Final Group Project

Presented to
Professor Animesh Animesh

By
Barabasz, Michelle – 261152119
Pelletier, Tomy - 261165447
Wang, Jiaxuan - 261144434
El-Ghoubaira, Vincent - 260761240

INSY 661 - Section 075

McGill University - Desautels Faculty of Management
Thursday August 24th 2023

Project Scope

The project revolves around creating a comprehensive database for a laptop-selling website, similar to newegg.ca. The website targets a diverse range of customers, from individuals to small businesses, seeking customizable laptop solutions. Laptops are known for their extensive customization options, making it essential for customers to have a platform that facilitates easy comparison based on their unique requirements.

The primary objective of this project is to establish a robust database system that supports the laptop sales website's functionalities and services. The database will encompass a wealth of laptop specifications, enabling customers to make informed purchasing decisions. The user base includes both individual consumers and small business entities. Given the highly customizable nature of laptops, the platform will empower users to filter and sort options based on a plethora of criteria, such as GPU, CPU, price range, screen type, brand, RAM, dimensions, model and production year.

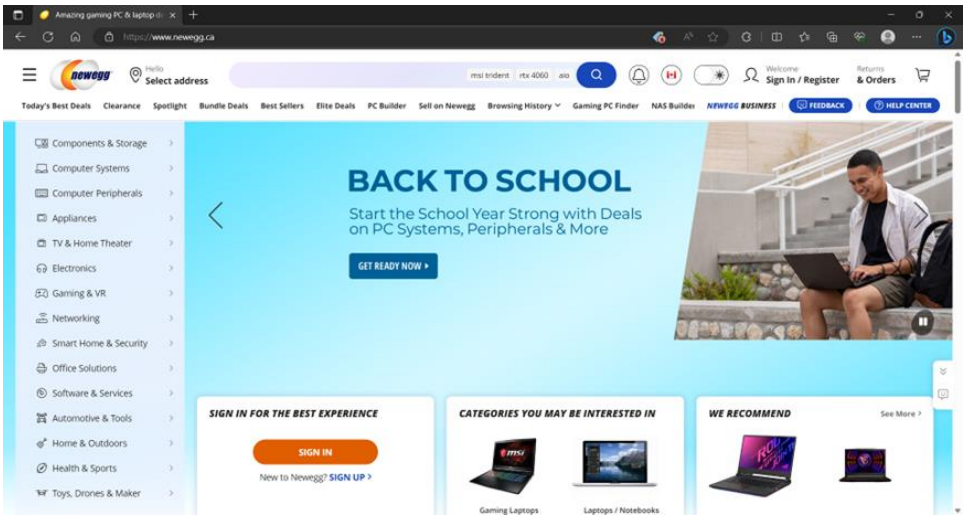
The website will not only cater to customers but also accommodate business-driven aspects. It will provide insights into discounts available throughout the year, such as clearance sales, special events like back-to-school and Black Friday, as well as bulk purchase discounts.

The mission of the project is to furnish customers with laptops that align perfectly with their technological needs and preferences, all at competitive prices. The platform will serve as a one-stop-shop where customers can explore a wide array of laptop options, configure their desired specifications, and receive personalized recommendations. Furthermore, the database will maintain records of customer interactions, including order histories, and establish a seamless purchasing experience.

We also want our database to allow the management of our organization, NouvelOeuf, to gain insights upon stock management and customer preferences.

