Q. Write an SQL query to create a table named Students

CREATE TABLE Students (StudentID INT PRIMARY KEY, Name VARCHAR(50), Age INT, Major VARCHAR(50));

Output

SQL query successfully executed. However, the result set is empty.

Q. Write an SQL query to create a table named Courses

CREATE TABLE Courses (CourseID INT PRIMARY KEY, CourseName VARCHAR(50), Credits INT);

Output

SQL query successfully executed. However, the result set is empty.

Q. Write an SQL query to create a table named Enrollments

CREATE TABLE Enrollments (EnrollmentID INT PRIMARY KEY, StudentID INT, CourseID INT, Grade CHAR(2), FOREIGN KEY (StudentID) REFERENCES Students(StudentID), FOREIGN KEY (CourseID) REFERENCES Courses(CourseID));

Output

SQL query successfully executed. However, the result set is empty.

Q. Write an SQL query to create a table named Departments

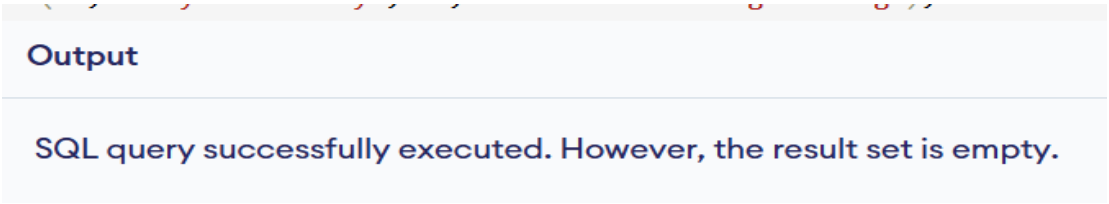
CREATE TABLE Departments (DeptID INT PRIMARY KEY, DeptName VARCHAR(50));

Output

SQL query successfully executed. However, the result set is empty.

Q. How do you add a new column name to the table in SQL?

ALTER TABLE Students ADD Email VARCHAR(100);

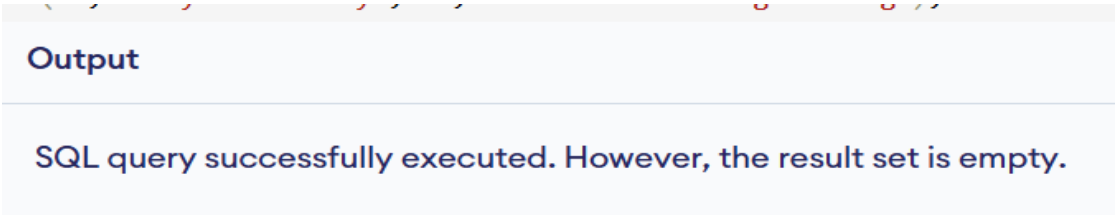


Q. Write an SQL statement to remove the entire table

DROP TABLE Departments;

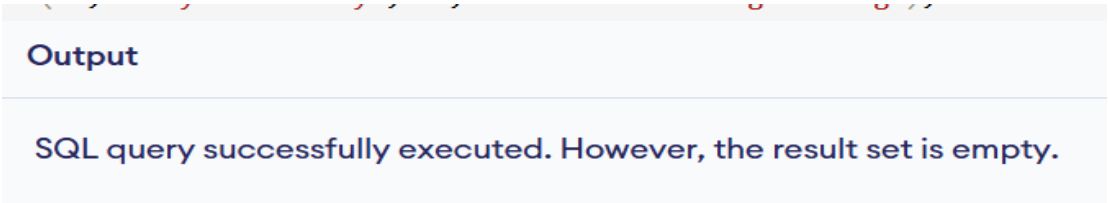
Q. Write an SQL query to insert student data into the Students table.

INSERT INTO Students (StudentID, Name, Age, Major) VALUES (1, 'Alice', 20, 'Computer Science');



Q. How do you update a student's major to Data Science where the student ID is 1?

UPDATE Students SET Major = 'Data Science' WHERE StudentID = 1;



Q. How do you delete students who are younger than 18?

DELETE FROM Students WHERE Age < 18;

Output

SQL query successfully executed. However, the result set is empty.

