Exercise 2 : SQL Aggregate Functions & SQL Operators

1. SELECT DISTINCT department
   FROM Students;

department
IT
HR ✓
Finance

2. SELECT AVG (age) AS avg-age
   department

   FROM Students; ──→ GROUP BY department;

department	avg-age
IT	~~20~~ ~~27~~.5
~~HR~~ Finance	22.0 ✓
~~Finance~~ HR	23.0 ✓

3. SELECT COUNT(student-id) AS Student-Count
   department

   FROM Students; ──→ GROUP BY department
   HAVING COUNT(*) >1;

department	Students Count
IT	2 ✓
HR	2 ✓

4. SELECT* ✓
   FROM students ✓
   WHERE age IS 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

i. SELECT name,
           department,
           age
FROM   Students
WHERE   department = 'IT' OR 'HR' AND age <>21; >21;

name	department	age
Bob	HR	22
Eve	HR	22

6. SELECT sum (credits) As total_credits,
           department
FROM   Courses
          GROUP BY department
WHERE credits > 5;   HAVING SUM ((credits) > 5;

department	total_credits
IT	11

7. SELECT course_id,
         Course_name,
         credits
FROM   Courses
WHERE credits 4>4;

101	SQLBasics	IT	3
Course_id	course_name	department	credits
104	Exeel	Finance	2
105	Statistics	HR	3

8. SELECT course_id,
        course_name,
        department,
        credits
FROM   courses
ORDER BY credits DESC
LIMIT 3;

course_id	course_name	credits
102	Python	4
103	Data-Science	4
101	SQLBasics	3

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

10. SELECT course-id, COUNT(*) AS enrollment_count
~~count(enrollment-id)~~
FROM enrollments;
GROUP BY course-id;

course-id	enrollment_count
101	1
102	1
103	1
104	1
105	1

11. SELECT department, SUM(Salary) AS total-Salary
~~SUM(Bonus + Salary) As total-salary AND total-bonus~~ AND SUM(bonus) As total-bonus
FROM ~~enrollments~~ salaries
GROUP BY department; ✓

department	total-salary	total-bonus
IT	122000	10500
HR	109000	7500
Finance	70000	6000

12. SELECT department, ✓
AVG(Salary) AS avg-Salary
FROM salaries ✓
~~WHERE > 55000;~~
HAVING AVG(salary) > 50000;

department	avg-salary
IT	61000
Finance	7000

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	5000	65000
3	Spike	70000	6000	76000
4	Tyke	62000	5500	67500

14. SELECT SUM(budget) AS total_budget
    AVG(budget) AS avg_budget

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

WHERE budget IS BETWEEN 50000 AND 120000
NOT IN FROM projects
WHERE department != 'Marketing';
                <>'Marketing';