# **Task 4: Aggregate Functions and Grouping**

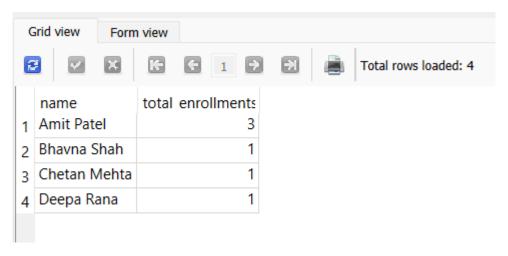
# **COUNT - Number of enrollments per student**

SELECT s.name, COUNT(e.enrollment\_id) AS total\_enrollments

FROM enrollments e

JOIN students s ON e.student\_id = s.student\_id

GROUP BY s.name;



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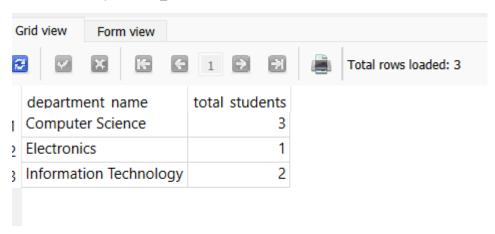
## **COUNT – Number of students in each department**

SELECT d.department\_name, COUNT(s.student\_id) AS total\_students

FROM students s

JOIN departments d ON s.department\_id = d.department\_id

GROUP BY d.department\_name;



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### SUM - Total credits of courses each student is enrolled in

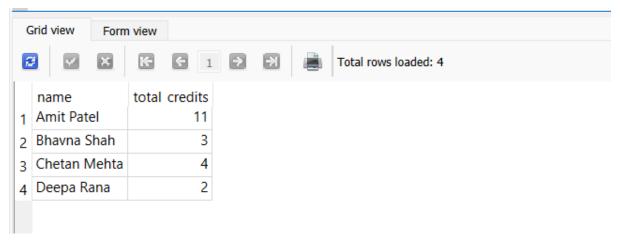
SELECT s.name, SUM(c.credits) AS total\_credits

#### FROM enrollments e

JOIN students s ON e.student\_id = s.student\_id

JOIN courses c ON e.course\_id = c.course\_id

### GROUP BY s.name;



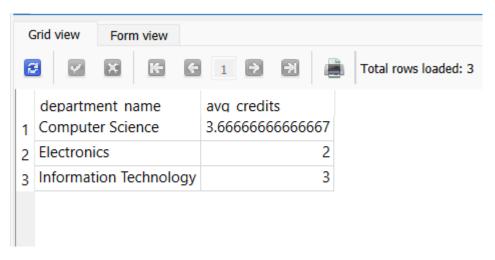
# AVG – Average credits of courses per department

SELECT d.department\_name, AVG(c.credits) AS avg\_credits

FROM courses c

JOIN departments d ON c.department\_id = d.department\_id

# GROUP BY d.department\_name;



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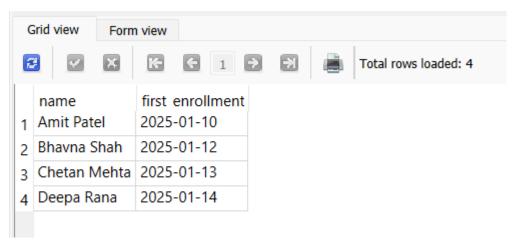
MIN – Earliest enrollment date per student

SELECT s.name, MIN(e.enrollment\_date) AS first\_enrollment

FROM enrollments e

JOIN students s ON e.student\_id = s.student\_id

### GROUP BY s.name;



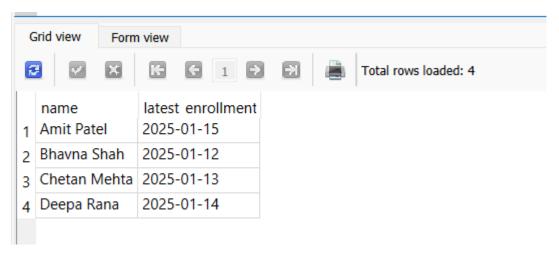
### MAX – Latest enrollment date per student

SELECT s.name, MAX(e.enrollment\_date) AS latest\_enrollment

FROM enrollments e

JOIN students s ON e.student\_id = s.student\_id

GROUP BY s.name;



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# Multiple aggregates together per student

SELECT s.name,

COUNT(e.enrollment\_id) AS total\_courses,

SUM(c.credits) AS total\_credits,

AVG(c.credits) AS avg\_credits,

MIN(e.enrollment\_date) AS first\_enrollment,

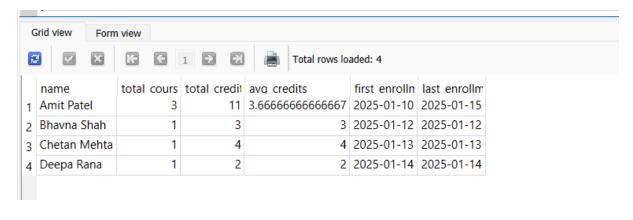
MAX(e.enrollment\_date) AS last\_enrollment

FROM enrollments e

JOIN students s ON e.student\_id = s.student\_id

JOIN courses c ON e.course\_id = c.course\_id

GROUP BY s.name;



## HAVING – Show only students with more than 1 enrollment

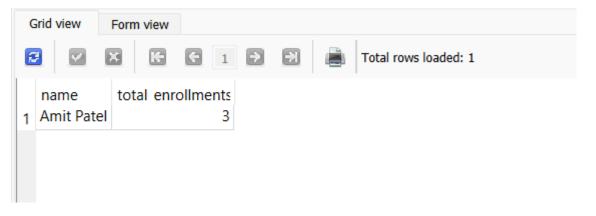
SELECT s.name, COUNT(e.enrollment\_id) AS total\_enrollments

FROM enrollments e

JOIN students s ON e.student\_id = s.student\_id

**GROUP BY s.name** 

HAVING COUNT(e.enrollment\_id) > 1;



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## HAVING – Show departments where average course credits > 3

SELECT d.department\_name, AVG(c.credits) AS avg\_credits

FROM courses c

JOIN departments d ON c.department\_id = d.department\_id

GROUP BY d.department\_name

# HAVING AVG(c.credits) > 3;