Q. How do you retrieve the name and major of students older than 19?

SELECT Name, Major FROM Students WHERE Age > 19;

Result Grid | Filter Rows: | Export

Name	Major
Aarav Sharma	Data Science
Ishita Reddy	Electrical Engineering
Rohan Verma	Mechanical Engineering
Arjun Nair	Electronics & Communication Engineering
Meera Gupta	Artificial Intelligence
Sanjay Patil	Data Science
Ananya Joshi	Information Technology

Q. How do you calculate the average age of students?

SELECT AVG(Age) AS AvgAge FROM Students;

Result Grid

AvgAge
21.0000

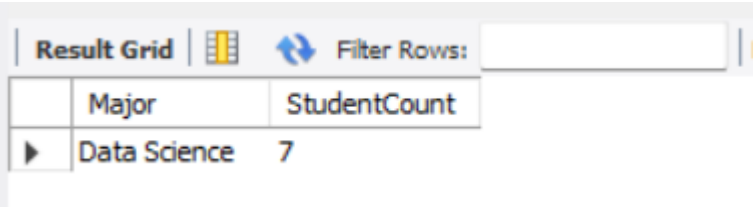
Q. How do you find the majors with more than 5 students, along with the count of students in each?

SELECT Major, COUNT(*) AS StudentCount

FROM Students

GROUP BY Major

HAVING COUNT(*) > 5;

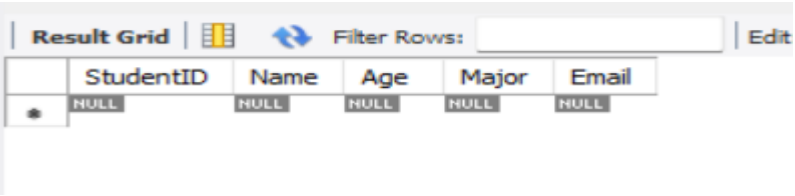


Result Grid | Filter Rows:

	Major	StudentCount
▶	Data Science	7

Q. How do you select all students older than 20 who are majoring in Computer Science?

SELECT * FROM Students WHERE Age > 20 AND Major = 'Computer Science';



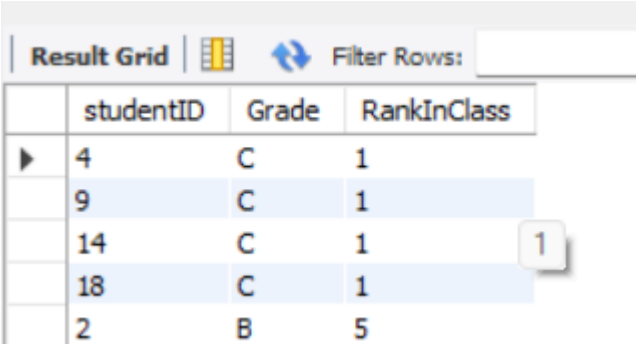
Result Grid | Filter Rows: | Edit

	StudentID	Name	Age	Major	Email
•	NULL	NULL	NULL	NULL	NULL

Q. How do you assign ranks to students based on their grades in descending order?

SELECT Name, Grade, RANK() OVER (ORDER BY Grade DESC) AS RankInClass

FROM Enrollments;



Result Grid | Filter Rows:

	studentID	Grade	RankInClass
▶	4	C	1
	9	C	1
	14	C	1
	18	C	1
	2	B	5

Q. How do you list student names along with their enrolled course names using inner join?

SELECT s.Name, c.CourseName

FROM Students s

INNER JOIN Enrollments e ON s.StudentID = e.StudentID

INNER JOIN Courses c ON e.CourseID = c.CourseID;

Result Grid | Filter Rows:

Name	CourseName
Sanjay Patil	Database Management Systems
Ananya Joshi	Operating Systems
Rahul Das	Genetic Engineering Basics
Sneha Menon	Robotics Fundamentals
Vikram Rao	Aerodyn Aerodynamics
Priya Kulkarni	Chemical Reaction Engineering
Karthik Mishra	Vehicle Dynamics
Divya Choud...	Environmental Impact Assessm...

