# ITCS393 Database Systems Lab

## Lab05: Aggregation, `GROUP BY`, `HAVING`

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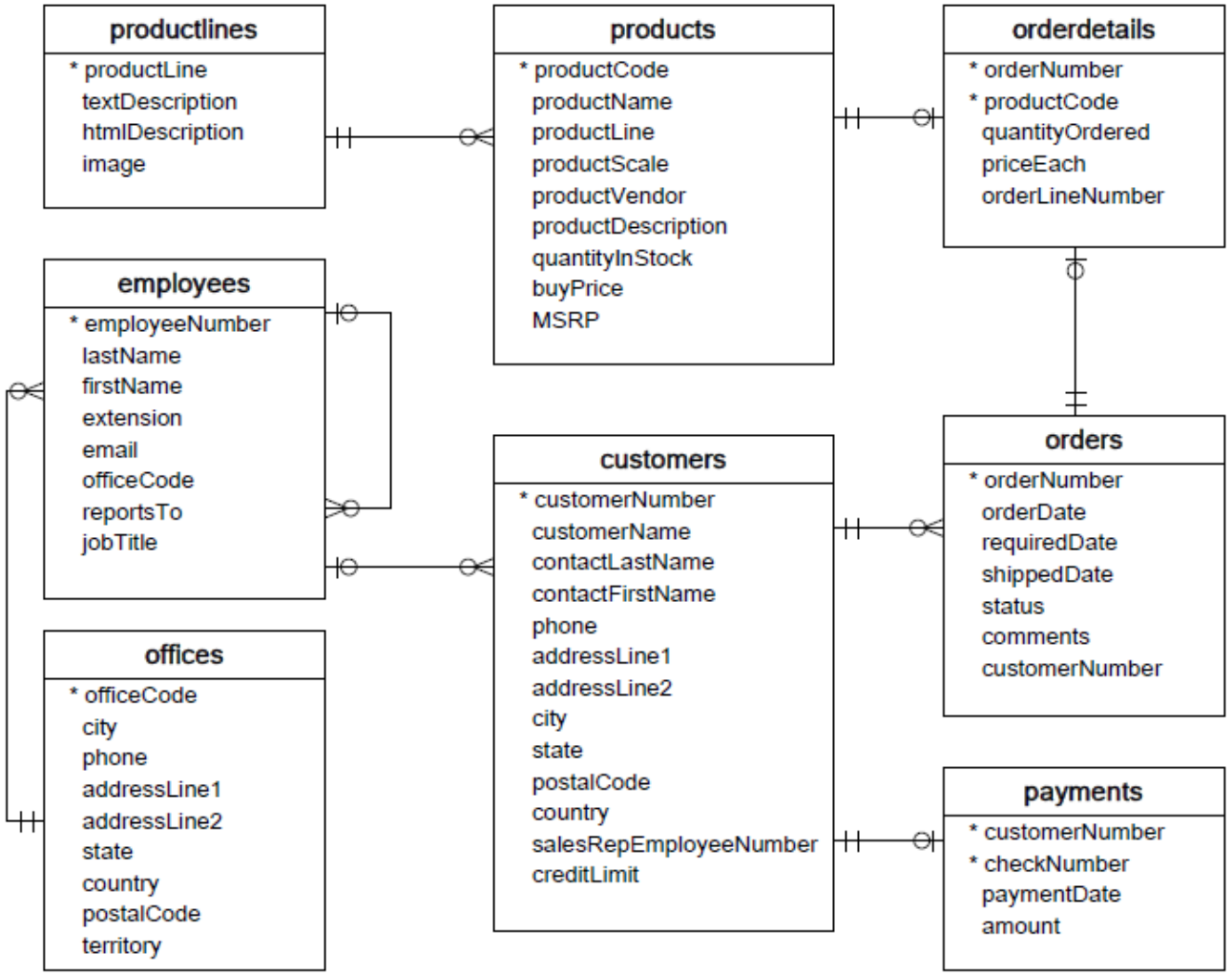
# Database: classicmodels




- **Customers**: stores customer's data.
- **Products**: stores a list of scale model cars.
- **ProductLines**: stores a list of product line categories.
- **Orders**: stores sales orders placed by customers.
- **OrderDetails**: stores sales order line items for each sales order.
- **Payments**: stores payments made by customers based on their accounts.
- **Employees**: stores all employee information as well as the organization structure such as who reports to whom.
- **Offices**: stores sales office data.