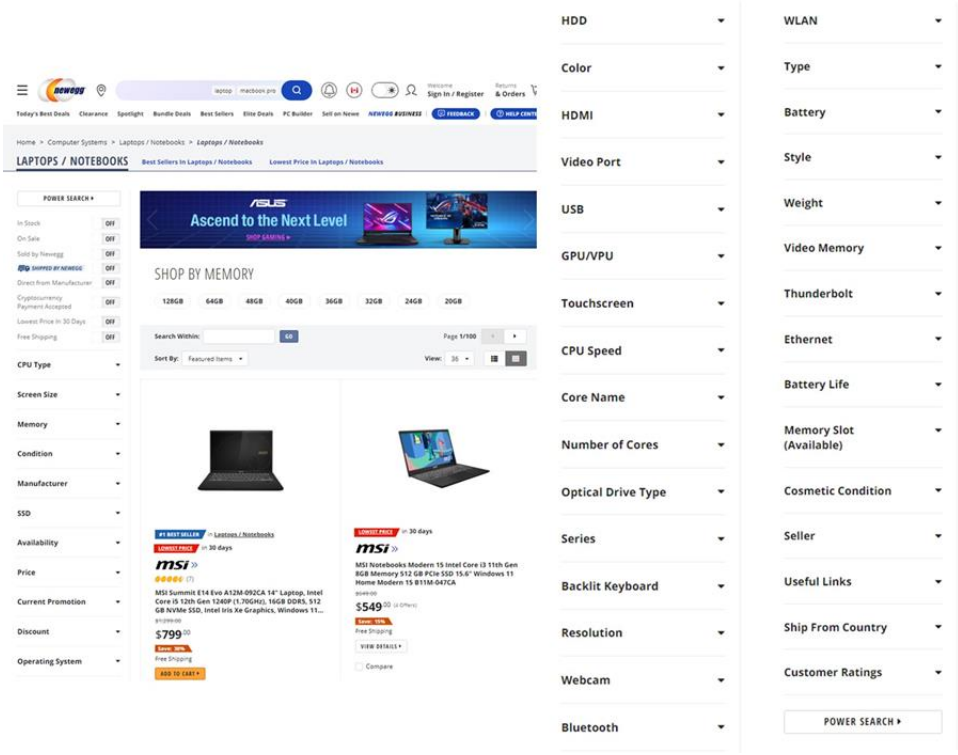
Overview of the business scenario

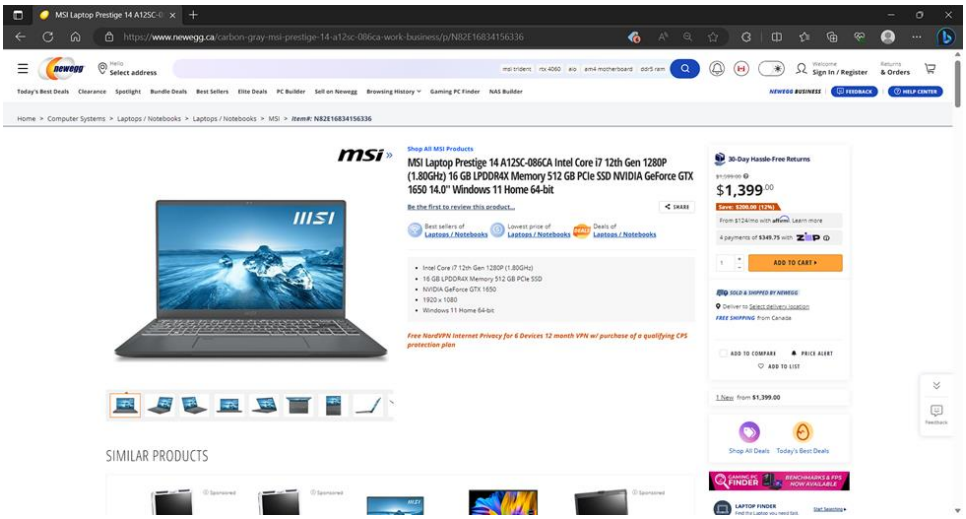
Newegg.ca is an online retail platform specializing in electronics, particularly computer hardware and consumer electronics, offering a wide range of products and services to tech-savvy customers in Canada. Here’s a screenshot of the webpage home screen:



In the context of your project, the laptop section of Newegg.ca's website serves as a primary reference point for designing the database. In the context of the project, the laptop section of Newegg.ca's website serves as a primary reference point for designing the database. The provided screenshots illustrate the essential user interface elements and features that will be incorporated into the project. By examining the laptop page, it's evident that the website allows users to easily search for laptops and apply filters based on various laptop specifications, such as GPU, CPU, price, and production year.

These screenshots serve as a tangible representation of the features and functionalities we aim to implement in the project:





Business Rules:

- GPU and CPU models are assumed to be unique within a given year.
- A brand must offer at least one GPU, CPU, Memory or laptop model each to be included in the database.
- Laptop models influence available screen options.
- Every laptop must be equipped with a CPU and memory.
- An order must include at least one laptop (quantity > 0).
- Customers can only have one active shipping address.
- A customer becomes official after placing their first order.
- The screen options available for a laptop model are influenced by the model itself.
- A laptop model number is unique per brand (e.g., Dell XPS 15 vs HP XPS 15)
- To qualify for free shipping, the order subtotal must exceed the minimum amount set by the business. This minimum can vary by promotion.

By adhering to these business rules, the project aims to create a comprehensive and functional database that facilitates smooth interactions between customers and the laptop-selling platform. This approach ensures accuracy, consistency, and reliability in serving the needs of both users and the business

Mission Statement

NouvelOeuf wants to constantly be studying its processes and its customers to keep on improving to deliver products that fits all customers' needs in the most efficient way possible.

Mission Objectives

1. Continuous Process Analysis: Regularly analyze and evaluate internal processes, workflows, and operational procedures to identify areas for improvement and efficiency enhancement.

2. Customer Research and Understanding: Conduct comprehensive research to understand customer preferences, behavior, and evolving needs to tailor products that align with their requirements.

3. Product Customization: Develop a flexible product development framework that allows for customization and personalization to cater to diverse customer segments and their unique preferences.

4. Efficiency Maximization: Identify bottlenecks and inefficiencies within the production and delivery processes and work towards streamlining operations to reduce costs and minimize waste.

5. Data-Driven Decision Making: Utilize data analytics and metrics to make informed decisions regarding product enhancements, customer satisfaction initiatives, and operational improvements.

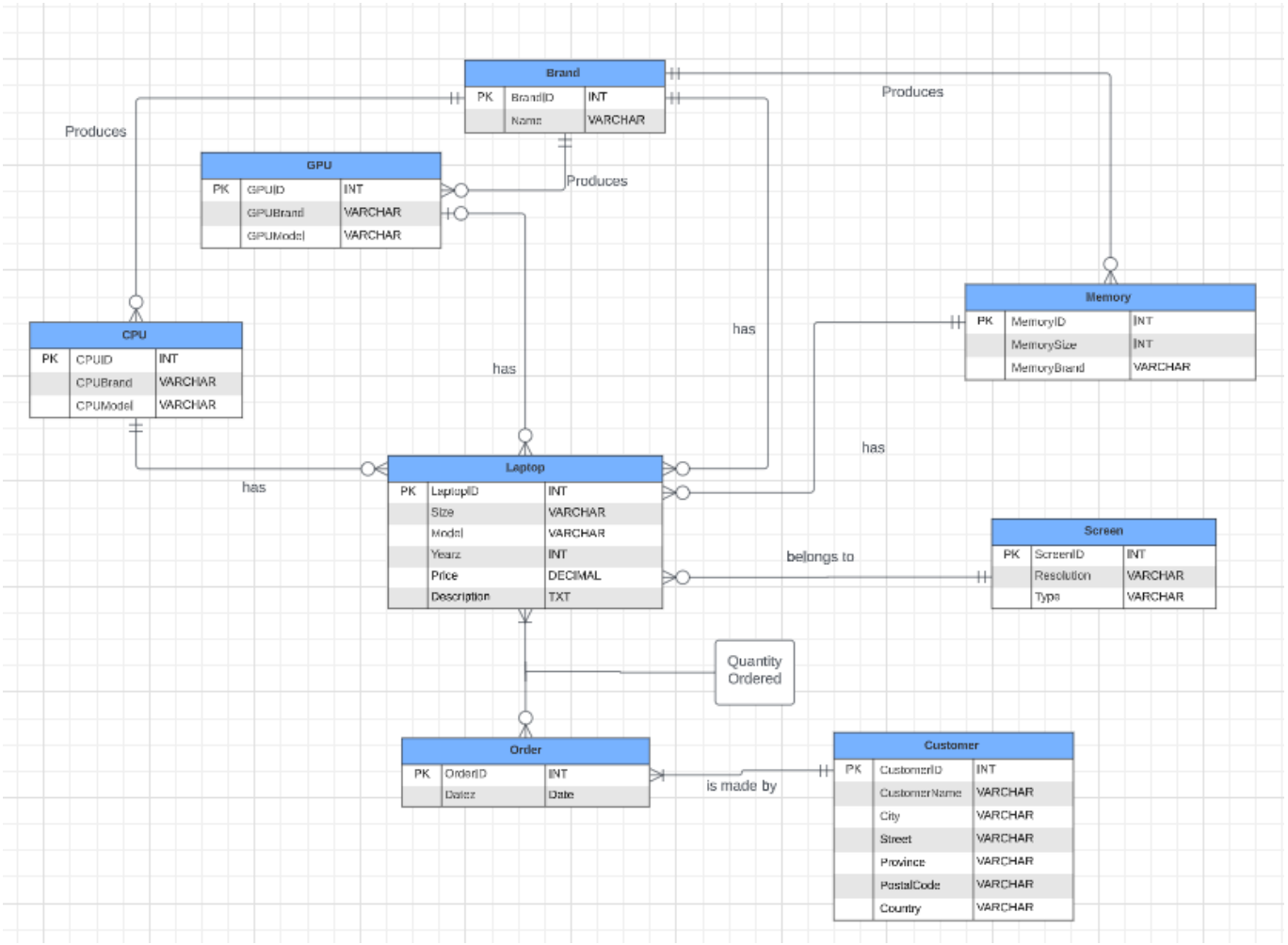
6. Market Analysis: Regularly monitor market trends, competitor activities, and industry developments to identify new opportunities and potential threats, enabling the company to stay ahead of the curve.

