium Stores	45258250
	Nixon	43916981

At the bottom left, there are tabs for **Administration** and **Schemas**.

Advanced Query with CASE Statement

Objective: “Segment customers into high, medium, and low spenders.”

The screenshot shows the MySQL Workbench interface with a query editor and a results grid.

Query Editor:

```
1 •      select customer_code ,
2         sum(sales_amount) as total_sales,
3         case
4             when sum(sales_amount) > 10000000 then 'HIGH VALUE CUSTOMER'
5             when sum(sales_amount) between 5000 and 10000 then 'MEDIUM -VALUE CUSTOMER'
6             else 'LOW-VALUE-CUSTOMER'
7         END AS customer_classification
8     from sales.transactions
9     group by customer_code;
```

Results Grid:

	customer_code	total_sales	customer_classification
▶	Cus001	28833717	HIGH VALUE CUSTOMER
▶	Cus002	17739349	HIGH VALUE CUSTOMER
▶	Cus003	49175285	HIGH VALUE CUSTOMER
▶	Cus004	15249738	HIGH VALUE CUSTOMER
▶	Cus005	45258250	HIGH VALUE CUSTOMER
▶	Cus006	413905769	HIGH VALUE CUSTOMER
▶	Cus007	35359233	HIGH VALUE CUSTOMER
▶	Cus008	21198041	HIGH VALUE CUSTOMER
▶	Cus009	1333393	LOW-VALUE-CUSTOMER

What are the total sales by product category

The screenshot shows a SQL query interface with the following details:

- Toolbar:** Includes View, Query, Database, Server, Tools, Scripting, Help, and various icons for file operations.
- Query Editor:** Tabbed interface with "Query 1" selected. The current tab is "transactions".

```
1 •    select product_code ,  
2        sum(sales_amount) as total_sales  
3        from sales.transactions  
4        group by product_code  
5        order by total_sales DESC;  
6
```
- Object Explorer:** Shows database objects like tables (customers, date, markets, products, transactions), columns, indexes, foreign keys, and triggers.
- Result Grid:** Displays the query results in a grid format.

product_code	total_sales
Prod318	68967202
Prod316	60883452
Prod324	41455364
Prod329	34381481
Prod334	31468996
Prod332	26594157
Prod040	23581969
Prod319	22188881
Prod304	17873777
Prod159	17660106
Prod320	17514004
- Result 5:** A tab labeled "Result 5" is visible at the bottom left.
- Right Panel:** Shows "Automatic completion" status and a sidebar with icons for Result Grid, Form Editor, and Field Types.
- Status Bar:** Shows "Read Only" and "Context Help" buttons.

Window Functions: Calculating a Running Total

orkbench

ocal instance MySQL80 ×

View Query Database Server Tools Scripting Help

customers customers customers date date markets markets products transactions transactions transactions

SQLAdditions ×

Automatic context disabled. Use the toolbar or F1 to manually get help. Current caret position: toggle automatic

objects

Tables

- customers
- Columns
- Indexes
- Foreign Keys
- Triggers

date

- Columns
- Indexes
- Foreign Keys
- Triggers

markets

- Columns
- Indexes
- Foreign Keys
- Triggers

products

- Columns
- Indexes
- Foreign Keys
- Triggers

transactions

views

Stored Procedures

Schemas

Result Grid | Filter Rows: Export: Wrap Cell Content: A

	product_code	order_date	sales_amount	running_total
▶	Prod001	2017-10-10	41241	82482
▶	Prod001	2017-10-10	41241	82482
▶	Prod001	2018-05-08	-1	82480
▶	Prod001	2018-05-08	-1	82480
▶	Prod002	2018-04-06	875	1750
▶	Prod002	2018-04-06	875	1750
▶	Prod002	2018-04-11	583	2916
▶	Prod002	2018-04-11	583	2916
▶	Prod002	2018-06-18	7176	17268
▶	Prod002	2018-06-18	7176	17268
▶	Prod002	2017-11-20	500	1000

Result 2 ×

Output:

