```sql
USE Students;

CREATE TABLE StudentsDB (
    StudentID INT PRIMARY KEY,
    Name VARCHAR(50),
    Age INT,
    Course VARCHAR(50)
);

INSERT INTO StudentsDB (StudentID, Name, Age, Course) VALUES
(11, 'Vijay', 20, 'Computer Science'),
(12, 'Sneha', 21, 'Mathematics'),
(13, 'Rahul', 22, 'Physics'),
(14, 'Aarti', 19, 'Biology'),
(15, 'Manish', 23, 'Economics'),
(16, 'Kavya', 20, 'Statistics'),
(17, 'Deepak', 22, 'Mathematics'),
(18, 'Nisha', 21, 'Computer Science'),
(19, 'Ajay', 24, 'Chemistry'),
(20, 'Swati', 20, 'Physics'),
(21, 'Karan', 25, 'Economics'),
(22, 'Pooja', 22, 'Mathematics'),
(23, 'Ramesh', 21, 'Biology'),
(24, 'Geeta', 23, 'Statistics'),
(25, 'Sanjay', 22, 'Computer Science'),
(26, 'Rekha', 20, 'Physics'),
(27, 'Anil', 19, 'Chemistry'),
(28, 'Shreya', 22, 'Biology'),
(29, 'Vikas', 23, 'Mathematics'),
(30, 'Neha', 24, 'Computer Science'),
(31, 'Arvind', 21, 'Statistics'),
(32, 'Bhavna', 22, 'Economics'),
(33, 'Chirag', 20, 'Mathematics'),
(34, 'Pritam', 19, 'Biology'),
(35, 'Tanvi', 21, 'Computer Science'),
(36, 'Harish', 23, 'Physics'),
(37, 'Isha', 24, 'Statistics'),
(38, 'Yash', 22, 'Economics'),
(39, 'Payal', 20, 'Mathematics'),
(40, 'Omkar', 21, 'Computer Science');

-- View All Data
SELECT * FROM StudentsDB;
```

StudentID	Name	Age	Course
15	Manish	23	Economics
16	Kavya	20	Statistics
17	Deepak	22	Mathematics
18	Nisha	21	Computer Science
19	Ajay	24	Chemistry
20	Swati	20	Physics
21	Karan	25	Economics
22	Pooja	22	Mathematics
23	Ramesh	21	Biology
24	Geeta	23	Statistics
25	Sanjay	22	Computer Science
26	Rekha	20	Physics
27	Anil	19	Chemistry
28	Shreya	22	Biology
29	Vikas	23	Mathematics
30	Neha	24	Computer Science
31	Arvind	21	Statistics
32	Bhavna	22	Economics
33	Chirag	20	Mathematics
34	Pritam	19	Biology
35	Tanvi	21	Computer Science
36	Harish	23	Physics
37	Isha	24	Statistics
38	Yash	22	Economics
39	Payal	20	Mathematics

```
-- Extraction
SELECT Name, Course FROM StudentsDB;
```

Name	Course
Vijay	Computer Science
Sneha	Mathematics
Rahul	Physics
Aarti	Biology
Manish	Economics
Kavya	Statistics
Deepak	Mathematics
Nisha	Computer Science
Ajay	Chemistry
Swati	Physics
Karan	Economics
Pooja	Mathematics
Ramesh	Biology
Geeta	Statistics
Sanjay	Computer Science
Rekha	Physics
Anil	Chemistry
Shreya	Biology
Vikas	Mathematics
Neha	Computer Science
Arvind	Statistics
Bhavna	Economics
Chirag	Mathematics
Pritam	Biology
Tanvi	Computer Science

```
SELECT * FROM StudentsDB
WHERE Age > 22;
```

StudentID	Name	Age	Course
15	Manish	23	Economics
19	Ajay	24	Chemistry
21	Karan	25	Economics
24	Geeta	23	Statistics
29	Vikas	23	Mathematics
30	Neha	24	Computer Science
36	Harish	23	Physics
37	Isha	24	Statistics
NULL	NULL	NULL	NULL

```sql
SELECT * FROM StudentsDB
WHERE Course = 'Computer Science';
```

StudentID	Name	Age	Course
11	Vijay	20	Computer Science
18	Nisha	21	Computer Science
25	Sanjay	22	Computer Science
30	Neha	24	Computer Science
35	Tanvi	21	Computer Science
40	Omkar	21	Computer Science
NULL	NULL	NULL	NULL

```sql
-- Sorting & Filtering
SELECT * FROM StudentsDB
ORDER BY Age DESC;
```