Q. How do you list all students with their courses (showing even those without enrollments) using left join?

SELECT s.Name, c.CourseName FROM Students s LEFT JOIN Enrollments e ON s.StudentID = e.StudentID LEFT JOIN Courses c ON e.CourseID = c.CourseID;

Result Grid | Filter Rows:

Name	CourseName
Aarav Sharma	Data Structures
Ishita Reddy	Digital Circuits
Rohan Verma	Thermodynamics
Kavya Iyer	Structural Analysis
Arjun Nair	Signal Processing
Meera Gupta	Machine Learning
Sanjay Patil	Database Management Systems
Ananya Joshi	Operating Systems

Q. How do you get every possible combination of students and courses?

SELECT s.Name, c.CourseName FROM Students s CROSS JOIN Courses c;

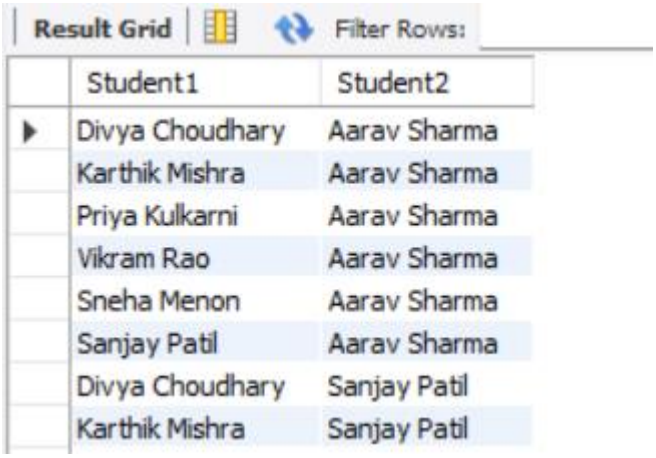
Result Grid | Filter Rows:

Name	CourseName
Swathi Ramesh	Data Structures
Rakesh Kumar	Data Structures
Pooja Deshmukh	Data Structures
Aditya Pillai	Data Structures
Neha Agarwal	Data Structures
Manoj Singh	Data Structures
Divya Choudhary	Data Structures
Karthik Mishra	Data Structures

Q. How do you find pairs of students who have the same major but different student IDs?

SELECT s1.Name AS Student1, s2.Name AS Student2 FROM Students s1 JOIN

Students s2 ON s1.Major = s2.Major AND s1.StudentID <> s2.StudentID;



Result Grid | Filter Rows:

Student1	Student2
Divya Choudhary	Aarav Sharma
Karthik Mishra	Aarav Sharma
Priya Kulkarni	Aarav Sharma
Vikram Rao	Aarav Sharma
Sneha Menon	Aarav Sharma
Sanjay Patil	Aarav Sharma
Divya Choudhary	Sanjay Patil
Karthik Mishra	Sanjay Patil

Q. How do you group students by major and list names as a comma-separated string (SQL Server)?

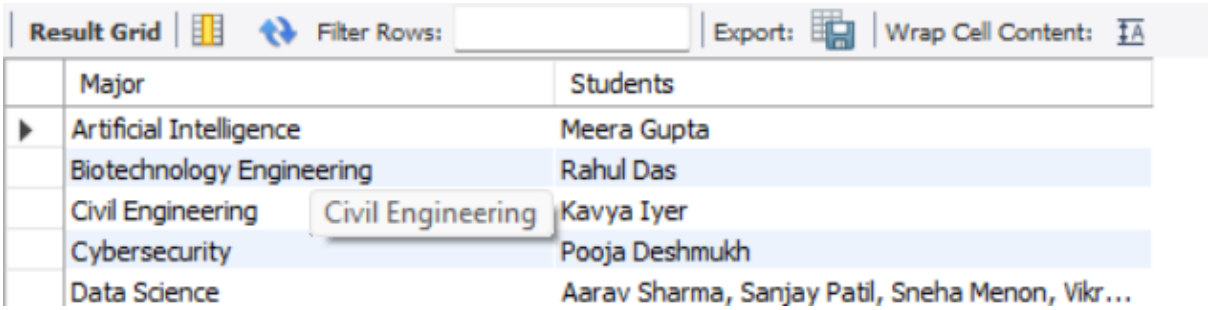
SELECT Major,

GROUP_CONCAT(Name SEPARATOR ', ') AS Students

FROM Students

GROUP BY Major

LIMIT 0, 1000;