Read Only Context Help Snippets

Summary of Key Insights



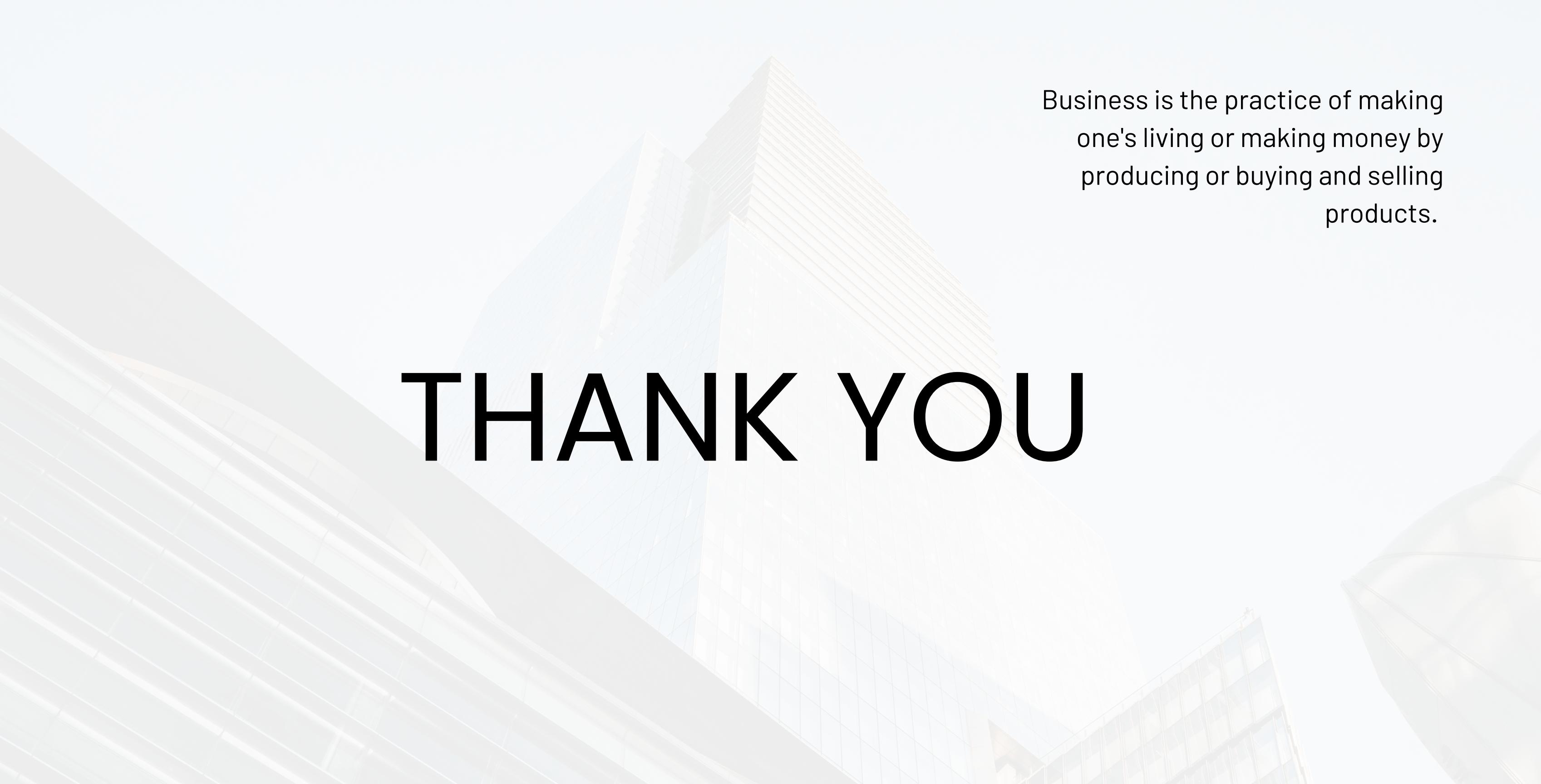
Key Insights:

Seasonal Sales Trends: Certain times of the year showed higher sales, suggesting an opportunity to focus marketing efforts and stock planning around these periods.

Top Products and Loyal Customers: Some products and customers contributed significantly to sales, meaning targeted marketing could help retain and increase sales among these key groups.



Sales by Customer Type: Different customer types (like retail vs. wholesale) impacted total sales in different ways, which can help the business focus on the customer segments that drive the most value.



Business is the practice of making
one's living or making money by
producing or buying and selling
products.

THANK YOU