ANALYZE DATA IN A MODEL CAR DATABASE WITH MYSQL WORKBENCH

Project scenario:

Mint Classics Company, a retailer of classic model cars and other vehicles, is looking at closing one of their storage facilities.

To support a data-based business decision, they are looking for suggestions and recommendations for reorganizing or reducing inventory, while still maintaining timely service to their customers. For example, they would like to be able to ship a product to a customer within 24 hours of the order being placed.

Skills demonstrated:

- Imported an existing database using MySQL Workbench.
- Familiarized with a business and its data by reviewing a relational model diagram and exploring tables of data in MySQL Workbench.
- Analyzed inventory data using SQL queries in MySQL Workbench that retrieve data from a multiple-table relational database using SQL commands such as: select, order by, where, group by, and having.
- Developed recommendations and suggestions for solving a business need/problem based on data analysis.
- Recommendations and suggestions for inventory reduction in the form of scripted queries.

Tools used:

MySQL Workbench, SQL queries, Mint classics database file.

Conclusion:

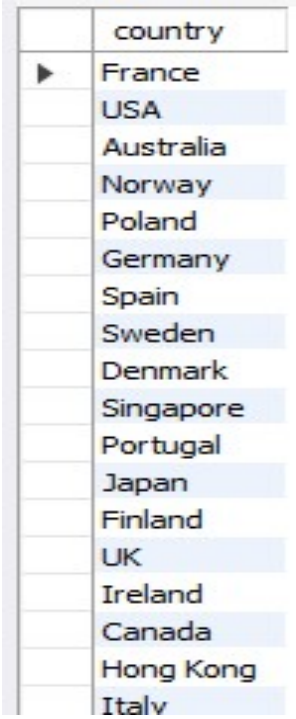
- We can reduce the products whose estimated prices are low .
- We can reduce the productline train which has the lowest sales from 2003-2005.
- Trains product line has the minimum number of products which is 3.
- In my opinion, there is no need to close warehouse.

Solution:

Q1. Which countries are the customers of Mint classics located in ?

```
select  distinct country from customers;
```

List of countries where customers are located(27 in total).



	country
▶	France
	USA
	Australia
	Norway
	Poland
	Germany
	Spain
	Sweden
	Denmark
	Singapore
	Portugal
	Japan
	Finland
	UK
	Ireland
	Canada
	Hong Kong
	Italy

Q2. Which country has the highest number of orders between 2003 and 2005?

```
select country, count(country) as countC
from orders o
join customers c
on o.customerNumber = c.customerNumber
group by country
order by countC desc;
```

The USA topped the list with 112 orders from 2003 to 2005.

	country	countC
▶	USA	112
	France	37
	Spain	36
	Australia	19
	New Zealand	15
	UK	13
	Italy	10
	Norway	9
	Singapore	9
	Finland	9
	Germany	7
	Sweden	7
	Denmark	7
	Canada	7
	Belgium	7
	Austria	7
	Japan	6
	Philippines	3
	Ireland	2
	Hong Kong	2

Q3. What is the hierarchy of the company's employees and how can an organizational chart be generated?

```
select e.employeeNumber,
concat(e.firstName,' ',e.lastName) as Employee_Name,
concat(s.firstName,' ',s.lastName) as Supervisor_Name
from employees e
join employees s
on e.reportsTo = s.employeeNumber;
```

	employeeNumber	Employee_Name	Supervisor_Name
▶	1056	Mary Patterson	Diane Murphy
	1076	Jeff Firrelli	Diane Murphy
	1088	William Patterson	Mary Patterson
	1102	Gerard Bondur	Mary Patterson
	1143	Anthony Bow	Mary Patterson
	1165	Leslie Jennings	Anthony Bow
	1166	Leslie Thompson	Anthony Bow
	1188	Julie Firrelli	Anthony Bow
	1216	Steve Patterson	Anthony Bow
	1286	Foon Yue Tseng	Anthony Bow
	1323	George Vanauf	Anthony Bow
	1337	Loui Bondur	Gerard Bondur
	1370	Gerard Hernandez	Gerard Bondur
	1401	Pamela Castillo	Gerard Bondur
	1501	Larry Bott	Gerard Bondur
	1504	Barry Jones	Gerard Bondur