Original ERD and SQL from https://www.mysqltutorial.org/mysql-sample-database.aspx

# Lab 5 Instruction

Use "classicmodel" to answer the following the queries:
Please put your answers in the given answer sheet (.sql)

1. How many customers are located in NYC?

   Expected: 1 row, 1 column

| NYC Customers |
| --- |
| 5 |

2. What is the average *amount* of the payment and the standard deviation of the payments occurred in the third quarter of the year?
   Note: Third quarter of every year is from 1 July – 30 September

   Expected: 1 row, 2 columns

| avgPayment | stdPaymnet |
| --- | --- |
| 30,988.90 | 21,070.21 |

# Lab 5 Instruction

3. How many limited company customers that are under the responsibility of the sale representative named, '*Leslie Jennings*'

   Note: 'Ltd.' used in the name of a company indicates a limited company

   Expected: 1 row, 1 column

| numLtdComp |
| --- |
| 2 |

4. Show the number of offices located in each country, ordered by country names

   Expected: 5 rows, 2 columns

| country | numOffices |
| --- | --- |
| Australia | 1 |
| France | 1 |
| Japan | 1 |
| UK | 1 |
| USA | 3 |

# Lab 5 Instruction

5. List all sale managers (employee number, full name, job title) and their subordinate sale representatives under their supervision.

   Note: The attribute 'reportsTo' shows the recursive relationship. The value indicates the employee number of their manager that he/she reports to.

   Expected: 3 rows, 4 columns

| employeeNumber | fullname | jobtitle | numSubEmp |
|---|---|---|---|
| 1088 | William Patterson | Sales Manager (APAC) | 3 |
| 1102 | Gerard Bondur | Sale Manager (EMEA) | 6 |
| 1143 | Anthony Bow | Sales Manager (NA) | 6 |

# Lab 5 Instruction

6. Calculate the average of the *price difference* between 'MSRP' and 'buyPrice' of each product line. The result must include the name of the product line and the average of price difference, sorted from the highest to lowest difference value.

   Note: The manufacturer's suggested retail price (MSRP) is the price that a product's manufacturer recommends it be sold for at the point of sale.

   Expected: 7 rows, 2 columns

| productLine | avgDiff |
|---|---|
| Classic Cars | 53.57 |
| Trucks and Buses | 46.85 |
| Motorcycles | 46.49 |
| Vintage Cars | 41.03 |
| Planes | 39.89 |
| Ships | 39.56 |
| Trains | 29.93 |

# Lab 5 Instruction

7. Show the list of the product lines that have the number of the products at least 10 but not more than 20 products.

   The result must include the *name* of the product line, the total numbers of the products and the range of MSRP per product line, sorted by the name of product line

   Note: The range of MSRP is calculated from the difference of the maximum and the minimum MSRP value

   Expected: 3 rows, 3 columns

| productLine | numProd | rangeMSRP |
|---|---|---|
| Motorcycles | 13 | 153.43 |
| Planes | 12 | 108.03 |
| Trucks and Buses | 11 | 82.56 |

# Lab 5 Instruction

8. Show the top 3 most sold product (judged by the total number of quantity ordered) of the 'Ships' product line.

   The result must include the product code, the product name, the total number of quantity ordered, and the total amount of sales (calculated by the quantity ordered multiplied by the price)

Expected: 3 rows, 4 columns

| productCode | productName | totalQuantity | totalSales |
|---|---|---|---|
| S700_2610 | The USS Constitution Ship | 1020 | 66697.13 |
| S24_2011 | 18th century schooner | 1011 | 112427.12 |
| S18_3029 | 1999 Yamaha Speed Boat | 966 | 74127.24 |

# Lab 5 Submission

- Put your name and ID in the comment
- Submit your SQL file in MyCourses, renamed as `L05grYidxx88xxx.sql`
  - `Y` is your study Group
  - `xx88xxx` is your student ID