7. Collaborative Partnerships: Foster strategic partnerships with suppliers, distributors, and other stakeholders to create a network that supports efficient production, distribution, and customer satisfaction.

8. Global Expansion: Explore opportunities for expanding the company's reach to new markets and customer segments while maintaining a consistent focus on delivering products that fulfill customer needs efficiently.

9. Measurable Progress: Define clear key performance indicators (KPIs) to track progress toward mission objectives, enabling the organization to measure its success and make data-driven adjustments as needed.

ERD



Appendix A
DATA DICTIONARIES

Data Dictionary 1 - Description of Entities

Entity Name	Description	Aliases	Occurrence
Laptop	Contains information about various laptops such as size and price.	Laptop	One laptop must have one brand and a laptop can choose many kinds of CPU, GPU or not. A laptop must have a screen and the same

			laptop can appear in many orders or not.
Memory	Store information about different types of computer memory components, such as memory size and memory brand.	Memory, Storage	A memory must be applied in a laptop.
Brand	Contains details about various brands of electronic products available on the website.	Brand	A brand can choose to produce many laptops, GPU,CPU or not, and a brand must have at least one model.
GPU	Contains specifications and details about (GPUs) used in computers, such as the brand and the year.	GPU	The same kind of GPU can be installed on many laptops and a GPU can also not be applied on any laptops.
CPU	Stores information about CPU used in computers, such as such as the brand and the year.	CPU	The same kind of CPU can be installed on many laptops and a CPU can also not be applied on any laptops.
Screen	Contains specifications and details about display screens used in laptops, including resolution and type.	Screen, Monitor	A model of screen can be used on many models of computers, and it is also possible that a model of screen is not used in any computer.
Order	Holds information about customer orders placed on the website	Order, Purchase	An order may contain one or more laptops and an order can only correspond to one customer.
Customer	Contains details about registered customers who have already placed at least one order on the website.	Customer, User	A customer can place one or more orders.

Data Dictionary 2 - Description of Attributes

Entity Name	Attributes	Description	Data Type	Nulls	Mul i-valu ed	Deri ved	Defau lt
Laptop	LaptopID	Unique ID for each laptop	Small integer	No	No	No	None
	Size	Dimensions of laptop	20 variables chars	No	No	No	None
	Price	Price of laptop	Decimal	No	No	No	None
	Description	A brief description of the laptop	Text	Yes	No	No	None
	Model	Laptop model unique ID	30 variable chars	No	No	No	None
	Yearz	Year that the model was created	Small integer	No	No	No	None
Memory	MemoryID	Unique ID for each laptop memory	Small integer	No	No	No	None
	MemorySiz e	Amount of memory a laptop has	Small integer	No	No	No	None
	MemoryBra nd	Name of memory brand	20 variable chars	No	No	No	None
Brand	BrandID	Unique ID for each laptop brand	Small integer	No	No	No	None
	Name	Name of laptop brand	20 variable chars	No	No	No	None
GPU	GPUID	Unique ID for each laptop GPU	Small integer	No	No	No	None
	GPUBrand	Name of GPU brand	20 variable chars	No	No	No	None
	GPUModel	Name of the GPU model	50 variable chars	No	No	No	None
CPU	CPUID	Unique ID for each laptop CPU	Small integer	No	No	No	None
	CPUBrand	Name of CPU brand	20 variable chars	No	No	No	None

	CPUModel	Name of the CPU model	50 variable chars	No	No	No	None
Screen	ScreenID	Unique ID for each laptop screen	Small integer	No	No	No	None
	Resolution	Number of pixels the screen can display	20 variable chars	No	No	No	None
	Type	Technology used in constructing the screen	50 variable chars	No	No	No	None
Order	OrderID	Unique ID for each order	Small integer	No	No	No	None
	Datez	Date the order was made (day-month-year)	Date	No	No	No	None
Customer	CustomerID	Unique ID for each customer who has placed an order	Small integer	No	No	No	None
	CustomerName	The name of the customer	20 variable chars	No	No	No	None
	City	The city of the customer delivery address	20 variable chars	No	No	No	None
	Street	The street of the customer delivery address	20 variable chars	No	No	No	None
	Province	The province of the customer	20 variable chars	No	No	No	None
	PostalCode	The postal code of the address	7 Variable chars	No	No	No	None
	Country	The country of the customer	20 Variable chars	No	No	No	None

Appendix B
RELATIONAL SCHEMA

Laptop (LaptopID, Size, Model, Year, Price, Description, BrandID, GPUID, CPUID, MemoryID, ScreenID)

Primary Key: LaptopID

Foreign Key: BrandID References Brand(BrandID)

Foreign Key: GPUID References GPU(GPUID)

Foreign Key: CPUID References CPU(CPUID)

Foreign Key: MemoryID References Memory(MemoryID)

Foreign Key: ScreenID References Screen(ScreenID)

OrderQuantity (LaptopID, OrderID, Quantity)

Primary Key: LaptopID, OrderID

Foreign Key: LaptopID References Laptop(LaptopID)

Foreign Key: OrderID References Order(OrderID)

Order (OrderID, Date, CustomerID)

Primary Key: OrderID

Foreign Key: CustomerID References Customer(CustomerID)

Customer (CustomerID, Name, City, Street, Province, PostalCode, Country)

Primary Key: CustomerID

Brand (BrandID, Name)

Primary Key: BrandID

Screen (ScreenID, Resolution, Type)

Primary Key: ScreenID

GPU (GPUID, GPUBrand, GPUModel)

