Prajakta Pohare

Part 3

SQL Report (Word document): This should include the 20 questions from the proposal, their corresponding SQL queries, and screenshots of the query results from the database.

1. What courses are available in a specific department?

Query:

use [Group5];

SELECT C.course_id, C.course_name, C.credits

FROM COURSE C

JOIN DEPARTMENT D ON C.department_id = D.department_id

WHERE D.department_name = 'Medical';

	course_id	course_name	credits
1	302	Medical Terminology	3
2	305	Epidemiology	1

2. What is the enrollment date of a student in a particular course?

Query:

use [Group5];

SELECT S.name AS student_name, C.course_name, E.enrollment_date

FROM ENROLLMENT E

JOIN STUDENT S ON E.student_id = S.student_id

JOIN COURSE C ON E.course_id = C.course_id

WHERE C.course_name = 'Statistics';

	student_name ⌄	course_name ⌄	enrollment_date ⌄
1	John W	Statistics	2024-08-15
2	JD Johns	Statistics	2024-07-21
3	Hailey M	Statistics	2024-08-15

3. What assessments have been completed by a specific student?

Query:

use [Group5];

SELECT S.name AS student_name, A.assessment_type, C.course_name, A.date

FROM ASSESSMENT_RESULT AR

JOIN ASSESSMENT A ON AR.assessment_id = A.assessment_id

JOIN COURSE C ON A.course_id = C.course_id

JOIN STUDENT S ON AR.student_id = S.student_id

WHERE S.name = 'John W';

	student_name ⌄	assessment_type ⌄	course_name ⌄	date ⌄
1	John W	Mid Term	Print Media	2024-10-24
2	John W	Final Term	Statistics	2024-11-21
3	John W	Final Term	Print Media	2024-11-22
4	John W	Mid Term	Statistics	2024-10-21

4. Which students have the highest number of absences in a specific course?

Query:

use [Group5];

SELECT

   s.name AS student_name,

   c.course_name,

   COUNT(a.attendance_id) AS absence_count

FROM ATTENDANCE a

JOIN ENROLLMENT e ON a.enrollment_id = e.enrollment_id

JOIN STUDENT s ON e.student_id = s.student_id

JOIN COURSE c ON e.course_id = c.course_id

WHERE a.attendance_status = 'Absent'

 AND c.course_id = 304

GROUP BY s.name, c.course_name

ORDER BY absence_count DESC;

	student_name	course_name	absence_count
1	Hailey M	Statistics	2

5. What is the average grade for each course?

Query:

use [Group5];

SELECT TOP 1

   grade_value AS Grade,

   COUNT(grade_value) AS Average

FROM GRADE

GROUP BY grade_value

ORDER BY Average DESC;

	Grade	Average
1	B	4

6. Which students have perfect attendance across all their courses?

Query:

use [Group5];

SELECT S.name AS 'Student Name'

FROM ATTENDANCE A

JOIN ENROLLMENT E ON A.enrollment_id = E.enrollment_id

JOIN STUDENT S ON E.student_id = S.student_id

GROUP BY S.name

HAVING COUNT(CASE WHEN A.attendance_status = 'Absent' THEN 1 END) = 0;

	Student Name ∨
1	John W
2	Karen Watt

7. What are the top 3 highest scores achieved in each assessment?

Query:

use [Group5];

WITH RankedScores AS (

   SELECT A.assessment_id, AR.score, S.name,

      RANK() OVER (PARTITION BY A.assessment_id ORDER BY AR.score DESC) AS rank

   FROM ASSESSMENT_RESULT AR

   JOIN ASSESSMENT A ON AR.assessment_id = A.assessment_id

   JOIN STUDENT S ON AR.student_id = S.student_id

)