StudentID	Name	Age	Course
21	Karan	25	Economics
19	Ajay	24	Chemistry
30	Neha	24	Computer Science
37	Isha	24	Statistics
15	Manish	23	Economics
24	Geeta	23	Statistics
29	Vikas	23	Mathematics
36	Harish	23	Physics
13	Rahul	22	Physics
17	Deepak	22	Mathematics
22	Pooja	22	Mathematics
25	Sanjay	22	Computer Science
28	Shreya	22	Biology
32	Bhavna	22	Economics
38	Yash	22	Economics
12	Sneha	21	Mathematics
18	Nisha	21	Computer Science
23	Ramesh	21	iology
31	Arvind	21	Statistics
35	Tanvi	21	Computer Science
40	Omkar	21	Computer Science
11	Vijay	20	Computer Science
16	Kavya	20	Statistics
20	Swati	20	Physics
26	Rekha	20	Physics

```sql
SELECT * FROM StudentsDB
ORDER BY Age DESC
LIMIT 5;
```

StudentID	Name	Age	Course
21	Karan	25	Economics
37	Isha	24	Statistics
30	Neha	24	Computer Science
19	Ajay	24	Chemistry
29	Vikas	23	Mathematics
NULL	NULL	NULL	NULL

```sql
-- Aggregations
SELECT Course, COUNT(*) AS Total_Students
FROM StudentsDB
GROUP BY Course;
```

Course	Total_Students
Biology	4
Chemistry	2
Computer Science	6
Economics	4
Mathematics	6
Physics	4
Statistics	4

```sql
SELECT AVG(Age) AS Average_Age
FROM StudentsDB;
```

Average_Age
21.5333

```sql
CREATE TABLE CoursesDB (
  CourseID INT PRIMARY KEY,
  CourseName VARCHAR(50),
  Instructor VARCHAR(50)
);

INSERT INTO CoursesDB (CourseID, CourseName, Instructor) VALUES
(1, 'Computer Science', 'Dr. Sharma'),
(2, 'Mathematics', 'Dr. Reddy'),
(3, 'Physics', 'Dr. Gupta'),
(4, 'Biology', 'Dr. Das'),
(5, 'Chemistry', 'Dr. Nair'),
(6, 'Economics', 'Dr. Singh'),
(7, 'Statistics', 'Dr. Mehta');

SELECT * FROM CoursesDB;
```

	CourseID	CourseName	Instructor
▶	1	Computer Science	Dr. Sharma
	2	Mathematics	Dr. Reddy
	3	Physics	Dr. Gupta
	4	Biology	Dr. Das
	5	Chemistry	Dr. Nair
	6	Economics	Dr. Singh
	7	Statistics	Dr. Mehta
*	NULL	NULL	NULL

```sql
-- INNER JOIN
SELECT s.Name, s.Course, c.Instructor
FROM StudentsDB s
INNER JOIN CoursesDB c ON s.Course = c.CourseName;
```

	Name	Course	Instructor
▶	Vijay	Computer Science	Dr. Sharma
	Nisha	Computer Science	Dr. Sharma
	Sanjay	Computer Science	Dr. Sharma
	Neha	Computer Science	Dr. Sharma
	Tanvi	Computer Science	Dr. Sharma
	Omkar	Computer Science	Dr. Sharma
	Sneha	Mathematics	Dr. Reddy
	Deepak	Mathematics	Dr. Reddy
	Pooja	Mathematics	Dr. Reddy
	Vikas	Mathematics	Dr. Reddy
	Chirag	Mathematics	Dr. Reddy
	Payal	Mathematics	Dr. Reddy
	Rahul	Physics	Dr. Gupta
	Swati	Physics	Dr. Gupta
	Rekha	Physics	Dr. Gupta
	Harish	Physics	Dr. Gupta
	Aarti	Biology	Dr. Das
	Ramesh	Biology	Dr. Das
	Shreya	Biology	Dr. Das
	Pritam	Biology	Dr. Das
	Ajay	Chemistry	Dr. Nair
	Anil	Chemistry	Dr. Nair
	Manish	Economics	Dr. Singh
	Karan	Economics	Dr. Singh
	Bhavna	Economics	Dr. Singh

```sql
-- LEFT JOIN
SELECT s.Name, s.Course, c.Instructor
FROM StudentsDB s
LEFT JOIN CoursesDB c ON s.Course = c.CourseName;
```

