Exercise 2 - SQL Aggregate Functions & Operators

Table Students

1. Select distinct department
   From Students;

department
IT
HR
Finance

2. Select department, AVG(age) AS avg_age
   From Students
   Group by department;

department	avg_age
IT	20.5
HR	22.0
Finance	23.0

3 Select department, Count * AS student_count
   From Students
   Group by department
   Having Count * > 1;

department	Student_Count
IT	2
HR	2

4 Select student_id,
name, age,
department
From Students
where age between 21 AND 23;

Student_id	name	age	department
2	Bob	22	HR
3	Charlie	21	IT
4	Diana	23	Finance
5	Eve	22	HR

5 Select student_id,
name, age,
department
From Students
where department IN ('IT', 'HR')
And age > 21;

Student_id	name	age	department
2	Bob	22	HR
5	Eve	22	HR

Table courses

6 ~~Students~~
Select department, SUM(credits) AS total_credits
From courses
Group by department
Having SUM(credits) >5;

department	total_credits
IT	11

7 Select course_id,
course_name,
department,
credit
FROM courses
Where credits <> 4;

course_id	course_name	department	credits
101	Sql Basics	IT	3
104	Excel	Finance	2
105	Statistics	HR	3

8
Select course_id,
course_name,
name,
credits
From courses
Order by credits Desc
Limit 3;

Course_id	Course_name	credits
102	Python	4
103	Data science	4
101	Sql Basics	3

Table enrollments

9

```
Select Max(grade) AS max_grade,
       Min(grade) AS min_grade,
       Avg(grade) AS avg_grade
From enrollments;
```

Max_grade	Min_grade	avg_grade
90	78	84.6

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```
Select course_id,
       Count(enrollment_id) AS enrollment_count
From enrollments;
```

enrollment_count	course_id
1	101
1	102
1	103
1	104
1	105

Table: salaries

```
Select department,
       sum(salary) AS total_salary,
       sum(bonus) AS total_bonus
From salaries
Group by department;
```

department	total_salary	total_bonus
IT	122000	16500
HR	109000	7500
Finance	70000	6000

12 Select department,
Avg (salary) AS Avg_Salary
From salaries
group by department
Having Avg (salary) > 55000;

department	avg_salary
IT	61000
Finance	70000

13 Select employee_id,
name,
salary, bonus,
(salary + bonus) AS total_compensation
From salaries
Where (salary + bonus) > 60000;

employee id	name	salary	bonus	total_compensation
1	TOM	60000	50000	65000
3	SPIKE	70000	60000	76000
4	TYKE	62000	55000	67500

Table: Project

14 Select department,
sum(budget) AS total_budget,
Avg (budget) AS avg_buget
FROM Projects
group by department
Having Avg (budget) > 70000;

department	total_budget	avg_budget
IT	270000	135000
Finance	80000	80000

15 Select Project_id,
Project_name,
department,
budget
From employees
Where budget Between 80000 AND 120000
And department <> 'marketing';

Project_id	project_name	department	budget
1	AI APP	IT	120000
2	payroll system	Finance	80000
5	HR Portal	HR	50000