SELECT assessment_id, score, name

FROM RankedScores

WHERE rank <= 3;

	assessment_id	score	name
1	2011	91.65	John W
2	2011	86.23	Hailey M
3	2012	97.42	Karen Watt
4	2013	87.56	JD Johns
5	2013	65.75	Hailey M
6	2014	98.23	Hailey M
7	2014	95.97	JD Johns
8	2014	79.12	John W
9	2015	89.23	Abby Yen
10	2016	93.65	Hailey M
11	2016	84.43	John W
12	2017	81.45	Karen Watt
13	2018	91.78	JD Johns
14	2018	80.65	Hailey M
15	2019	87.57	Hailey M
16	2019	84.34	JD Johns
17	2019	76.46	John W
18	2020	87.56	Abby Yen

8. What is the total number of students enrolled in each department?

Query:

use [Group5];

SELECT D.department_name, COUNT(DISTINCT E.student_id) AS total_students

FROM ENROLLMENT E

JOIN COURSE C ON E.course_id = C.course_id

JOIN DEPARTMENT D ON C.department_id = D.department_id

GROUP BY D.department_name;

	department_name	total_students
1	Mathematics	3
2	Medical	2
3	Technology	3

9. How many students are taking more than three courses this semester?

Query:

use [Group5];

SELECT COUNT(DISTINCT E.student_id) AS 'Students taking more than 3'

FROM ENROLLMENT E

GROUP BY E.student_id

HAVING COUNT(E.course_id) > 3;

Students taking more than 3

10. How many assessments has each instructor created for their courses?

Query:

use [Group5];

SELECT I.name AS instructor_name, COUNT(A.assessment_id) AS total_assessments

FROM ASSESSMENT A

JOIN COURSE C ON A.course_id = C.course_id

JOIN INSTRUCTOR I ON C.instructor_id = I.instructor_id

GROUP BY I.name;

	instructor_name ∨	total_assessments ∨
1	Emma J	2
2	Polly Dey	2
3	R Ali	2
4	Schmidt Y	4

11. How many courses does each instructor teach, grouped by department?

Query:

use [Group5];

SELECT I.name AS instructor_name, D.department_name, COUNT(C.course_id) AS total_courses

FROM COURSE C

JOIN INSTRUCTOR I ON C.instructor_id = I.instructor_id

JOIN DEPARTMENT D ON C.department_id = D.department_id

GROUP BY I.name, D.department_name;

	instructor_name	department_name	total_courses
1	Polly Dey	Mathematics	1
2	Emma J	Medical	1
3	R Ali	Medical	1
4	Schmidt Y	Technology	2

12. Which classes have the highest absenteeism rates?

Query:

use [Group5];

SELECT C.course_name, COUNT(A.attendance_status) AS total_absences

FROM ATTENDANCE A

JOIN ENROLLMENT E ON A.enrollment_id = E.enrollment_id

JOIN COURSE C ON E.course_id = C.course_id

WHERE A.attendance_status = 'Absent'

GROUP BY C.course_name

ORDER BY total_absences DESC;

	course_name	total_absences
1	Print Media	2
2	Robotics	2
3	Statistics	2
4	Epidemiology	1

13. How many students with perfect attendance have received A grades in their courses?

Query:

use [Group5];

SELECT COUNT(DISTINCT S.student_id) AS students_with_a_perfect_attendance

FROM GRADE G

JOIN ENROLLMENT E ON G.enrollment_id = E.enrollment_id

JOIN STUDENT S ON E.student_id = S.student_id

JOIN ATTENDANCE A ON E.enrollment_id = A.enrollment_id

WHERE G.grade_value = 'A'

GROUP BY S.student_id

HAVING COUNT(CASE WHEN A.attendance_status = 'Absent' THEN 1 END) = 0;

	students_with_a_perfect_attendance
1	1

14. List all departments and the number of courses they offer.

Query:

use [Group5];

SELECT D.department_name, COUNT(C.course_id) AS total_courses

FROM DEPARTMENT D

JOIN COURSE C ON D.department_id = C.department_id

GROUP BY D.department_name;

	department_name	total_courses
1	Mathematics	1
2	Medical	2
3	Technology	2

15. List all courses taught by a specific instructor.

Query:

use [Group5];

SELECT C.course_name

FROM COURSE C

JOIN INSTRUCTOR I ON C.instructor_id = I.instructor_id

WHERE I.name = 'Schmidt Y';

	course_name
1	Print Media
2	Robotics