

StudentEnrollments Table Example with Transactions

1. Table Creation

```
CREATE TABLE StudentEnrollments (  
    enrollment_id INT PRIMARY KEY,  
    student_name VARCHAR(100) NOT NULL,  
    course_id VARCHAR(10) NOT NULL,  
    enrollment_date DATE NOT NULL,  
    UNIQUE (student_name, course_id)  
);
```

2. Initial Insert

```
INSERT INTO StudentEnrollments (enrollment_id, student_name, course_id, enrollment_date)  
VALUES (1, 'Ashish', 'CSE101', '2024-07-01');
```

Output:

enrollment_id	student_name	course_id	enrollment_date
1	Ashish	CSE101	2024-07-01

3. Attempt Duplicate Insert

```
INSERT INTO StudentEnrollments (enrollment_id, student_name, course_id, enrollment_date)  
VALUES (2, 'Ashish', 'CSE101', '2024-07-01');
```

Output:

ERROR 1062 (23000): Duplicate entry 'Ashish-CSE101' for key 'student_name, course_id'

4. Transaction Example: User A

```
START TRANSACTION;
```

```
SELECT * FROM StudentEnrollments WHERE student_name='Ashish' AND course_id='CSE101'
FOR UPDATE;
UPDATE StudentEnrollments SET enrollment_date='2024-07-02' WHERE student_name='Ashish'
AND course_id='CSE101';
-- COMMIT later
```

Table after User A update (not committed yet):

enrollment_id	student_name	course_id	enrollment_date
1	Ashish	CSE101	2024-07-02

5. Transaction Example: User B (Blocked until User A commits)

```
-----
START TRANSACTION;
SELECT * FROM StudentEnrollments WHERE enrollment_id=1 FOR UPDATE;
UPDATE StudentEnrollments SET enrollment_date='2024-07-03' WHERE enrollment_id=1;
```

6. Transaction Example: User C (Blocked until User B commits)

```
-----
START TRANSACTION;
SELECT * FROM StudentEnrollments WHERE enrollment_id=1 FOR UPDATE;
UPDATE StudentEnrollments SET enrollment_date='2024-07-04' WHERE enrollment_id=1;
```

7. Commit Sequence

```
-----
COMMIT; -- User A commits first
COMMIT; -- User B commits
```

8. Final Table Output

```
-----
SELECT * FROM StudentEnrollments WHERE enrollment_id=1;

enrollment_id | student_name | course_id | enrollment_date
1              | Ashish      | CSE101   | 2024-07-03
```

Explanation:

- User A updated to 2024-07-02 and committed.
- User B updated to 2024-07-03 and committed.
- User C's update 2024-07-04 is not committed yet, so not reflected.