

Advanced SQL queries

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Basic SQL queries

Basic SQL queries

1. Given table products select all products and order them from the most expensive to less expensive
2. From the products table – select all product names and prices
3. Find the product with id = 12. Don't forget to stop the querying after the result is found!
4. Find the 5 most expensive products
5. Find the 3 less caloric products



Agregate functions

Agregate functions

Agregate functions

1. An aggregate function performs a calculation on a set of values, and returns a single value. Except for COUNT(*), aggregate functions ignore null values.
2. Aggregate functions are often used with the **GROUP BY** clause of the **SELECT** statement.



Agregate functions examples

Aggregate functions - examples

COUNT – returns the records in a given table. Often used with a WHERE clause...

```
SELECT COUNT(*) FROM table_name;
```


Agregate functions - task

1. Count the records in the products table
2. Count the records in the units table
3. Count the records that are some kind of milk present in the products table
4. Count the records that are some kind of juice from the products table

GROUP BY statement - examples

GROUP BY – statement,
groups rows that have the same values into summary rows, like "find the number of customers in each country".

```
SELECT column_name(s)
FROM table_name
WHERE condition /optional/
GROUP BY column_name(s)
ORDER BY column_name(s) /optional/
```

GROUP BY statement - examples

Below is a selection from the "Customers" table in the Northwind sample database:

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK
5	Berglunds snabbköp	Christina Berglund	Berguvsvägen 8	Luleå	S-958 22	Sweden

GROUP BY statement - examples

The following SQL statement lists the number of customers in each country

```
SELECT COUNT(CustomerID), Country  
FROM Customers  
GROUP BY Country;
```

Aggregate functions - examples

AVG – returns the average value of the column in parenthesis

```
SELECT AVG(column_name) FROM table_name
```

```
SELECT AVG(column_name) FROM table_name GROUP BY column_name
```


Agregate functions - task

AVG

1. Find the average value of product calories of the products in the database
2. Find the average value of products` price
3. Find the average price of the products that are some kind of milk
4. Find the average calories of the products that have price lower than 10
5. Find the average value of product calories grouping the products by their price
6. Find the average value of product price groping the products by their calories

Aggregate functions - examples

MAX – returns the max value of a given table column. Can be combined with a WHERE clause.

```
SELECT MAX(column_name) FROM table_name
```

Agregate functions - task

1. Find the product with the highest calories value
2. Find the most expensive product
3. Find the most expensive product with calories value less than 100

Aggregate functions - examples

MIN – returns the lowest value of the records in a given table column.

Also can be combined with a WHERE clause.

```
SELECT MIN(column_name) FROM table_name;
```


Agregate functions - task

1. Find the product with the lowest calories value
2. Find the least expensive product
3. Find the least expensive product with calories value more than 100

Aggregate functions - examples

SUM – returns the sum of the values of the records in a given table column.

```
SELECT SUM(column_name) FROM table_name
```

- Can be used with a WHERE clause
- **Can be used with a GROUP BY ...**



WHERE
in
clause

WHERE IN clause

WHERE IN ...

Used to specify multiple possible values for a column to filter result of a SQL query.

WHERE IN ...

Find the products that belong to one specific category

```
SELECT * FROM products  
WHERE category_id = 2
```

Find the products that belong **TO MORE THAN ONE** specific category

```
SELECT * FROM products  
WHERE category_id IN (2, 3)
```



Advanced SQL queries

Advanced SQL queries

1. Find the products that have price higher than the average product price from the records in the products table
2. Find the products with lower calories value than the average calories of the products in the database

Questions?



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