UCSC is tracking **student participation in practicals** and their **exam performance** to analyze who regularly attends practical sessions, who passes the final exam, and who needs academic support. As a database administrator, your task is to manage and analyze this data using SQL queries

Database Tables

★ **Students** (`student_id, first_name, last_name, email, enrollment_year, faculty_id`)

★ **Courses** (`course_id, course_name, credits, faculty_id`)

★ **PracticalSessions** (`session_id, course_id, session_date`)

★ **Attendance** (`student_id, session_id, status`) → *Status = 'Present' or 'Absent'*

★ **Exams** (`exam_id, course_id, exam_date`)

★ **ExamResults** (`student_id, exam_id, marks, status`) → *Status = 'Pass' or 'Fail'*

Student Table

student_id	first_name	last_name	email	enrollment_year	faculty_id
1	Alice	Perera	alice@ucsc.lk	2024	101
2	Bob	Silva	bob@ucsc.lk	2024	101
3	Charlie	Fernando	charlie@ucsc.lk	2024	101
4	David	Wickramasena	david@ucsc.lk	2024	101
5	Eva	Rodrigo	eva@ucsc.lk	2024	101

Course Table

course_id	course_name	credits	faculty_id
201	Database Systems	3	101
202	Programming Concepts	4	101

Practical Sessions Table

session_id	course_id	session_date
301	201	2024-02-10
302	201	2024-02-17
303	201	2024-02-24

Attendance Table

student_id	session_id	status
1	301	Present
1	302	Present
1	303	Present
2	301	Present
2	302	Present
2	303	Present
3	301	Present
3	302	Present
3	303	Present
4	301	Absent
4	302	Absent
4	303	Absent
5	301	Absent
5	302	Absent
5	303	Absent

Exams Table

exam_id	course_id	exam_date
401	201	2024-03-15

Exams results table

student_id	exam_id	marks	status
1	401	85	Pass
2	401	78	Pass
3	401	74	Pass
4	401	30	Fail
5	401	25	Fail

I. Retrieve students who enrolled **before 2024** and belong to the **School of Computing**.

II. Find students who attended all the practical sessions.

III. Modify the query to show **only students who attended all sessions AND passed the exam**.

IV. List all courses along with their credit values.

V. Show students who passed the exam.

VI. Find students who **never attended a single practical session**.

VII. List students by checking if there are any students who failed the exam but attended at least two practical sessions.

VIII. Using **ANY**, find students who scored higher than at least one student who passed.

IX. Check by using **EXISTS**, find students who attended at least one session but failed the exam.

X. Create an index on the **marks** column of the ExamResults table to improve performance. Write a query to find students who scored above the average marks using the indexed column.

XI. Create a **view** named `StudentPerformanceView` that shows each student's name, number of sessions attended, and exam marks. Query the view to list only students who attended more than **2 practical sessions** and passed the exam.

XII. The admin wants to grant SELECT privileges on **StudentPerformanceView** to all users but restrict UPDATE access. Verify user privileges for `StudentPerformanceView`.

XIII. Find students who have at least **one mark lower than all passing students**. Modify this to list students who failed **but at least one has a mark higher than another failing student**

XIV. Find students who attended all sessions AND passed the exam, along with their marks.

XV. Find students who failed but could have passed if their average mark was **at least 50,** assuming they were given extra marks equal to the number of practical sessions they **missed**.

XVI. Create an index on the `marks` column and retrieve students who are in the **top 2 performers** in the **Database Systems** course.

XVII. Create a **trigger** that automatically updates the `status` column in **ExamResults** based on the marks:

  ➔ **Pass** if `marks >= 50`

  ➔ **Fail** otherwise

XVIII. Write a **stored procedure** `GetStudentResults` that takes a `student_id` as input and returns their **exam marks** and **status**.

XIX. Modify the procedure to **only return results for courses where the student has attended at least 100% of the practical sessions**

XX. Write a trigger that prevents a student's passed exam record from being deleted.

XXI. Write a stored procedure **`GrantInstructorPrivileges`** that grants SELECT access on **ExamResults** and **Attendance** to an instructor.