

Online Learning Management System

Project Description: An Online Learning Management System (LMS) is a web-based application that helps manage and deliver educational content, track student progress, and generate reports. In this project, you will design and implement an LMS using a relational database management system.

Instructions:

1. **Define the database schema:** Define the entities, attributes, and relationships that will be included in the LMS. Some of the entities could be students, instructors, courses, assignments, and grades.
2. **Design the tables:** Based on the schema, design the tables to store the data. Define primary and foreign keys to maintain the integrity of the data.
3. **Populate the database:** Once the tables are created, populate them with sample data. This will help you test the queries and make sure the database is working correctly.
4. **Develop queries:** Develop queries to extract information from the database. For example, you might create a query that shows all the courses taken by a particular student, or a query that shows the average grade for a particular assignment.

Queries:

- 1) Retrieve the list of all students who have enrolled in a specific course.
- 2) Retrieve the average grade of a specific assignment across all students.
- 3) Retrieve the list of all courses taken by a specific student.
- 4) Retrieve the list of all instructors who teach a specific course.
- 5) Retrieve the total number of students enrolled in a specific course.
- 6) Retrieve the list of all assignments for a specific course.
- 7) Retrieve the highest grade received by a specific student in a specific course.
- 8) Retrieve the list of all students who have not completed a specific assignment.
- 9) Retrieve the list of all courses that have more than 50 students enrolled.

- 10) Retrieve the list of all students who have an overall grade average of 90% or higher.
- 11) Retrieve the overall average grade for each course.
- 12) Retrieve the average grade for each assignment in a specific course.
- 13) Retrieve the number of students who have completed each assignment in a specific course.
- 14) Retrieve the top 5 students with the highest overall grade average.
- 15) Retrieve the instructor with the highest overall average grade for all courses they teach.
- 16) Retrieve the list of students who have a grade of A in a specific course.
- 17) Retrieve the list of courses that have no assignments.
- 18) Retrieve the list of students who have the highest grade in a specific course.
- 19) Retrieve the list of assignments that have the lowest average grade in a specific course.
- 20) Retrieve the list of students who have not enrolled in any course.
- 21) Retrieve the list of instructors who are teaching more than one course.
- 22) Retrieve the list of students who have not submitted an assignment for a specific course.
- 23) Retrieve the list of courses that have the highest average grade.
- 24) Retrieve the list of assignments that have a grade average higher than the overall grade average.
- 25) Retrieve the list of courses that have at least one student with a grade of F.
- 26) Retrieve the list of students who have the same grade in all their courses.
- 27) Retrieve the list of courses that have the same number of enrolled students.
- 28) Retrieve the list of instructors who have taught all courses.
- 29) Retrieve the list of assignments that have been graded but not returned to the students.
- 30) Retrieve the list of courses that have an average grade higher than the overall grade average.
- 31) Retrieve the list of students who have submitted all assignments for a specific course.
- 32) Retrieve the list of courses that have at least one assignment that no student has submitted.
- 33) Retrieve the list of students who have submitted the most assignments.
- 34) Retrieve the list of courses that have the highest average grade among students who have submitted all assignments.
- 35) Retrieve the list of courses that have the highest average grade among students who have submitted all assignments.
- 36) Retrieve the list of courses with the highest number of enrollments.
- 37) Retrieve the list of assignments that have the lowest submission rate.
- 38) Retrieve the list of students who have the highest average grade for a specific course.

