NAME	Snigdha Ghosh
UID	23ICS10004
CLASS	622-A
SUBJECT	ADBMS

Part A: Prevent Duplicate Enrollments Using Locking

Part B: Use SELECT FOR UPDATE to Lock Student Record

Part C: Demonstrate Locking Preserving Consistency in Concurrent Transactions

CODE:

```sql
DROP TABLE IF EXISTS StudentEnrollments;

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,
    CONSTRAINT unique_student_course UNIQUE (student_name, course_id)
);
START TRANSACTION;

INSERT INTO StudentEnrollments VALUES (1, 'Ashish', 'CSE101', '2024-07-01');
INSERT INTO StudentEnrollments VALUES (2, 'Smaran', 'CSE102', '2024-07-01');
INSERT INTO StudentEnrollments VALUES (3, 'Vaibhav', 'CSE101', '2024-07-01'); COMMIT;
START TRANSACTION;
```

```sql
INSERT INTO StudentEnrollments VALUES (4, 'Ashish', 'CSE101', '2024-07-02');


ROLLBACK;

START TRANSACTION;


SELECT * FROM StudentEnrollments

WHERE student_name = 'Ashish' AND course_id = 'CSE101'

FOR UPDATE;

START TRANSACTION;

INSERT INTO StudentEnrollments VALUES (4, 'Ashish', 'CSE101', '2024-07-02');


COMMIT;


START TRANSACTION;

SELECT * FROM StudentEnrollments

WHERE student_name = 'Ashish' AND course_id = 'CSE101'

FOR UPDATE;

START TRANSACTION;

SELECT * FROM StudentEnrollments

WHERE student_name = 'Ashish' AND course_id = 'CSE101'

FOR UPDATE;


UPDATE StudentEnrollments

SET enrollment_date = '2024-07-10'

WHERE student_name = 'Ashish' AND course_id = 'CSE101';


COMMIT;


START TRANSACTION;
```

```sql
UPDATE StudentEnrollments

SET enrollment_date = '2024-07-15'

WHERE student_name = 'Ashish' AND course_id = 'CSE101';


COMMIT;

SELECT * FROM StudentEnrollments
```

enrollment_id	student_name	course_id	enrollment_date
2	Smaran	CSE102	2024-07-01T00:00:00.000Z
3	Vaibhav	CSE101	2024-07-01T00:00:00.000Z
4	Ashish	CSE101	2024-07-15T00:00:00.000Z