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Major	Students
Artificial Intelligence	Meera Gupta
Biotechnology Engineering	Rahul Das
Civil Engineering	Kavya Iyer
Cybersecurity	Pooja Deshmukh
Data Science	Aarav Sharma, Sanjay Patil, Sneha Menon, Vikr…

Civil Engineering

Q. How do you group students by major and list names as a comma-separated string ?

SELECT Major, GROUP_CONCAT(Name, ', ') AS Students FROM Students GROUP BY Major;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Major	Students
Artificial Intelligence	Meera Gupta,
Biotechnology Engineering	Rahul Das,
Civil Engineering	Kavya Iyer,
Cybersecurity	Pooja Deshmukh,
Data Science	Aarav Sharma, ,Sanjay Patil, ,Sneha Menon, ,Vi...
Electrical Engineering	Ishita Reddy,
Electronics & Communication Engineering	Arjun Nair,

Q. How do you select students older than the average age?

SELECT Name FROM Students WHERE Age > (SELECT AVG(Age) FROM Students);

Result Grid | Filter R

Name
Ishita Reddy
Arjun Nair
Ananya Joshi
Vikram Rao
Karthik Mishra
Manoj Singh
Pooja Deshmukh

Q. How do you select students who have at least one enrollment with grade 'A'?

SELECT Name FROM Students s WHERE EXISTS (SELECT * FROM Enrollments e

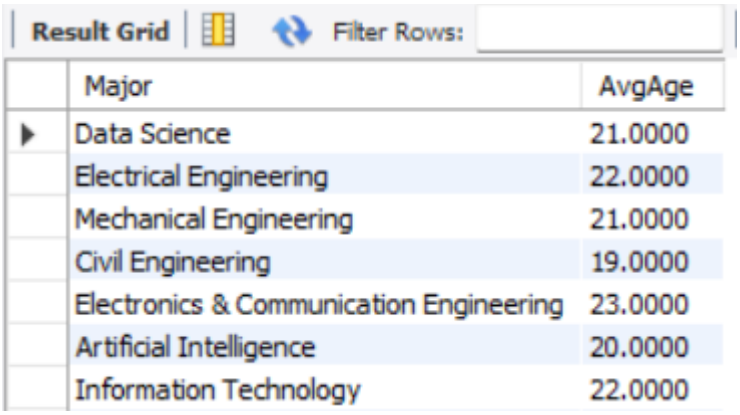
WHERE e.StudentID = s.StudentID AND e.Grade = 'A');

Result Grid

Name
Aarav Sharma
Rohan Verma
Meera Gupta
Ananya Joshi
Sneha Menon
Priya Kulkarni
Manoj Singh

Q. How do you calculate the average age of students grouped by major, and then select it from a subquery?

SELECT Major, AvgAge FROM (SELECT Major, AVG(Age) AS AvgAge FROM Students GROUP BY Major) t;

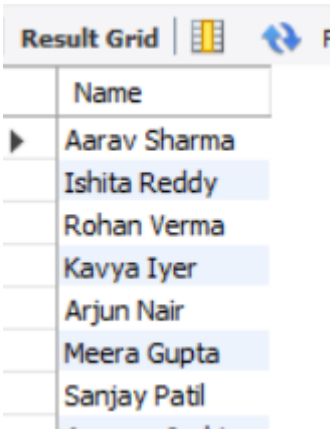


Result Grid | Filter Rows:

Major	AvgAge
Data Science	21.0000
Electrical Engineering	22.0000
Mechanical Engineering	21.0000
Civil Engineering	19.0000
Electronics & Communication Engineering	23.0000
Artificial Intelligence	20.0000
Information Technology	22.0000

Q. How do you combine student names and course names into one list using UNION?

SELECT Name FROM Students UNION SELECT CourseName FROM Courses;



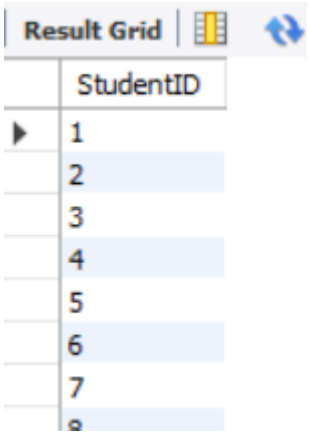
Result Grid

Name
Aarav Sharma
Ishita Reddy
Rohan Verma
Kavya Iyer
Arjun Nair
Meera Gupta
Sanjay Patil