Primary Key: GPUID

Foreign Key: GPUBrand References Brand(BrandID)

CPU (CPUID, CPUBrand, CPUModel)

Primary Key: CPUID

Foreign Key: CPUBrand References Brand(BrandID)

Memory (MemoryID, MemorySize, MemoryBrand)

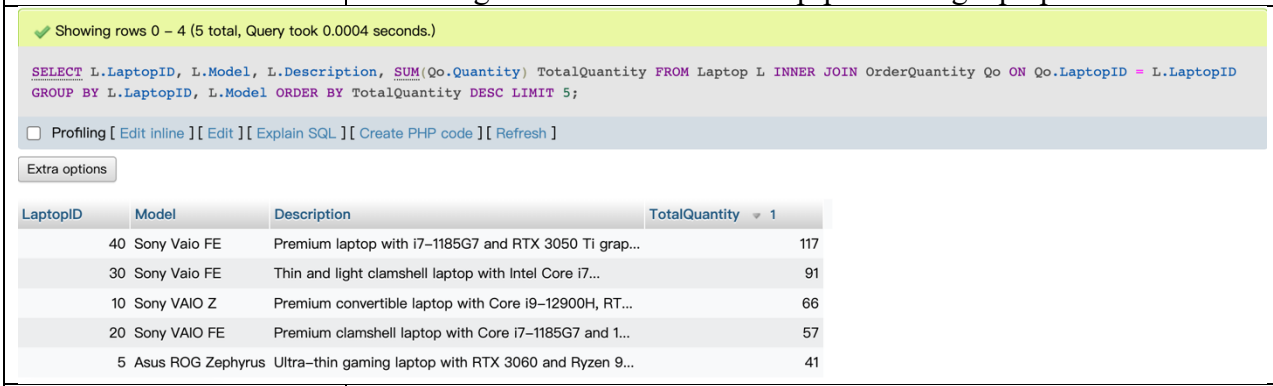
Primary Key: MemoryID

Foreign Key: MemoryBrand References Brand(BrandID)

APPENDIX C

Screenshot of query outputs

Number	Description & Objectives
1	Description of query: Top 5 sellers in terms of units. Objective of query: This query assists in understanding customer preferences, and allocating resources effectively to maximize profitability. It also helps the company prioritize production and marketing efforts towards these top-performing laptop models.



Showing rows 0 – 4 (5 total, Query took 0.0004 seconds.)

```
SELECT L.LaptopID, L.Model, L.Description, SUM(Qo.Quantity) TotalQuantity FROM Laptop L INNER JOIN OrderQuantity Qo ON Qo.LaptopID = L.LaptopID
GROUP BY L.LaptopID, L.Model ORDER BY TotalQuantity DESC LIMIT 5;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Extra options

LaptopID	Model	Description	TotalQuantity ▼ 1
40	Sony Vaio FE	Premium laptop with i7–1185G7 and RTX 3050 Ti grap...	117
30	Sony Vaio FE	Thin and light clamshell laptop with Intel Core i7...	91
10	Sony VAIO Z	Premium convertible laptop with Core i9–12900H, RT...	66
20	Sony VAIO FE	Premium clamshell laptop with Core i7–1185G7 and 1...	57
5	Asus ROG Zephyrus	Ultra–thin gaming laptop with RTX 3060 and Ryzen 9...	41

2	Description of query: Most popular brand. Objective of query: The company can use this information to strengthen partnerships with popular brands and negotiate better deals. It also helps in understanding which brands resonate the most with customers, guiding decisions related to brand positioning, and branding strategies.

Showing rows 0 – 3 (4 total, Query took 0.0003 seconds.)

```
SELECT B.Name as Brand, SUM(Qo.Quantity) TotalQuantity FROM Brand B JOIN Laptop L ON B.BrandID = L.BrandID JOIN OrderQuantity Qo ON L.LaptopID = Qo.LaptopID GROUP BY B.Name ORDER BY TotalQuantity DESC;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

Extra options

Brand	TotalQuantity ▼ 1
Sony	331
Acer	108
Asus	41
Dell	16

3	Description of query: Top 5 Country/Provinces with the most sales in terms of Revenue Objective of query: Helps to understand where most sales happen and orient marketing efforts. In this case, Quebec sales are way above other provinces sales.

Showing rows 0 - 4 (5 total, Query took 0.0081 seconds.)

```
SELECT c.Country, c.Province, SUM(l.Price * oq.Quantity) AS TotalRevenue FROM Customer c JOIN OrderTable o ON c.CustomerID = o.CustomerID JOIN OrderQuantity oq ON o.OrderID = oq.OrderID JOIN Laptop l ON oq.LaptopID = l.LaptopID GROUP BY c.Country, c.Province ORDER BY TotalRevenue DESC LIMIT 5;
```

4	Description of query: Learning about the most popular GPU and CPU combination Objective of query: To understand what the most popular GPU and CPU combination are will help understand what type of machine the customer is looking for, regardless of the brand.

Showing rows 0 - 4 (5 total, Query took 0.0036 seconds.)

```
SELECT CPU.CPUModel, GPU.GPUModel, COUNT(OrderQuantity.LaptopID) AS TotalSales FROM CPU JOIN Laptop ON CPU.CPUID = Laptop.CPUID JOIN GPU ON Laptop.GPUID = GPU.GPUID JOIN OrderQuantity ON Laptop.LaptopID = OrderQuantity.LaptopID GROUP BY CPU.CPUModel, GPU.GPUModel ORDER BY TotalSales DESC LIMIT 5;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

+ Options

CPUModel	GPUModel	TotalSales ▼ 1
Ryzen 9 5900X	GeForce RTX 3060 Ti	14
Core i9-11900K	GeForce RTX 3080	14
Core i5-11400	GeForce GTX 1650	14
Core i9-11900K	GeForce RTX 3060	14
Core i7-10700K	GeForce RTX 3060 Ti	14

5	Description of query: Find the 5 cheapest laptops with the highest GPUs. Objective of query: This query could be useful for budget-conscious consumers or professionals who are seeking laptops that offer a balance between affordability and strong GPU capabilities, such as for

	gaming, video editing, or other graphics-intensive tasks. It aims to provide options that prioritize both cost-effectiveness and GPU performance.

Showing rows 0 – 4 (5 total, Query took 0.0002 seconds.) [GPUModel: **RADEON RX 5700... – RADEON RX 5700...**] [Price: **1499.00... – 1999.00...**]

