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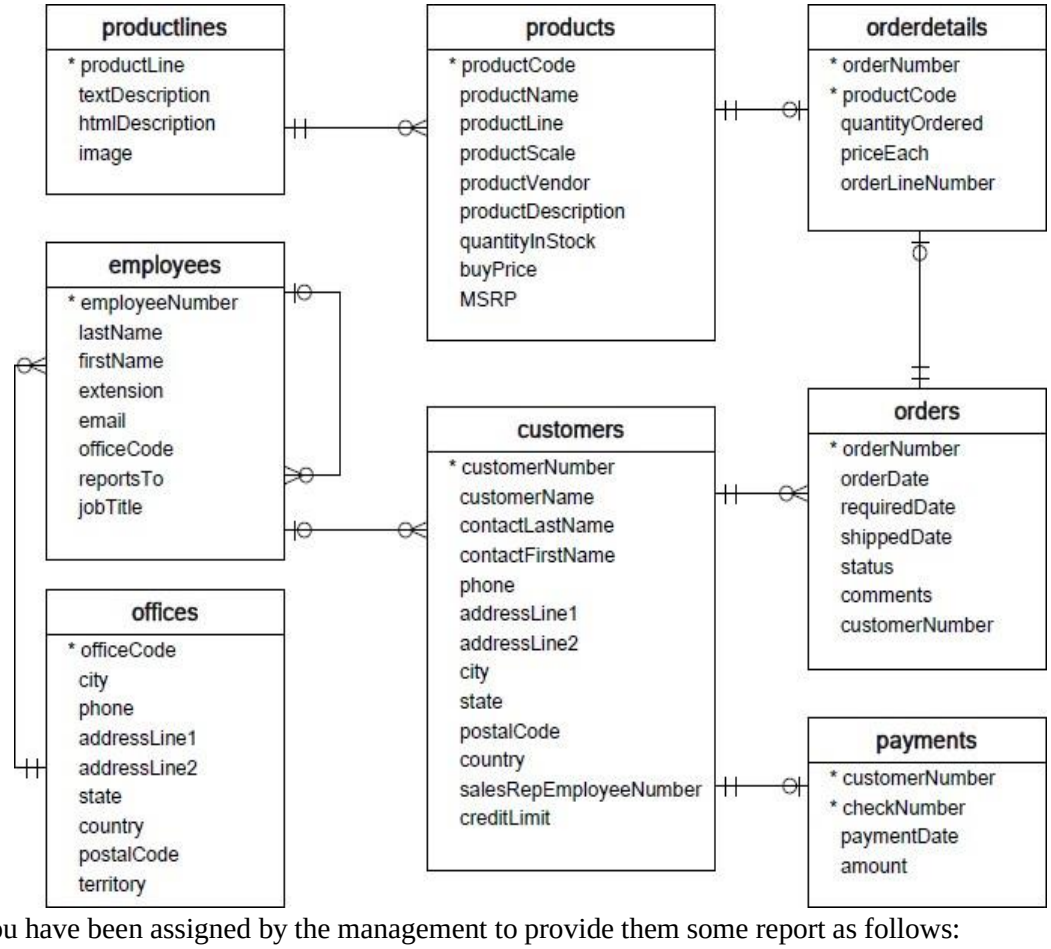
Lab #3 – SQL -Queries with Multiple Tables and advance SQL

1. Download the **databaseexxample.db** from e-learning and run the script. Run the databaseexxample2script. The database schema is as following figure. Do some basic queries in order to explore the data kept in the database.