Q4. What countries are the company branches situated in and which employee(s) work there?

```
select e.employeeNumber, e.firstName, e.lastName, e.jobTitle,
o.city,o.addressLine1 as address, o.state, o.country
from employees e
join offices o
on e.officeCode = o.officeCode
order by employeeNumber;
```

employeeNumber	firstName	lastName	jobTitle	city	address	state	country
1002	Diane	Murphy	President	San Francisco	100 Market Street	CA	USA
1056	Mary	Patterson	VP Sales	San Francisco	100 Market Street	CA	USA
1076	Jeff	Firrelli	VP Marketing	San Francisco	100 Market Street	CA	USA
1088	William	Patterson	Sales Manager (APAC)	Sydney	5-11 Wentworth Avenue	NULL	Australia
1102	Gerard	Bondur	Sale Manager (EMEA)	Paris	43 Rue Jouffroy D'abbans	NULL	France
1143	Anthony	Bow	Sales Manager (NA)	San Francisco	100 Market Street	CA	USA
1165	Leslie	Jennings	Sales Rep	San Francisco	100 Market Street	CA	USA
1166	Leslie	Thompson	Sales Rep	San Francisco	100 Market Street	CA	USA
1188	Julie	Firrelli	Sales Rep	Boston	1550 Court Place	MA	USA
1216	Steve	Patterson	Sales Rep	Boston	1550 Court Place	MA	USA
1286	Foon Yue	Tseng	Sales Rep	NYC	523 East 53rd Street	NY	USA
1323	George	Vanauf	Sales Rep	NYC	523 East 53rd Street	NY	USA
1337	Loui	Bondur	Sales Rep	Paris	43 Rue Jouffroy D'abbans	NULL	France
1370	Gerard	Hernandez	Sales Rep	Paris	43 Rue Jouffroy D'abbans	NULL	France
1401	Pamela	Castillo	Sales Rep	Paris	43 Rue Jouffroy D'abbans	NULL	France
1501	Larry	Bott	Sales Rep	London	25 Old Broad Street	NULL	UK

List of employees, city, state , country and address of where they work.

Q5: What are the list of orders that have been shipped successfully from 2003–2005?

```
select orderNumber, customerNumber, shippedDate, status
from orders
where status = "Shipped"
order by customerNumber;
```

	orderNumber	customerNumber	shippedDate	status
▶	10123	103	2003-05-22	Shipped
	10298	103	2004-10-01	Shipped
	10345	103	2004-11-26	Shipped
	10124	112	2003-05-25	Shipped
	10278	112	2004-08-09	Shipped
	10346	112	2004-11-30	Shipped
	10120	114	2003-05-01	Shipped
	10125	114	2003-05-24	Shipped
	10223	114	2004-02-24	Shipped
	10342	114	2004-11-29	Shipped
	10347	114	2004-11-30	Shipped
	10275	119	2004-07-29	Shipped
	10315	119	2004-10-30	Shipped
	10375	119	2005-02-06	Shipped
	10103	121	2003-02-02	Shipped
	10158	121	2003-10-15	Shipped

List of orders shipped from 2003 to 2005.

Q6: What is the total number of products/orders that have been shipped from 2003–2005?

```
select count(status) as totalShipped

from orders

where status = "Shipped";
```

	totalShipped
▶	303

Total number of shipped products from 2003 to 2005.