```
SELECT Laptop.LaptopID, Laptop.Size, Laptop.Model, Laptop.Yearz, Laptop.Price, Brand.Name AS Brand, GPU.GPUBrand AS GPUBrand, GPU.GPUModel AS
GPUModel FROM Laptop INNER JOIN Brand ON Laptop.BrandID = Brand.BrandID INNER JOIN GPU ON Laptop.GPUID = GPU.GPUID ORDER BY GPU.GPUModel DESC,
Laptop.Price ASC LIMIT 5;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Extra options

LaptopID	Size	Model	Yearz	Price	Brand	GPUBrand
18	15.6	Samsung Galaxy Book2 Pro	2022	1499.00	Samsung	
4	13.3	HP Spectre x360	2021	1699.00	HP	
38	15.6	Samsung Galaxy Book Pro	2021	1699.00	Samsung	
8	15.6	Samsung Galaxy Book2 Pro	2022	1699.00	Samsung	
28	15.6	Samsung Galaxy Book Pro 360	2023	1999.00	Samsung	

6	Description of query: Find all laptops with GPU brand AMD. Objective of query: This query could be valuable for individuals or organizations looking for laptops specifically with AMD GPUs for purposes such as graphics-intensive tasks, gaming, or compatibility with certain software applications that are optimized for Intel graphics technology.

Showing rows 0 – 13 (14 total, Query took 0.0001 seconds.)

```
SELECT * FROM Laptop JOIN GPU ON Laptop.GPUID = GPU.GPUID JOIN Brand ON GPU.GPUBrand = Brand.BrandID WHERE Brand.Name = 'AMD';
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

LaptopID	Size	Model	Yearz
12	13.3	HP ProBook x360 435 G7	2021
13	15.6	Lenovo IdeaPad Slim 5	2022
22	15.6	HP Envy x360	2022
44	15.6	Asus Vivobook 15	2021
49	13.3	LG Gram 13	2020
9	13.3	LG Gram 16	2022
19	13.3	LG Gram 16	2022
4	13.3	HP Spectre x360	2021
8	15.6	Samsung Galaxy Book2 Pro	2022

7	Description of query: Find laptop models and prices within a specified price range. Objective of query: This query can enhance the user's experience by helping them quickly locate laptops that match their budget constraints.

Showing rows 0 – 12 (13 total, Query took 0.0000 seconds.)

```
SELECT Model, Price FROM Laptop WHERE Price BETWEEN 500 AND 1000;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

	Model	Price
Edit Copy Delete	Dell Inspiron 5593	899.00
Edit Copy Delete	Lenovo IdeaPad Slim 5	999.00
Edit Copy Delete	Acer Aspire 5	749.00
Edit Copy Delete	Dell Inspiron 15	699.00
Edit Copy Delete	HP 14s	749.00
Edit Copy Delete	Lenovo IdeaPad 3	599.00
Edit Copy Delete	Asus Vivobook 15	749.00
Edit Copy Delete	Acer Aspire 5	649.00
Edit Copy Delete	MacBook Air	849.00
Edit Copy Delete	MSI GF63 Thin	899.00
Edit Copy Delete	Samsung Chromebook 4	549.00
Edit Copy Delete	LG Gram 13	799.00
Edit Copy Delete	VivoBook 15	699.00

8	Description of query: Find the top customer who has made the most purchases and also provide information about their most purchased laptop. Objective of query: This query can help the company in recognizing high-value customers, understanding their preferences, and establishing a personalized customer experience. It could also be used for loyalty programs, targeted marketing, and improving customer retention strategies by offering products that align with the customer's preferences and purchasing behavior.

Your SQL query has been executed successfully.