	Name	Course	Instructor
▶	Vijay	Computer Science	Dr. Sharma
	Sneha	Mathematics	Dr. Reddy
	Rahul	Physics	Dr. Gupta
	Aarti	Biology	Dr. Das
	Manish	Economics	Dr. Singh
	Kavya	Statistics	Dr. Mehta
	Deepak	Mathematics	Dr. Reddy
	Nisha	Computer Science	Dr. Sharma
	Ajay	Chemistry	Dr. Nair
	Swati	Physics	Dr. Gupta
	Karan	Economics	Dr. Singh
	Pooja	Mathematics	Dr. Reddy
	Ramesh	Biology	Dr. Das
	Geeta	Statistics	Dr. Mehta
	Sanjay	Computer Science	Dr. Sharma
	Rekha	Physics	Dr. Gupta
	Anil	Chemistry	Dr. Nair
	Shreya	Biology	Dr. Das
	Vikas	Mathematics	Dr. Reddy
	Neha	Computer Science	Dr. Sharma
	Arvind	Statistics	Dr. Mehta
	Bhavna	Economics	Dr. Singh
	Chirag	Mathematics	Dr. Reddy
	Pritam	Biology	Dr. Das
	Tanvi	Computer Science	Dr. Sharma

```
-- RIGHT JOIN
SELECT s.Name, s.Course, c.Instructor
FROM StudentsDB s
RIGHT JOIN CoursesDB c ON s.Course = c.CourseName;
```

Name	Course	Instructor
Vijay	Computer Science	Dr. Sharma
Nisha	Computer Science	Dr. Sharma
Sanjay	Computer Science	Dr. Sharma
Neha	Computer Science	Dr. Sharma
Tanvi	Computer Science	Dr. Sharma
Omkar	Computer Science	Dr. Sharma
Sneha	Mathematics	Dr. Reddy
Deepak	Mathematics	Dr. Reddy
Pooja	Mathematics	Dr. Reddy
Vikas	Mathematics	Dr. Reddy
Chirag	Mathematics	Dr. Reddy
Payal	Mathematics	Dr. Reddy
Rahul	Physics	Dr. Gupta
Swati	Physics	Dr. Gupta
Rekha	Physics	Dr. Gupta
Harish	Physics	Dr. Gupta
Aarti	Biology	Dr. Das
Ramesh	Biology	Dr. Das
Shreya	Biology	Dr. Das
Pritam	Biology	Dr. Das
Ajay	Chemistry	Dr. Nair
Anil	Chemistry	Dr. Nair
Manish	Economics	Dr. Singh
Karan	Economics	Dr. Singh
Bhavna	Economics	Dr. Singh

```sql
SELECT s.Name, c.Instructor
FROM StudentsDB s
INNER JOIN CoursesDB c ON s.Course = c.CourseName
WHERE s.Course = 'Mathematics';
```

	Name	Instructor
▶	Sneha	Dr. Reddy
	Deepak	Dr. Reddy
	Pooja	Dr. Reddy
	Vikas	Dr. Reddy
	Chirag	Dr. Reddy
	Payal	Dr. Reddy

```
-- Subqueries
SELECT * FROM StudentsDB
WHERE Age > (SELECT AVG(Age) FROM StudentsDB);
```

	StudentID	Name	Age	Course
▶	13	Rahul	22	Physics
	15	Manish	23	Economics
	17	Deepak	22	Mathematics
	19	Ajay	24	Chemistry
	21	Karan	25	Economics
	22	Pooja	22	Mathematics
	24	Geeta	23	Statistics
	25	Sanjay	22	Computer Science
	28	Shreya	22	Biology
	29	Vikas	23	Mathematics
	30	Neha	24	Computer Science
	32	Bhavna	22	Economics
	36	Harish	23	Physics
	37	Isha	24	Statistics
	38	Yash	22	Economics
*	NULL	NULL	NULL	NULL

```sql
SELECT Course
FROM Studentsdb
GROUP BY Course
HAVING COUNT(*) > 5;
```

	Course
▶	Computer Science
	Mathematics

```sql
-- Views (Reusable Queries)
CREATE VIEW CS_StudentsDB AS
SELECT Name, Age
FROM StudentsDB
WHERE Course = 'Computer Science';

SELECT * FROM CS_Students;
```

	Name	Age
▶	Vijay	20
	Nisha	21
	Sanjay	22
	Neha	24
	Tanvi	21
	Omkar	21