SQLQueries for the Case Study

1. Find the Total 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;

1. List All Courses Taught by a Specific Professor

SELECT c.course\_name

FROM courses c

JOIN professors p ON c.professor\_id = p.professor\_id

WHERE p.first\_name = 'John' AND p.last\_name = 'Doe';

1. Find the Average Grade of Students in Each Course

SELECT c.course\_name, AVG(e.grade) AS average\_grade

FROM enrollments e

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

GROUP BY c.course\_name;

1. List All Students Who Have Not Enrolled in Any Courses

SELECT s.first\_name, s.last\_name

FROM students s

LEFT JOIN enrollments e ON s.student\_id = e.student\_id

WHERE e.student\_id IS NULL;

1. Find the Number of Courses Offered by Each Department

SELECT d.department\_name, COUNT(c.course\_id) AS total\_courses

FROM courses c

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

GROUP BY d.department\_name;

1. List All Students Who Have Taken a Specific Course (e.g., 'Database Systems')

SELECT s.first\_name, s.last\_name

FROM students s

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

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

WHERE c.course\_name = 'Database Systems';

1. Find the Most Popular Course Based on Enrollment Numbers

SELECT c.course\_name, COUNT(e.student\_id) AS enrollment\_count

FROM enrollments e

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

GROUP BY c.course\_name

ORDER BY enrollment\_count DESC

LIMIT 1;

1. Find the Average Number of Credits Per Student in a Department

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

FROM students s

JOIN courses c ON s.department\_id = c.department\_id

GROUP BY d.department\_name;

1. List All Professors Who Teach in More Than One Department

SELECT p.first\_name, p.last\_name

FROM professors p

JOIN courses c ON p.professor\_id = c.professor\_id

GROUP BY p.professor\_id

HAVING COUNT(DISTINCT c.department\_id) > 1;

1. Get the Highest and Lowest Grade in a Specific Course (e.g., 'Operating Systems')

SELECT

MAX(e.grade) AS highest\_grade,

MIN(e.grade) AS lowest\_grade

FROM enrollments e

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

WHERE c.course\_name = 'Operating Systems';