Q7: Taking the orders of customers into context, what product(s) did they actually request for?

```
select od.productCode, od.orderNumber,

o.orderDate, od.quantityOrdered,

od.priceEach, p.productName, p.productLine

from orderdetails od

join products p
```

```
using(productCode)
join orders o
using(orderNumber)
order by orderNumber;
```

productCode	orderNumber	orderDate	quantityOrdered	priceEach	productName	productLine
S18_1749	10100	2003-01-06	30	136.00	1917 Grand Touring Sedan	Vintage Cars
S18_2248	10100	2003-01-06	50	55.09	1911 Ford Town Car	Vintage Cars
S18_4409	10100	2003-01-06	22	75.46	1932 Alfa Romeo 8C2300 Spider Sport	Vintage Cars
S24_3969	10100	2003-01-06	49	35.29	1936 Mercedes Benz 500k Roadster	Vintage Cars
S18_2325	10101	2003-01-09	25	108.06	1932 Model A Ford J-Coupe	Vintage Cars
S18_2795	10101	2003-01-09	26	167.06	1928 Mercedes-Benz SSK	Vintage Cars
S24_1937	10101	2003-01-09	45	32.53	1939 Chevrolet Deluxe Coupe	Vintage Cars
S24_2022	10101	2003-01-09	46	44.35	1938 Cadillac V-16 Presidential Limousine	Vintage Cars
S18_1342	10102	2003-01-10	39	95.55	1937 Lincoln Berline	Vintage Cars
S18_1367	10102	2003-01-10	41	43.13	1936 Mercedes-Benz 500K Special Roadster	Vintage Cars
S10_1949	10103	2003-01-29	26	214.30	1952 Alpine Renault 1300	Classic Cars
S10_4962	10103	2003-01-29	42	119.67	1962 LanciaA Delta 16V	Classic Cars

List of Orders from customers

Q8: What is the list of total sales, the total amount of sales and the total number of sales for the year 2003?

- **List of total sales**

```
select customerNumber,
paymentDate, amount
from payments
where paymentDate <= '2003-12-31';
```

customerNumber	paymentDate	amount
103	2003-06-05	14571.44
112	2003-06-06	32641.98
114	2003-05-20	45864.03
114	2003-05-31	7565.08
121	2003-02-16	50218.95
121	2003-10-28	1491.38
124	2003-04-11	11044.30
124	2003-08-15	111654.40
124	2003-11-25	45084.38
128	2003-01-28	10549.01
128	2003-10-18	24101.81
129	2003-12-11	23923.93
129	2003-04-09	16537.85
131	2003-03-12	22292.62
141	2003-07-19	36251.03

- **Total amount of sales**

```
select sum(amount) as totalSum
from payments
where paymentDate <= '2003-12-31';
```

totalSum
3250217.70

- **Total number of sales**

```
select count(customerNumber) as number_of_payments
from payments
where paymentDate <= '2003-12-31';
```

number_of_payments
100

Q9: What is the list of total sales, the total amount of sales and the total number of sales for the year 2004?

- **List of total sales**

```
select customerNumber, paymentDate, amount

from payments

where paymentDate between '2004-01-01' and '2004-12-31';
```

customerNumber	paymentDate	amount
103	2004-10-19	6066.78
103	2004-12-18	1676.14
112	2004-12-17	14191.12
112	2004-08-20	33347.88
114	2004-12-15	82261.22
114	2004-03-10	44894.74
119	2004-11-14	19501.82
119	2004-08-08	47924.19
121	2004-11-04	17876.32
121	2004-11-28	34638.14
124	2004-08-28	85410.87
124	2004-12-27	47142.70
124	2004-11-02	55639.66
124	2004-03-26	43369.30
128	2004-03-24	33820.62

- **Total amount of sales**

```
select sum(amount) as totalSum
from payments
where paymentDate between '2004-01-01' and '2004-12-31';
```

	totalSum
▶	4313328.25

- **Total number of sales**

```
select count(customerNumber) as number_of_payments

from payments

where paymentDate between '2004-01-01' and '2004-12-31';
```

	number_of_payments
▶	136

Q10: What is the list of total sales, the total amount of sales and the total number of sales for the year 2005?

