

SQL Commands Cheat Sheet & Practice Set

1. DDL Commands

```
CREATE TABLE Students (id INT, name VARCHAR(50));  
ALTER TABLE Students ADD email VARCHAR(100);  
DROP TABLE Students;  
TRUNCATE TABLE Students;  
RENAME TABLE Students TO Learners;
```

2. DML Commands

```
INSERT INTO Students (id, name) VALUES (1, 'Rudra');  
UPDATE Students SET name='Rohan' WHERE id=1;  
DELETE FROM Students WHERE id=1;
```

3. DQL Commands

```
SELECT * FROM Students;  
SELECT name FROM Students WHERE id = 2;
```

4. DCL Commands

```
GRANT SELECT, INSERT ON Students TO 'user1';  
REVOKE INSERT ON Students FROM 'user1';
```

5. TCL Commands

```
START TRANSACTION;  
DELETE FROM Enrollments WHERE student_id = 3;  
ROLLBACK;  
COMMIT;
```

6. Clauses & Joins

```
SELECT * FROM Students WHERE id = 2;  
SELECT * FROM Students ORDER BY name ASC;  
SELECT COUNT(*), course FROM Students GROUP BY course HAVING COUNT(*) > 2;
```

-- JOINS

```
SELECT s.name, c.course_name FROM Students s  
JOIN Enrollments e ON s.student_id = e.student_id  
JOIN Courses c ON e.course_id = c.course_id;
```

7. Sample DB: CollegeDB (Schema)

```
CREATE TABLE Students (
```

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```
student_id INT PRIMARY KEY,  
name VARCHAR(100) NOT NULL,  
email VARCHAR(100) UNIQUE,  
age INT CHECK(age >= 17)  
);
```

```
CREATE TABLE Courses (  
    course_id INT PRIMARY KEY,  
    course_name VARCHAR(100) NOT NULL,  
    department VARCHAR(50)  
);
```

```
CREATE TABLE Enrollments (  
    enroll_id INT PRIMARY KEY,  
    student_id INT,  
    course_id INT,  
    enrollment_date DATE,  
    FOREIGN KEY (student_id) REFERENCES Students(student_id),  
    FOREIGN KEY (course_id) REFERENCES Courses(course_id)  
);
```

8. Sample Data Inserts

```
INSERT INTO Students VALUES  
(1, 'Rudra', 'rudra@example.com', 20),  
(2, 'Aditi', 'aditi@example.com', 22),  
(3, 'Rohan', 'rohan@example.com', 21);
```

```
INSERT INTO Courses VALUES  
(101, 'Data Structures', 'CSE'),  
(102, 'Operating Systems', 'CSE'),  
(103, 'Biochemistry', 'Biotech');
```

```
INSERT INTO Enrollments VALUES  
(1001, 1, 101, '2025-07-01'),  
(1002, 1, 102, '2025-07-02'),  
(1003, 2, 103, '2025-07-03'),  
(1004, 3, 101, '2025-07-04');
```

9. Practice Queries

```
-- Basic  
SELECT * FROM Students;
```

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```
SELECT name FROM Students WHERE age > 20;
```

-- Joins

```
SELECT s.name, c.course_name  
FROM Students s  
JOIN Enrollments e ON s.student_id = e.student_id  
JOIN Courses c ON e.course_id = c.course_id;
```

-- Group By

```
SELECT c.course_name, COUNT(e.student_id) AS total_students  
FROM Courses c  
JOIN Enrollments e ON c.course_id = e.course_id  
GROUP BY c.course_name;
```

-- Subqueries

```
SELECT name FROM Students  
WHERE student_id IN (  
    SELECT student_id FROM Enrollments  
    WHERE course_id = 101  
);
```

-- Update & Delete

```
UPDATE Students SET age = 23 WHERE student_id = 1;  
DELETE FROM Courses WHERE course_id = 103;
```