- 39) Retrieve the list of courses with the highest percentage of students who have completed all assignments.
- 40) Retrieve the list of students who have not submitted any assignments for a specific course.
- 41) Retrieve the list of courses with the lowest average grade.
- 42) Retrieve the list of assignments that have the highest average grade.
- 43) Retrieve the list of students who have the highest overall grade across all courses.
- 44) Retrieve the list of assignments that have not been graded yet.
- 45) Retrieve the list of courses that have not been assigned any assignments yet.
- 46) Retrieve the list of students who have completed all assignments for a specific course.
- 47) Retrieve the list of students who have submitted all assignments but have not received a passing grade for a specific course.
- 48) Retrieve the list of courses that have the highest percentage of students who have received a passing grade.
- 49) Retrieve the list of students who have submitted assignments late for a specific course.
- 50) Retrieve the list of courses that have the highest percentage of students who have dropped out.
- 51) Retrieve the list of students who have not yet submitted any assignments for a specific course.
- 52) Retrieve the list of students who have submitted at least one assignment for a specific course but have not completed all assignments.
- 53) Retrieve the list of assignments that have received the highest average grade.
- 54) Retrieve the list of students who have received the highest average grade across all courses.
- 55) Retrieve the list of courses that have the highest average grade.
- 56) Retrieve the list of courses that have at least one student enrolled but no assignments have been created yet.
- 57) Retrieve the list of courses that have at least one assignment created but no student has enrolled yet.
- 58) Retrieve the list of students who have submitted all assignments for a specific course.
- 59) Retrieve the list of courses where the overall average grade is higher than the average grade of a specific student.

- 60) Retrieve the list of students who have not yet submitted any assignments for any course.
- 61) Retrieve the list of students who have completed all the courses they have enrolled in.
- 62) Retrieve the list of courses where the average grade is lower than a specific threshold.
- 63) Retrieve the list of courses where the number of students enrolled is less than a specific threshold.
- 64) Retrieve the list of students who have not completed a specific course but have submitted all the assignments for that course.
- 65) Retrieve the list of courses where the average grade is higher than the overall average grade of all courses.
- 66) Retrieve the list of courses where the average grade is higher than a specific threshold and the number of students enrolled is greater than a specific threshold.
- 67) Retrieve the list of students who have enrolled in at least two courses and have not submitted any assignments in the past month.
- 68) Retrieve the list of courses where the percentage of students who have submitted all the assignments is higher than a specific threshold.
- 69) Retrieve the list of students who have enrolled in a course but have not submitted any assignments.
- 70) Retrieve the list of courses where the percentage of students who have submitted at least one assignment is lower than a specific threshold.
- 71) Retrieve the list of students who have submitted an assignment after the due date.
- 72) Retrieve the list of courses where the average grade of female students is higher than that of male students.
- 73) Retrieve the list of courses that have at least one female student and no male students.
- 74) Retrieve the list of students who have submitted at least one assignment in all the courses they are enrolled in.
- 75) Retrieve the list of students who have not enrolled in any courses.
- 76) Retrieve the list of courses that have the highest number of enrolled students.
- 77) Retrieve the list of assignments that have the lowest average grade.
- 78) Retrieve the list of students who have submitted all the assignments in a particular course.
- 79) Retrieve the list of courses where the average grade of all students is above 80.

- 80) Retrieve the list of students who have the highest grade in each course.
- 81) Retrieve the list of students who have submitted all the assignments on time.
- 82) Retrieve the list of students who have submitted late submissions for any assignment.
- 83) Retrieve the list of courses that have the lowest average grade for a particular semester.
- 84) Retrieve the list of students who have not submitted any assignment for a particular course.
- 85) Retrieve the list of courses where the highest grade is less than 90.
- 86) Retrieve the list of students who have submitted all the assignments, but their average grade is less than 70.
- 87) Retrieve the list of courses that have at least one student with an average grade of 90 or above.
- 88) Retrieve the list of students who have not submitted any assignments for any of their enrolled courses.
- 89) Retrieve the list of courses that have at least one student who has not submitted any assignments.
- 90) Retrieve the list of students who have submitted all the assignments for a particular course.
- 91) Retrieve the list of assignments that have not been graded yet for a particular course.
- 92) Retrieve the list of students who have not enrolled in any courses.
- 93) Retrieve the list of students who have submitted an assignment after the due date.
- 94) Retrieve the list of courses that have more than 50 enrolled students.
- 95) Retrieve the list of students who have submitted an assignment for a particular course but have not received a grade yet.