- **List of total sales**

```
select customerNumber, paymentDate, amount

from payments

where paymentDate between '2005-01-01' and '2005-12-31';
```

	customerNumber	paymentDate	amount
▶	119	2005-02-22	49523.67
	124	2005-03-05	101244.59
	124	2005-04-16	83598.04
	141	2005-05-19	46895.48
	141	2005-03-25	65071.26
	141	2005-03-18	120166.58
	148	2005-03-27	3516.04
	161	2005-02-02	12692.19
	175	2005-05-19	28500.78
	186	2005-03-10	23602.90
	205	2005-02-06	39580.60
	209	2005-05-03	35157.75
	219	2005-03-02	3452.75
	233	2005-05-20	29070.38
	242	2005-06-03	12432.32

- **Total amount of sales**

```
select sum(amount) as totalSum
from payments
where paymentDate between '2005-01-01' and '2005-12-31';
```

	totalSum
▶	1290293.28

- **Total number of sales**

```
select count(customerNumber) as number_of_payments
from payments
where paymentDate between '2005-01-01' and '2005-12-31';
```

	number_of_payments
▶	37

Q11: What products are currently in stock, purchase price, sale price and estimated profit?

```
select p.productCode, p.productName, pl.productLine, p.quantityInStock,
p.buyPrice as purchasePrice, p.MSRP as salePrice,
(p.MSRP - p.buyPrice) as estimatedProfit
from products p
join productlines pl
using(productLine)
order by productCode;
```

productCode	productName	productLine	quantityInStock	purchasePrice	salePrice	estimatedProfit
S10_1678	1969 Harley Davidson Ultimate Chopper	Motorcycles	7933	48.81	95.70	46.89
S10_1949	1952 Alpine Renault 1300	Classic Cars	7305	98.58	214.30	115.72
S10_2016	1996 Moto Guzzi 1100i	Motorcycles	6625	68.99	118.94	49.95
S10_4698	2003 Harley-Davidson Eagle Drag Bike	Motorcycles	5582	91.02	193.66	102.64
S10_4757	1972 Alfa Romeo GTA	Classic Cars	3252	85.68	136.00	50.32
S10_4962	1962 LanciaA Delta 16V	Classic Cars	6791	103.42	147.74	44.32
S12_1099	1968 Ford Mustang	Classic Cars	68	95.34	194.57	99.23
S12_1108	2001 Ferrari Enzo	Classic Cars	3619	95.59	207.80	112.21
S12_1666	1958 Setra Bus	Trucks and Buses	1579	77.90	136.67	58.77
S12_2823	2002 Suzuki XREO	Motorcycles	9997	66.27	150.62	84.35
S12_3148	1969 Corvair Monza	Classic Cars	6906	89.14	151.08	61.94
S12_3380	1968 Dodge Charger	Classic Cars	9123	75.16	117.44	42.28
S12_3891	1969 Ford Falcon	Classic Cars	1049	83.05	173.02	89.97
S12_3990	1970 Plymouth Hemi Cuda	Classic Cars	5663	31.92	79.80	47.88
S12_4473	1957 Chevy Pickup	Trucks and Buses	6125	55.70	118.50	62.80

Products in stock, purchase price, sales price and estimated price

Q12: What is the *productline* with the highest orders?

```
select p.productLine, count(od.productCode) as noOfSales
from products p
join orderdetails od
on p.productCode = od.productCode
group by p.productLine
order by noOfSales desc;
```

productLine	noOfSales
Classic Cars	1010
Vintage Cars	657
Motorcycles	359
Planes	336
Trucks and Buses	308
Ships	245
Trains	81

Summary:

- The customers of **Mint classic company** are located in **27 countries.**
- The **U.S.A** has the highest number of orders totaled to **112**, followed by **France (37)** and **Spain (36)**
- The hierarchy of organizational power **(employees and their supervisors)**
- List of *employees*, *city*, *state*, *country* and *address* where they work (company branch)
- List of orders shipped from **2003-2005 (303 in total)**
- Most sales by *productline* with **classic cars** topping the list **(1010 in total)**
- Most sales were made in **2004** with **$4,313,328.25** and **136** by count
- The least sales were made in **2005** with only **$1,290,293.28** and **37** by count
- Total sales recorded from **2003–2005** were **$8,853,839.23.**
