BrightLight Data Analytics

SQL Exercise: Aggregate Functions & Grouping

Instructions:

1. **Write on paper with a pen.**
2. **Draw tables of the final outcome.**
3. **In the SELECT statement, you can select the columns of your choice.**
4. **After completing this task, scan it to a PDF file and email it to: rofhiwa@brightlighttutorials.co.za**
5. **Submission Deadline:** Friday, **March 14, 2025, 00:00**

Database: employees_db

Assume you have a table called **employees** with the following structure:

id	first_name	last_name	department	salary	hire_date	city
1	John	Doe	IT	55000	2018-06-15	New York
2	Jane	Smith	HR	48000	2019-07-20	Chicago
3	Mike	Johnson	Finance	60000	2017-09-30	Los Angeles
4	Sarah	Brown	IT	53000	2021-03-25	New York
5	David	White	Marketing	52000	2016-04-10	San Francisco
6	Emily	Davis	IT	62000	2015-02-14	Chicago
7	Robert	Wilson	Finance	59000	2019-10-01	Houston
8	Jessica	Moore	HR	51000	2018-05-22	Los Angeles
9	Daniel	Clark	Marketing	53000	2022-06-01	Chicago
10	Laura	Hall	IT	50000	2020-08-10	San Francisco

Questions

1. COUNT() Function

Write a SQL query to find the **total number of employees** in the company.

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2. SUM() Function

Write a SQL query to find the **total salary** paid to all employees in the **IT department**.

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3. AVG() Function

Write a SQL query to calculate the **average salary** of employees in the **HR department**.

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4. MIN() and MAX() Functions

Write a SQL query to find the **highest and lowest salary** in the company.

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5. GROUP BY Statement

Write a SQL query to **group employees by department** and display the **total salary paid in each department**.

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6. GROUP BY and COUNT()

Write a SQL query to count how many employees work in each **city**.

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7. GROUP BY and ORDER BY

Write a SQL query to group employees by **department**, calculate the **average salary** in each department, and **order the results in descending order** of average salary.

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8. HAVING Clause

Write a SQL query to find **departments where the total salary paid exceeds 100,000**. (Use GROUP BY and HAVING)

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9. Combining GROUP BY, HAVING, and ORDER BY

Write a SQL query to **list cities where more than one employee works**, **ordered by the number of employees in descending order**.

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10. Combining Aggregate Functions

Write a SQL query to find the **department with the highest average salary**.