2. Assume you have been assigned by the management to provide them some report as follows:

a) Count the Number of employees that work in the same city in descending order

```
1   /*2.a) Count the Number of employees that work in the same city in descending order*/
2   SELECT COUNT(employeeNumber) AS Number_of_Employees, o.city AS City
3   FROM employees
4   JOIN offices o ON employees.officeCode = o.officeCode
5   GROUP BY o.city
6   ORDER BY Number_of_Employees DESC;
7
```

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

Number_of_Employees	City
6	San Francisco
5	Paris
4	Sydney
2	Boston
2	NYC
2	Tokyo
2	London

b) Create a view called *staff_office1* that have list of staff in office code 1

```
8   /*2.b) Create a view called staff_office1 that have list of staff in office code 1*/
9   CREATE VIEW staff_office1 AS
10  SELECT  CONCAT(lastName, ',', firstName) AS Name,
11          city AS City, addressLine1 AS Address,
12          country AS Country
13  FROM employees e
14  JOIN offices o ON e.officeCode = o.officeCode
15  WHERE o.officeCode = 1;
16
17  SELECT* FROM staff_office1;
```

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

Name	City	Address	Country
Murphy,Diane	San Francisco	100 Market Street	USA
Patterson,Mary	San Francisco	100 Market Street	USA
Firrelli,Jeff	San Francisco	100 Market Street	USA
Bow,Anthony	San Francisco	100 Market Street	USA
Jennings,Leslie	San Francisco	100 Market Street	USA
Thompson,Leslie	San Francisco	100 Market Street	USA

c) Find the average credit limit of customer.

```
19  /*2.c) Find the average credit limit of customer*/
20  SELECT ROUND(AVG(creditLimit),2) AS Average_CreditLimit
21  FROM customers;
```

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

Average_CreditLimit
67659.02

d) List the customer's name that have credit limit more than average credit limit

```
23      /*2.d) List the customer name that have credit limit more than average credit limit*/
24 •    SELECT customerName AS Customer_Exceed_Avg_CreditLimit, creditLimit
25      FROM customers
26      WHERE creditLimit>67659.02;
27
```

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

Customer_Exceed_Avg_CreditLimit	creditLimit
Signal Gift Stores	71800.00
Australian Collectors, Co.	117300.00
La Rochelle Gifts	118200.00
Baane Mini Imports	81700.00
Mini Gifts Distributors Ltd.	210500.00
Land of Toys Inc.	114900.00
Euro+ Shopping Channel	227600.00
Danish Wholesale Imports	83400.00
Saveley & Henriot, Co.	123900.00
Dragon Souveniers, Ltd.	103800.00
Muscle Machine Inc	138500.00

e) List of customer name served by the sales representative as the following format.

```
28      /*2.e) List of customer name served by the sales representative as the following format*/
29 •    SELECT  c.customerName AS Customer_Name,
30              c.Phone AS Contact,
31              e.firstName AS Salesperson_Name,
32              e.jobTitle AS Position
33      FROM customers c
34      JOIN employees e ON c.salesRepEmployeeNumber = e.employeeNumber
35      WHERE jobTitle = 'Sales Rep';
```

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

Customer_Name	Contact	Salesperson_Name	Position
Mini Gifts Distributors Ltd.	4155551450	Leslie	Sales Rep
Mini Wheels Co.	6505555787	Leslie	Sales Rep
Technics Stores Inc.	6505556809	Leslie	Sales Rep
Corporate Gift Ideas Co.	6505551386	Leslie	Sales Rep
The Sharp Gifts Warehouse	4085553659	Leslie	Sales Rep
Signal Collectibles Ltd.	4155554312	Leslie	Sales Rep
Signal Gift Stores	7025551838	Leslie	Sales Rep
Toys4GrownUps.com	6265557265	Leslie	Sales Rep
Boards & Toys Co.	3105552373	Leslie	Sales Rep
Collectable Mini Designs Co.	7605558146	Leslie	Sales Rep
Men 'R' US Retailers, Ltd.	2155554369	Leslie	Sales Rep

f) Count the number of customers served by each the sales representative in the company

```
37    /*2.f) Count the number of customers served by each the sales representative in the company*/
38    SELECT COUNT(c.customerNumber) AS Number_of_Customer,
39           e.firstName AS Salesperson_Name
40    FROM customers c
41    JOIN employees e ON c.salesRepEmployeeNumber = e.employeeNumber
42    WHERE jobTitle = 'Sales Rep'
43    GROUP BY e.firstName;
```