Q. How do you find student IDs that exist in both Students and Enrollments tables?

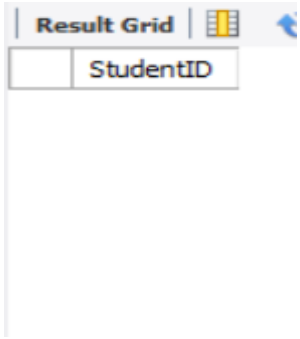
SELECT StudentID FROM Enrollments INTERSECT SELECT StudentID FROM

Students;



Q. How do you find student IDs that are in Students but not in Enrollments?

SELECT StudentID FROM Students EXCEPT SELECT StudentID FROM Enrollments;



Q. How do you add a constraint that ensures students must be at least 17 years old?

ALTER TABLE Students ADD CONSTRAINT AgeCheck CHECK (Age >= 17);

Q. How do you drop the AgeCheck constraint from the Students table?

ALTER TABLE Students DROP CONSTRAINT AgeCheck;

Q. How do you insert a record into Enrollments and update a student's major inside a transaction?

BEGIN; INSERT INTO Enrollments VALUES (101, 1, 101, 'A'); UPDATE Students

SET Major = 'AI' WHERE StudentID = 1; COMMIT;

Output

SQL query successfully executed. However, the result set is empty.

Q. How do you create and drop an index on the Students table for the Major column?

CREATE INDEX idx_student_major ON Students(Major);

DROP INDEX idx_student_major;

Output

SQL query successfully executed. However, the result set is empty.

Q. After indexing, how do you use the index for fast searching of students by major?

SELECT * FROM Students WHERE Major = 'Data Science';

Result Grid | Filter Rows: | Edit:

StudentID	Name	Age	Major	Email
1	Aarav Sharma	20	Data Science	NULL
7	Sanjay Patil	21	Data Science	NULL
10	Sneha Menon	19	Data Science	NULL
11	Vikram Rao	24	Data Science	NULL
12	Priya Kulkarni	21	Data Science	NULL
13	Karthik Mishra	22	Data Science	NULL
14	Divya Choudhary	20	Data Science	NULL
NULL	NULL	NULL	NULL	NULL

Q. How do you retrieve the name and age of all students?

SELECT Name, Age FROM Students;

Result Grid | Filter Rows:

Name	Age
Aarav Sharma	20
Ishita Reddy	22
Rohan Verma	21
Kavya Iyer	19
Arjun Nair	23
Meera Gupta	20
Sanjay Patil	21
Ananya Joshi	22

Q. How do you retrieve all students older than 20?

SELECT * FROM Students WHERE Age > 20;

Result Grid | Filter Rows: | Edit: | Export/Import:

StudentID	Name	Age	Major	Email
2	Ishita Reddy	22	Electrical Engineering	NULL
3	Rohan Verma	21	Mechanical Engineering	NULL
5	Arjun Nair	23	Electronics & Communication Engineering	NULL
7	Sanjay Patil	21	Data Science	NULL
8	Ananya Joshi	22	Information Technology	NULL
11	Vikram Rao	24	Data Science	NULL
12	Priya Kulkarni	21	Data Science	NULL
13	Karthik Mishra	22	Data Science	NULL

Students 22

Q. How do you group students by major and count them?

SELECT Major, COUNT(*) FROM Students GROUP BY Major;

Result Grid | Filter Rows: | Export

Major	COUNT(*)
Data Science	7
Electrical Engineering	1
Mechanical Engineering	1
Civil Engineering	1
Electronics & Communication Engineering	1
Artificial Intelligence	1
Information Technology	1
Biotechnology Engineering	1