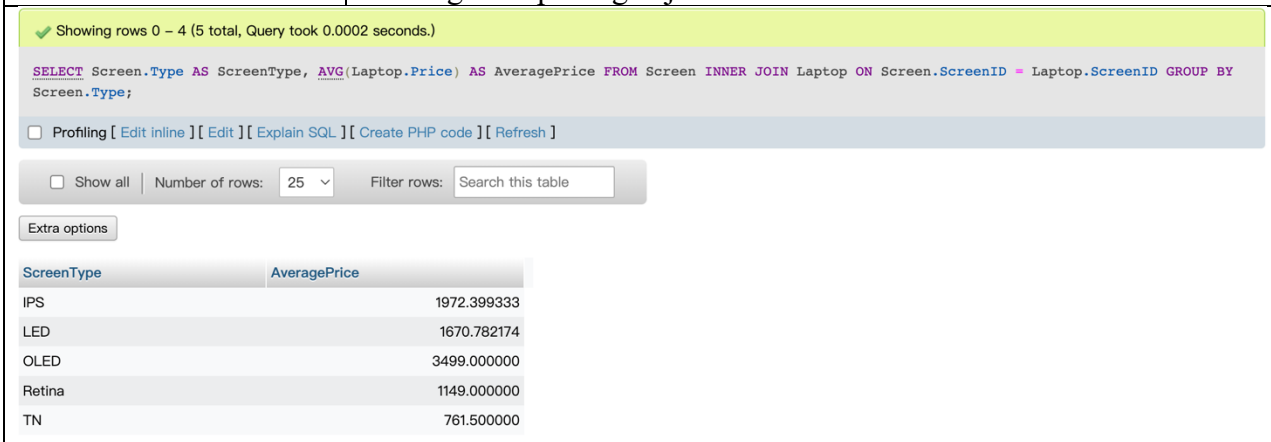
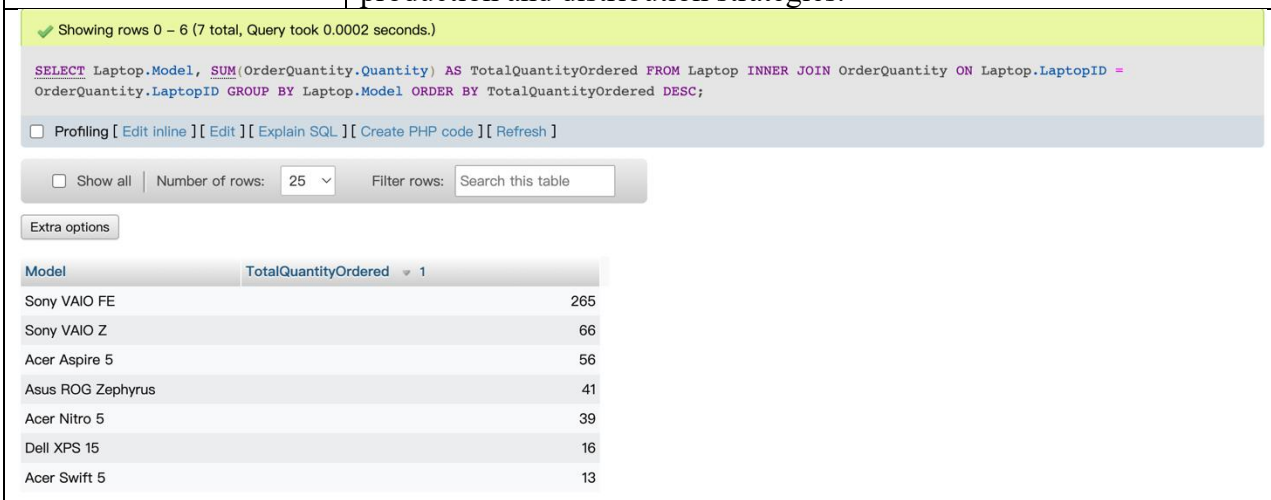
```
SELECT Customer.Name AS CustomerName, COUNT(OrderQuantity.OrderID) AS TotalPurchases, Laptop.Model AS MostPurchasedLaptop FROM Customer INNER JOIN OrderTable ON Customer.CustomerID = OrderTable.CustomerID INNER JOIN OrderQuantity ON OrderTable.OrderID = OrderQuantity.OrderID INNER JOIN Laptop ON OrderQuantity.LaptopID = Laptop.LaptopID GROUP BY Customer.CustomerID, Customer.Name, Laptop.Model ORDER BY TotalPurchases DESC LIMIT 1;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Extra options

CustomerName	TotalPurchases	MostPurchasedLaptop
Karen Scott	5	Acer Aspire 5

9	Description of query: Find the average price of laptops for each screen type.

	Objective of query: This query can help in understanding pricing patterns and in optimizing pricing strategies for various laptop models. It provides insights into how different screen types impact the average price, allowing businesses to make informed decisions about product offerings and pricing adjustments.
	
10	Description of query: Find the total quantity of each laptop model ordered. Objective of query: This query is useful for assessing the popularity and demand for different laptop models, identifying trends, optimizing inventory management, and making informed decisions about production and distribution strategies.
	
11	Description of query: Find the top 5 laptop brands based on the total revenue generated from their laptop sales. Objective of query: This query can identify the most financially successful laptop brands in terms of revenue, which can provide insights into market dominance, customer preferences, and brand performance. This information could be used for strategic planning,

	partnerships, investment decisions, and competitive analysis within the laptop industry.
Showing rows 0 – 3 (4 total, Query took 0.0002 seconds.) `SELECT B.Name AS BrandName, SUM(L.Price * OQ.Quantity) AS TotalRevenue FROM Brand B JOIN Laptop L ON B.BrandID = L.BrandID JOIN OrderQuantity OQ ON L.LaptopID = OQ.LaptopID GROUP BY B.Name ORDER BY TotalRevenue DESC LIMIT 5;` Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh] Extra options BrandName | TotalRevenue 1 Sony 806169.00 Acer 109492.00 Asus 81959.00 Dell 31999.84	
12	Description of query: Find the laptops that have been ordered the most, along with the total quantity ordered for each laptop model. Objective of query: This query can help in understanding the popularity and demand for different laptop models, which can be valuable for business decisions such as restocking, marketing strategies, and inventory management.
Showing rows 0 – 6 (7 total, Query took 0.0002 seconds.) `SELECT Laptop.Model, SUM(OrderQuantity.Quantity) AS TotalQuantityOrdered FROM Laptop INNER JOIN OrderQuantity ON Laptop.LaptopID = OrderQuantity.LaptopID GROUP BY Laptop.Model ORDER BY TotalQuantityOrdered DESC;` Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh] Show all | Number of rows: 25 Filter rows: Search this table Extra options Model | TotalQuantityOrdered 1 Sony VAIO FE 265 Sony VAIO Z 66 Acer Aspire 5 56 Asus ROG Zephyrus 41 Acer Nitro 5 39 Dell XPS 15 16 Acer Swift 5 13	
13	Description of query: Laptops with GPU and CPU from different brands. Objective of query: This query helps highlight laptops that stand out in terms of customization and could attract a specific customer segment seeking variety.

Showing rows 0 – 24 (35 total, Query took 0.0003 seconds.)

```
SELECT DISTINCT Laptop.LaptopID, Laptop.Model, Brand_GPU.Name AS GPUBrand, Brand_CPU.Name AS CPUBrand FROM Laptop JOIN GPU ON Laptop.GPUID =
GPU.GPUID JOIN CPU ON Laptop.CPUID = CPU.CPUID JOIN Brand AS Brand_GPU ON GPU.GPUBrand = Brand_GPU.BrandID JOIN Brand AS Brand_CPU ON
CPU.CPUBrand = Brand_CPU.BrandID WHERE Brand_GPU.BrandID <> Brand_CPU.BrandID;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

1 > >> | Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

LaptopID	Model	GPUBrand	CPUBrand
1	Dell XPS 15	NVIDIA	Intel
3	Lenovo Legion 7	NVIDIA	AMD
4	HP Spectre x360	AMD	Intel
5	Asus ROG Zephyrus	NVIDIA	AMD
7	MSI GP77 Leopard	NVIDIA	Intel
8	Samsung Galaxy Book2 Pro	AMD	Intel
9	LG Gram 16	AMD	Intel
10	Sony VAIO Z	NVIDIA	Intel
11	Dell Inspiron 5593	NVIDIA	Intel
12	HP ProBook x360 435 G7	AMD	Intel
14	Asus TUF Gaming A17	NVIDIA	AMD
15	Acer Aspire 5	NVIDIA	Intel
17	MSI GS76 Stealth	NVIDIA	Intel
19	LG Gram 16	AMD	Intel
20	Sony VAIO FE	NVIDIA	Intel
21	Dell XPS 13	NVIDIA	Intel
23	Lenovo Yoga 9i	AMD	Intel
24	Asus ROG Strix G17	NVIDIA	Intel
25	Acer Swift 5	NVIDIA	Intel
27	MSI GE76 Raider	NVIDIA	Intel
28	Samsung Galaxy Book Pro 360	AMD	Intel
29	LG Gram 14	NVIDIA	Intel
30	Sony Vaio FE	NVIDIA	Intel
31	Dell G5 15	NVIDIA	AMD