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

Number_of_Customer	Salesperson_Name
12	Leslie
6	Julie
6	Steve
7	Foon Yue
8	George
6	Loui
7	Gerard
10	Pamela
8	Larry
9	Barry
5	Andy
5	Peter

g) List the sales person that serve more than 10 customers

```
45    /*2.g) List the sales person that serve more than 10 customers*/
46    CREATE VIEW Customer_by_SalesRep AS
47    (SELECT COUNT(c.customerNumber) AS Number_of_Customer,
48           e.firstName AS Salesperson_Name
49    FROM customers c
50    JOIN employees e ON c.salesRepEmployeeNumber = e.employeeNumber
51    WHERE jobTitle = 'Sales Rep'
52    GROUP BY e.firstName);
53
54    SELECT Salesperson_Name AS SalesPerson_Exceed_10Customer
55    FROM Customer_by_SalesRep
56    WHERE Number_of_Customer>10;
```

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

SalesPerson_Exceed_10Customer
Leslie

h) Find the payment made by customer named Atelier graphique

```
58      /*2.h) Find the payment made by customer named Atelier graphique*/
59      SELECT  c.customerName AS 'Customer Name',
60              p.checkNumber AS 'Cheque Number',
61              p.paymentDate AS Date,
62              p.amount AS Amount
63      FROM customers c
64      JOIN payments p ON c.customerNumber = p.customerNumber
65      WHERE c.customerName = 'Atelier graphique ';
```

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

Customer Name	Cheque Number	Date	Amount
Atelier graphique	HQ336336	2004-10-19	6066.78
Atelier graphique	JM555205	2003-06-05	14571.44
Atelier graphique	OM314933	2004-12-18	1676.14

i) Find the monthly quantity order by each product according to the following format.
(hint : use function month(date), year date in SQL),

```
67      /*2.i) Find the monthly quantity order by each product*/
68      SELECT p.productName AS Product_Name,
69          SUM(od.quantityOrdered) AS Quantity_Ordered,
70          MONTH(os.orderDate) AS Month_sale,
71          YEAR(os.orderDate) AS Year_sale
72      FROM products p
73      JOIN orderdetails od ON p.productCode = od.productCode
74      JOIN orders os ON od.orderNumber = os.orderNumber
75      WHERE YEAR(os.orderDate) IN (2003, 2004, 2005)
76      GROUP BY p.productCode, MONTH(os.orderDate);
```

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

Product_Name	Quantity_Ordered	Month_sale	Year_sale
1917 Grand Touring Sedan	97	1	2003
1911 Ford Town Car	116	1	2003
1932 Alfa Romeo 8C2300 Spider Sport	103	1	2003
1936 Mercedes Benz 500k Roadster	139	1	2003
1932 Model A Ford J-Coupe	79	1	2003
1928 Mercedes-Benz SSK	108	1	2003
1939 Chevrolet Deluxe Coupe	88	1	2003
1938 Cadillac V-16 Presidential Limousine	123	1	2003
1937 Lincoln Berline	110	1	2003

j) Assuming attribute **MSRP** in **products table** is the sales price of each product. List the product that have profit >50

```
78  /*2.j) Assuming attribute MSRP in products table is the sales price of each product*/
79  /*List the product that have profit >50*/
80  SELECT DISTINCT p.productName AS Product_Name,
81      (p.MSRP - p.buyPrice) AS Profit_Per_Unit
82  FROM products p
83  JOIN orderdetails od ON p.productCode = od.productCode
84  JOIN orders os ON od.orderNumber = os.orderNumber
85  WHERE (p.MSRP - p.buyPrice) > 50;
```