Q. How do you find majors with more than 5 students (using HAVING)?

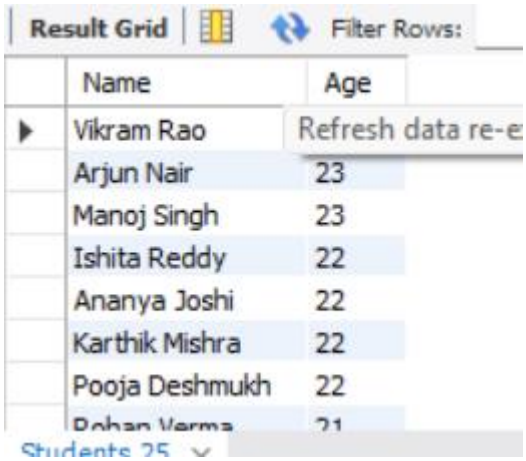
SELECT Major, COUNT(*) FROM Students GROUP BY Major HAVING COUNT(*) > 5;

Result Grid | Filter Rows:

Major	COUNT(*)
Data Science	7

Q. How do you list students ordered by age in descending order?

SELECT Name, Age FROM Students ORDER BY Age DESC;

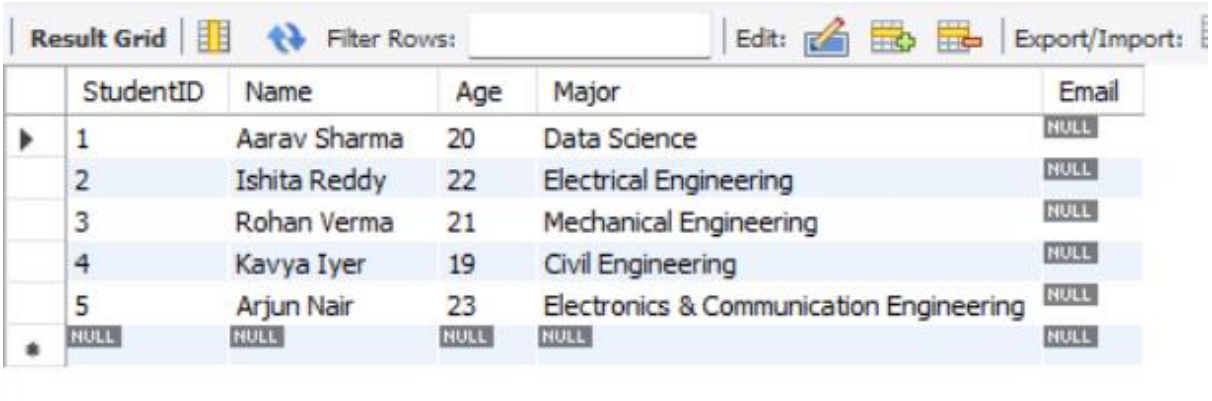


Q. How do you order students by age in descending order and then by name in ascending order?

SELECT Name, Age FROM Students ORDER BY Age DESC, Name ASC;

Q. How do you select only the first 5 students from the Students table?

SELECT * FROM Students LIMIT 5;



Result Grid | Filter Rows: | Edit: | Export/Import:

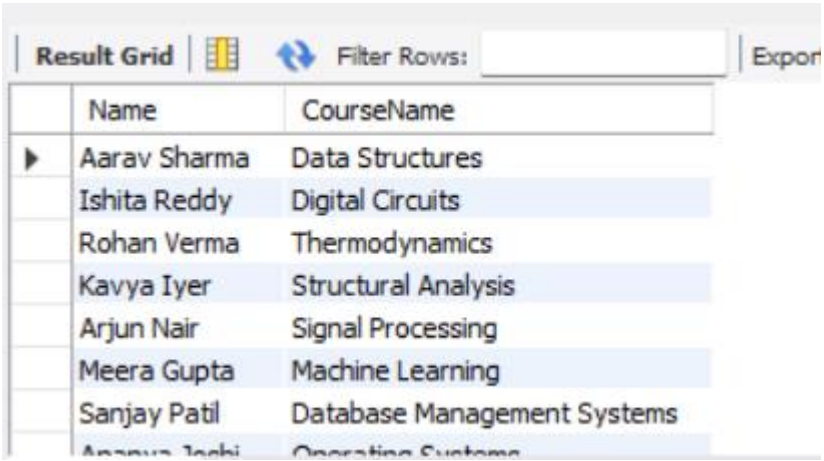
StudentID	Name	Age	Major	Email
1	Aarav Sharma	20	Data Science	NULL
2	Ishita Reddy	22	Electrical Engineering	NULL
3	Rohan Verma	21	Mechanical Engineering	NULL
4	Kavya Iyer	19	Civil Engineering	NULL
5	Arjun Nair	23	Electronics & Communication Engineering	NULL
NULL	NULL	NULL	NULL	NULL