14	Description of query: Laptop with the highest total sales in each brand. Objective of query: This query helps optimize product strategies and focus on popular brands and models. The company can allocate resources, marketing efforts, and inventory management to capitalize on successful models.

```
SELECT b.Name AS BrandName, l.Model AS LaptopModel, SUM(oq.Quantity) AS TotalSales FROM Brand b JOIN Laptop l ON b.BrandID = l.BrandID JOIN
OrderQuantity oq ON l.LaptopID = oq.LaptopID GROUP BY b.BrandID, l.LaptopID HAVING SUM(oq.Quantity) = ( SELECT MAX(TotalSalesPerBrand) FROM (
SELECT l.BrandID, SUM(oq.Quantity) AS TotalSalesPerBrand FROM Laptop l JOIN OrderQuantity oq ON l.LaptopID = oq.LaptopID GROUP BY l.BrandID ) AS
BrandSales WHERE BrandSales.BrandID = b.BrandID ) ORDER BY BrandName;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

BrandName ▲ 1	LaptopModel	TotalSales
Asus	Asus ROG Zephyrus	41
Dell	Dell XPS 15	16

15	Description of query: Customers based on their locations, including city, province, and country.

	Objective of query: By understanding customer locations, the company can optimize its marketing campaigns. It can target regions with high customer concentrations for localized promotions, events, or partnerships. Additionally, regions with low customer concentrations can be targeted for expansion efforts to increase brand awareness and customer acquisition.

Showing rows 0 – 7 (8 total, Query took 0.0001 seconds.)

```
SELECT City, Province, Country, COUNT(CustomerID) AS CustomerCount FROM Customer GROUP BY City, Province, Country ORDER BY CustomerCount DESC;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

Extra options

City	Province	Country	CustomerCount ▾ 1
Quebec City	Quebec	Canada	10
Montreal	Quebec	Canada	7
Calgary	Alberta	Canada	5
Ottawa	Ontario	Canada	4
Toronto	Ontario	Canada	4
Vancouver	British Columbia	Canada	4
Edmonton	Alberta	Canada	4
Winnipeg	Manitoba	Canada	2

16	Description of query: Laptops with the Highest Number of Orders in the Year with the Lowest Total Sales. Objective of query: The company gains insights into resilient and sought-after products. This information can guide promotional efforts, discounts, or marketing campaigns to boost sales during tough periods.

Showing rows 0 – 9 (10 total, Query took 0.0008 seconds.)

```
SELECT l.LaptopID, l.Model, l.Yearz, SUM(q.Quantity) AS TotalOrders, MIN(YEAR(ot.Datez)) AS YearWithLowestSales FROM Laptop l JOIN OrderQuantity
q ON l.LaptopID = q.LaptopID JOIN OrderTable ot ON q.OrderID = ot.OrderID GROUP BY l.LaptopID, l.Model, l.Yearz HAVING MIN(YEAR(ot.Datez)) = (
SELECT MIN(YEAR(Datez)) FROM OrderTable );
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

Extra options

LaptopID	Model	Yearz	TotalOrders	YearWithLowestSales
1	Dell XPS 15	2021	16	2020
5	Asus ROG Zephyrus	2021	41	2020
10	Sony VAIO Z	2023	66	2020
15	Acer Aspire 5	2020	30	2020
20	Sony VAIO FE	2022	57	2020
25	Acer Swift 5	2022	13	2020
30	Sony Vaio FE	2023	91	2020
35	Acer Nitro 5	2022	39	2020
40	Sony Vaio FE	2021	117	2020
45	Acer Aspire 5	2023	26	2020

17	Description of query: Number of laptops sold each year.

	Objective of query: This query helps the company analyze sales trends, demand fluctuations and market growth, aiming in resource allocation and production planning.

Showing rows 0 – 3 (4 total, Query took 0.0001 seconds.)

```
SELECT YEAR(Datez) AS SalesYear, COUNT(DISTINCT LaptopID) AS NumberOfLaptopsSold FROM OrderTable ot JOIN OrderQuantity oq ON ot.OrderID =
oq.OrderID GROUP BY SalesYear ORDER BY SalesYear;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

Extra options

SalesYear ▲ 1	NumberOfLaptopsSold
2020	10
2021	10
2022	10
2023	5

18	Description of query: Orders with quantity higher than the average order quantity. Objective of query: It allows the company to segment high-value customers for targeted marketing. It also enables the design of loyalty programs or incentives to encourage repeat purchases from these valuable customers.

Showing rows 0 – 24 (54 total, Query took 0.0002 seconds.) [OrderID: 3... – 23...]

```
SELECT o.OrderID, o.Datez, o.CustomerID, oq.Quantity FROM OrderTable o JOIN OrderQuantity oq ON o.OrderID = oq.OrderID WHERE oq.Quantity >
(SELECT AVG(Quantity) FROM OrderQuantity) ORDER BY o.OrderID;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

1 > >> Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

OrderID ▲ 1	Datez	CustomerID	Quantity
3	2022-05-28	5	5
3	2022-05-28	5	5
3	2022-05-28	5	5
5	2021-02-17	12	4
5	2021-02-17	12	4
5	2021-02-17	12	4
7	2020-11-29	18	7
7	2020-11-29	18	7
7	2020-11-29	18	7
9	2022-06-15	24	9
9	2022-06-15	24	9
9	2022-06-15	24	9
13	2020-12-16	36	5
13	2020-12-16	36	5

13	2020-12-16	36	5
13	2020-12-16	36	5
15	2022-07-03	32	4
15	2022-07-03	32	4
15	2022-07-03	32	4
17	2021-01-28	7	7
17	2021-01-28	7	7
17	2021-01-28	7	7
19	2020-11-15	13	9
19	2020-11-15	13	9
19	2020-11-15	13	9
23	2021-07-06	29	5

1 > >> Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

19	Description of query: Laptops with price above average and orders below average. Objective of query: This query enables the company to adjust pricing strategies, improve product features, or create targeted marketing campaigns to increase the visibility and desirability of these laptops

Showing rows 0 – 0 (1 total, Query took 0.0008 seconds.) [LaptopID: 1... – 1...]