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

Product_Name	Profit_Per_Unit
1952 Alpine Renault 1300	115.72
2003 Harley-Davidson Eagle Drag Bike	102.64
1972 Alfa Romeo GTA	50.32
1968 Ford Mustang	99.23
2001 Ferrari Enzo	112.21
1958 Setra Bus	58.77
2002 Suzuki XREO	84.35
1969 Corvair Monza	61.94
1969 Ford Falcon	89.97
1957 Chevy Pickup	62.80
1969 Dodge Charger	56.43

k) The management want to send the invoice with total amount (calculate based quantiy order * price) for each order to customer as follows

```
87  /*2.k) The management want to send the invoice with total amount*/
88  /*(calculate based quantiy order * price) for each order to customer*/
89  SELECT c.customerName AS 'Customer Name',
90      os.orderNumber AS 'Order Number',
91      SUM(od.priceEach * od.quantityOrdered) AS 'Total Amount'
92  FROM orders os
93  JOIN orderdetails od ON os.orderNumber = od.orderNumber
94  JOIN customers c ON os.customerNumber = c.customerNumber
95  GROUP BY c.customerName, os.orderNumber;
```

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

Customer Name	Order Number	Total Amount
Atelier graphique	10123	14571.44
Atelier graphique	10298	6066.78
Atelier graphique	10345	1676.14
Signal Gift Stores	10124	32641.98
Signal Gift Stores	10278	33347.88
Signal Gift Stores	10346	14191.12
Australian Collectors, Co.	10120	45864.03
Australian Collectors, Co.	10125	7565.08
Australian Collectors, Co.	10223	44894.74

l) Find the subtotal of quantity in stock for each product line according to product vendor

```
97      /*2.l) Find the subtotal of quantity in stock for each*/
98      /*product line according to product vendor*/
99      SELECT productLine AS Line,
100         productVendor AS Vendor,
101         SUM(quantityInStock) AS Stock
102     FROM products
103     GROUP BY productLine, productVendor
```

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

Line	Vendor	Stock
Classic Cars	Autoart Studio Design	68
Classic Cars	Carousel DieCast Legends	17673
Classic Cars	Classic Metal Creations	34415
Classic Cars	Exoto Designs	12729
Classic Cars	Gearbox Collectibles	41113
Classic Cars	Highway 66 Mini Classics	15782
Classic Cars	Min Lin Diecast	17234
Classic Cars	Motor City Art Classics	3252
Classic Cars	Red Start Diecast	8164
Classic Cars	Second Gear Diecast	19182
Classic Cars	Studio M Art Models	8872
Classic Cars	Unimax Art Galleries	9352

m) Rank the Product *buyPrice* according to the vendor

```
106     /*2.m) Rank the Product buyPrice according to the vendor*/
107     SELECT productVendor AS Vendor, productName, buyPrice,
108            RANK() OVER (PARTITION BY productVendor ORDER BY buyPrice) AS Price_Rank
109     FROM products
110     ORDER BY productVendor, buyPrice;
```

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

Vendor	productName	buyPrice	Price_Rank
Autoart Studio Design	1937 Horch 930V Limousine	26.30	1
Autoart Studio Design	The Schooner Bluenose	34.00	2
Autoart Studio Design	2002 Yamaha YZR M1	34.17	3
Autoart Studio Design	1900s Vintage Bi-Plane	34.25	4
Autoart Studio Design	1932 Model A Ford J-Coupe	58.48	5
Autoart Studio Design	1997 BMW R 1100 S	60.86	6
Autoart Studio Design	1962 Volkswagen Microbus	61.34	7
Autoart Studio Design	1968 Ford Mustang	95.34	8
Carousel DieCast Legends	1958 Chevy Corvette Limited Edition	15.91	1
Carousel DieCast Legends	1926 Ford Fire Engine	24.92	2
Carousel DieCast Legends	1966 Shelby Cobra 427 S/C	29.18	3
Carousel DieCast Legends	1982 Camaro Z28	46.53	4
Carousel DieCast Legends	1940 Ford Delivery Sedan	48.64	5
Carousel DieCast Legends	The Titanic	51.09	6
Carousel DieCast Legends	1913 Ford Model T Speedster	60.78	7