Q. How do you retrieve student names along with their enrolled course names using inner join?

SELECT s.Name, c.CourseName FROM Students s INNER JOIN Enrollments e ON

s.StudentID = e.StudentID INNER JOIN Courses c ON e.CourseID =

c.CourseID;

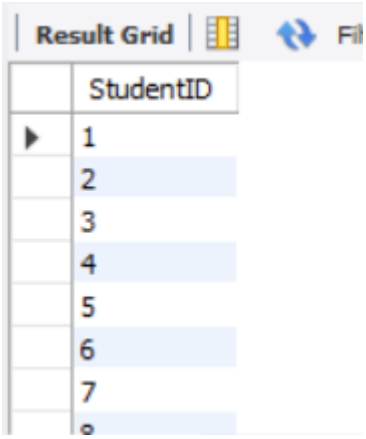


Result Grid | Filter Rows: | Expor

Name	CourseName
Aarav Sharma	Data Structures
Ishita Reddy	Digital Circuits
Rohan Verma	Thermodynamics
Kavya Iyer	Structural Analysis
Arjun Nair	Signal Processing
Meera Gupta	Machine Learning
Sanjay Patil	Database Management Systems

Q. How do you retrieve all unique student IDs from both Students and Enrollments tables?

SELECT StudentID FROM Students UNION SELECT StudentID FROM Enrollments;

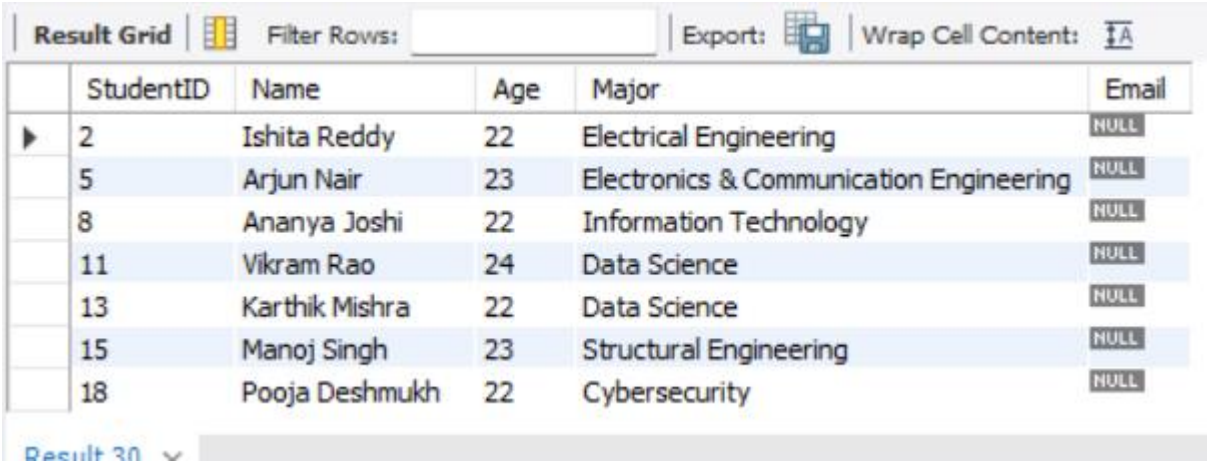


StudentID
1
2
3
4
5
6
7

Q. How do you use a CTE to get students older than the average age?

WITH AvgAge AS (SELECT AVG(Age) AS AgeValue FROM Students) SELECT *

FROM Students WHERE Age > (SELECT AgeValue FROM AvgAge);



StudentID	Name	Age	Major	Email
2	Ishita Reddy	22	Electrical Engineering	NULL
5	Arjun Nair	23	Electronics & Communication Engineering	NULL
8	Ananya Joshi	22	Information Technology	NULL
11	Vikram Rao	24	Data Science	NULL
13	Karthik Mishra	22	Data Science	NULL
15	Manoj Singh	23	Structural Engineering	NULL
18	Pooja Deshmukh	22	Cybersecurity	NULL