```
SELECT l.LaptopID, l.Model, l.Price, AVG(oq.Quantity * l.Price) AS AvgOrderTotalPrice FROM Laptop l JOIN OrderQuantity oq ON l.LaptopID =
oq.LaptopID GROUP BY l.LaptopID, l.Model, l.Price HAVING l.Price > (SELECT AVG(Price) FROM Laptop) AND AVG(oq.Quantity * l.Price) < (SELECT
AVG(Quantity * Price) FROM OrderQuantity) ORDER BY l.LaptopID;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

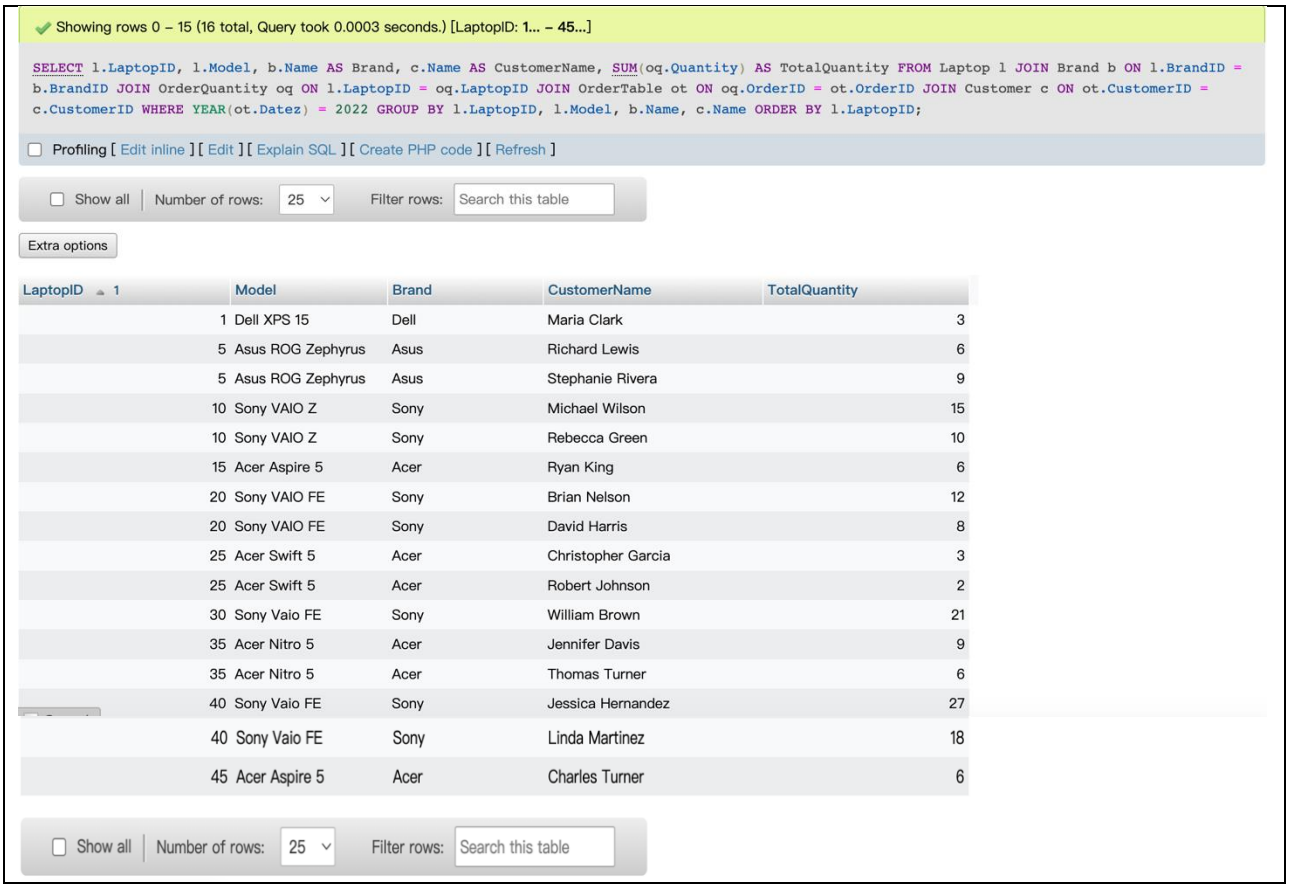
Show all Number of rows: 25 Filter rows: Search this table

Extra options

LaptopID	Model	Price	AvgOrderTotalPrice
1	Dell XPS 15	1999.99	2285.702857

Show all Number of rows: 25 Filter rows: Search this table

20	Description of query: Retrieve the laptops with their respective brands and customer names for orders placed in 2022, along with the total quantity of each laptop ordered. Objective of query: This query assists in evaluating the success of marketing campaigns, understanding customer preferences for that year, and planning for future inventory needs.



Showing rows 0 – 15 (16 total, Query took 0.0003 seconds.) [LaptopID: 1... – 45...]

```
SELECT l.LaptopID, l.Model, b.Name AS Brand, c.Name AS CustomerName, SUM(oq.Quantity) AS TotalQuantity FROM Laptop l JOIN Brand b ON l.BrandID =
b.BrandID JOIN OrderQuantity oq ON l.LaptopID = oq.LaptopID JOIN OrderTable ot ON oq.OrderID = ot.OrderID JOIN Customer c ON ot.CustomerID =
c.CustomerID WHERE YEAR(ot.Datez) = 2022 GROUP BY l.LaptopID, l.Model, b.Name, c.Name ORDER BY l.LaptopID;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

Extra options

LaptopID ▲ 1	Model	Brand	CustomerName	TotalQuantity
1	Dell XPS 15	Dell	Maria Clark	3
5	Asus ROG Zephyrus	Asus	Richard Lewis	6
5	Asus ROG Zephyrus	Asus	Stephanie Rivera	9
10	Sony VAIO Z	Sony	Michael Wilson	15
10	Sony VAIO Z	Sony	Rebecca Green	10
15	Acer Aspire 5	Acer	Ryan King	6
20	Sony VAIO FE	Sony	Brian Nelson	12
20	Sony VAIO FE	Sony	David Harris	8
25	Acer Swift 5	Acer	Christopher Garcia	3
25	Acer Swift 5	Acer	Robert Johnson	2
30	Sony Vaio FE	Sony	William Brown	21
35	Acer Nitro 5	Acer	Jennifer Davis	9
35	Acer Nitro 5	Acer	Thomas Turner	6
40	Sony Vaio FE	Sony	Jessica Hernandez	27
40	Sony Vaio FE	Sony	Linda Martinez	18
45	Acer Aspire 5	Acer	Charles Turner	6

Show all | Number of rows: 25 Filter rows: Search this table