Database lab 5 - Grouping Functions in the Tables

Let us answer the following questions by using company-db tables.

1. Find the average and total salary of the employees, who are studying at the 8-th department.

2. Find the minimum and maximum salary of the employees, who are studying at the department with the name of “Hardware”.

3. Find how many employees are working for the project with the name of “Middleware” and find the average salary of them.

4. Find the average salary of the employees working for each project separately and order the results according to the project name.

5. Find how many employees exist in each department for each sex (M and F) separately, and find the average salary of them.

6. Find the each department number and average salary of their employees, except the department with the number 5 and except the departments, whose employees’ average salary is greater than 40,000$.

Answers

1. select avg(salary) average_sal, sum(salary) total_sal from employee where dno=8;

Description: Function avg() finds the average value of a numeric column. Function sum() finds the total value of a numeric column. The expression “average_sal” after the avg(salary) means we want to see the average salary information with this caption at the result set. If we want to see the result with a different caption than average_sal, we can write the desired caption instead of it. The same case is valid for the expression “sum(salary) total_sal”.

If we did not make aliasing such as average_sal and total_sal, captions of the result set would be as:

AVG(SALARY)	SUM(SALARY)
40821	571500

With aliasing, captions of the result set will be:

AVERAGE_SAL	TOTAL_SAL
40821	571500

2. select min(salary) minimum, max(salary) maximum from employee e, department d where e.dno=d.dnumber and d.dname='Hardware'

3. select count(*) employee_number, avg(salary) from employee e, project p, works_on w where e.ssn=w.essn and p.pnumber=w.pno and p.pname='Middleware'

4. select pname project_name, avg(salary) average_sal from employee e, project p, works_on w where e.ssn=w.essn and p.pnumber=w.pno **group by** pname **order by** pname;

Description: Group by and **order by expressions** can be used with group functions. According to column comes after **group by** expression, we classify clusters which we choose in query. As for **order**

by expression, it enables to arrange data according to column comes after itself. Sorting process is done as **ascending** in default. If we want a sort in descending order: we should state that "**order by** column_name **desc".**

5. select dno departman, sex cinsiyet, count(*) calisan_sayisi, avg(salary) ortalama_maas from employee group by dno, sex;

Description: Grouping is primarily done according to dno column.In other words; first, employees are classified according to department numbers. Later employees of each department group are divided into sub-groups of twos as male and female. Employee count and average salary data which belong to these sub-groups, are shown.

6. select dno bolum, avg(salary) ortlama_maas from employee group by dno having avg(salary) > 40000 and dno <>5

Description: We need to find average salary by classifying employees according to each department. However there are two conditions of this grouping. Average salary of all departments except 5-th one, are needed, also average salary of the group has to be more than 40000$. If we want **grouped datasets** to fulfill certain conditions, after stating "group by column_name", we should use "**having** *conditions*" expression. In other words, listed conditions after having, **belong to the group**.