# Lab: Data Aggregation

This document defines the **lab** **exercise assignments** for the [PostgreSQL course @ Software University.](https://softuni.bg/trainings/4244/postgresql-september-2023)

Submit your solutions in the [SoftUni Judge System](https://judge.softuni.org/Contests/4106/Data-Aggregation-Lab).

Create a database **restaurant**. Download and import the file **restaurant.sql**. Get familiar with the **restaurant** database and its **tables**. You will use them in the following assignments. Focus on table **employees**.

## Departments Info (by id)

Write a query to **count** the number of employees **in each department by** id. Order the information by department\_id. Submit your queries.

### Example

|  |  |
| --- | --- |
| **department\_id** | **employee\_count** |
| 1 | 2 |
| 2 | 4 |
| 3 | 4 |
| 4 | 1 |

## Departments Info (by salary)

Write a query to **count** the number of employees **in each department by** salary. Order the information by department\_id. Submit your queries.

Note, the **NULL** values for salary will be **ignored**.

### Example

|  |  |
| --- | --- |
| **department\_id** | **employee\_count** |
| 1 | 2 |
| 2 | 4 |
| 3 | 2 |
| 4 | 0 |

## Sum Salaries per Department

Write a query to **sum** the salaries of employees **in each department**. Order the information by department\_id. Submit your queries.

### Example

|  |  |
| --- | --- |
| **department\_id** | **total\_salaries** |
| 1 | 4100.00 |
| 2 | 4360.00 |
| 3 | 1430.00 |
| 4 | NULL |

## Maximum Salary per Department

Write a query to retrieve information about the departments grouped by department\_id with their **maximum salary**. Order the information by department\_id. Submit your queries.

### Example

|  |  |
| --- | --- |
| **department\_id** | **max\_salary** |
| 1 | 2400.00 |
| 2 | 1350.00 |
| 3 | 780.00 |
| 4 | NULL |

## Minimum Salary per Department

Write a query to retrieve information about the departments grouped by department\_id with their **minimum salary**. Order the information by department\_id.

Submit your queries.

### Example

|  |  |
| --- | --- |
| **department\_id** | **min\_salary** |
| 1 | 1700.00 |
| 2 | 780.00 |
| 3 | 650.00 |
| 4 | NULL |

## Average Salary per Department

Write a query to calculate the **average salary** in each department. Order the information by department\_id. Submit your queries.

### Example

|  |  |
| --- | --- |
| **department\_id** | **avg\_salary** |
| 1 | 2050.0000000000000000 |
| 2 | 1090.0000000000000000 |
| 3 | 715.0000000000000000 |
| 4 | NULL |

## Filter Total Salaries

Write a query to filter the **total salary** per department, where the **total salary** is **less than 4200**. Submit your queries, ordered by **department\_id**.

|  |  |
| --- | --- |
| **department\_id** | **Total Salary** |
| 1 | 4100.00 |
| 3 | 1430.00 |

## Department Names

Write a query to retrieve information from table **employees** about the **department names,** according to **department\_id**. The output should have the following fields:

* **id** of the employee
* **first\_name**
* **last\_name**
* **salary** – formatted to the second decimal place.
* **department\_id**
* **department\_name** – use **Simple CASE Expression**
  + **1 – "Management"**
  + **2 – "Kitchen Staff"**
  + **3 – "Service Staff"**
  + **any other number – "Other"**

See the **examples** for more information. **Format** the salary to **2 digits after the decimal point**. Submit your queries, ordered by employee **id**.

### Example

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **id** | **first\_name** | **last\_name** | **salary** | **department\_id** | **department\_name** |
| 1 | Jasmine | Maggot | 1250.00 | 2 | Kitchen Staff |
| 2 | Nancy | Olson | 1350.00 | 2 | Kitchen Staff |
| 3 | Karen | Bender | 2400.00 | 1 | Management |
| 4 | Pricilia | Parker | 980.00 | 2 | Kitchen Staff |
| 5 | Stephen | Bedford | 780.00 | 2 | Kitchen Staff |
| 6 | Jack | McGee | 1700.00 | 1 | Management |
| 7 | Clarence | Willis | 650.00 | 3 | Service Staff |
| 8 | Michael | Boren | 780.00 | 3 | Service Staff |
| 9 | Lila | Young | NULL | 4 | Other |
| … | … | … | … | … | … |