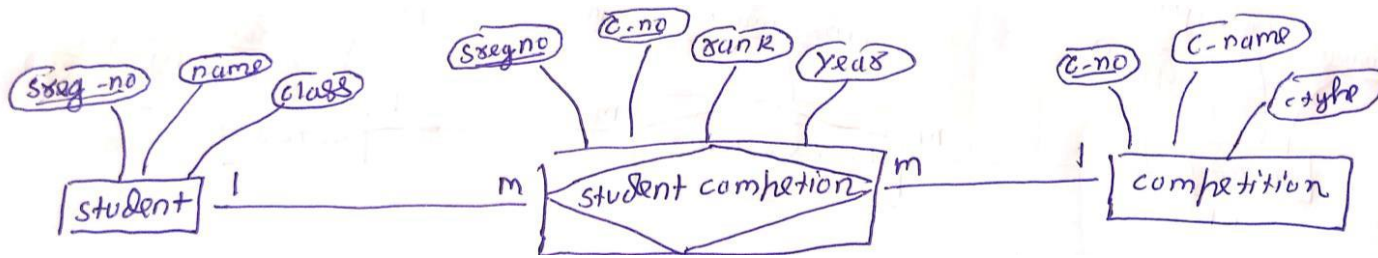


Q1) Practical Questions on PostgreSQL

STUDENT(sreg_no, name, class) COMPETITION(c_no, name, C_type)

- a) Draw the ER diagram for above relational schema and normalize it in 3NF.



- b) Create the above database in 3NF form in PostgreSQL using constraints.

```
CREATE TABLE Student (sreg_no INT PRIMARY KEY, name VARCHAR(50) NOT NULL, class VARCHAR(10)
CHECK (class IN ('FYBCA', 'SYBCA', 'TYBCA')));
```

```
CREATE TABLE Competition (c_no INT PRIMARY KEY, name VARCHAR(50) NOT NULL, C_type
VARCHAR(50) NOT NULL);
```

```
CREATE TABLE Participates_In (sreg_no INT NOT NULL, c_no INT NOT NULL, rank INT, year INT, PRIMARY
KEY (sreg_no, c_no), FOREIGN KEY (sreg_no) REFERENCES Student(sreg_no), FOREIGN KEY (c_no)
REFERENCES Competition(c_no));
```

```
INSERT INTO Student (sreg_no, name, class) VALUES (1, 'Amit Kumar', 'FYBCA'), (2, 'Priya Patel', 'SYBCA'), (3,
'Rahul Sharma', 'FYBCA'), (4, 'Neha Gupta', 'TYBCA'), (5, 'Kiran Joshi', 'SYBCA');
```

```
INSERT INTO Competition (c_no, name, c_type) VALUES (1, 'Debate Competition', 'Debate'), (2, 'Poster Making
Competition', 'Poster'), (3, 'Quiz Competition', 'Quiz');
```

```
INSERT INTO Participates_In (sreg_no, c_no, rank, year) VALUES (1, 2, 1, 2019), (1, 3, 1, 2019), (4, 1, 1, 2019), (1,
1, 1, 2020), (2, 2, 1, 2020), (4, 3, 1, 2020), (5, 2, 1, 2020), (3, 3, 2, 2019);
```

Q2) Using above database, solve the following queries:

- a) List the name of all competitions held in year 2019.
`SELECT name FROM Competition WHERE c_no IN (SELECT DISTINCT c_no FROM Participates_In WHERE year = 2019);`
- b) List the name of students of FYBCA who participated in Quiz as well as in Poster
`SELECT s.name FROM Student s JOIN Participates_In p ON s.sreg_no = p.sreg_no JOIN Competition c ON p.c_no = c.c_no WHERE s.class = 'FYBCA' AND c.c_type IN ('Quiz', 'Poster');`
- c) List the name of students class wise scoring 1st rank in all different competitions held in year 2020.
`SELECT s.name, s.class FROM Student s WHERE s.sreg_no NOT IN (SELECT p.sreg_no FROM Participates_In p WHERE p.year = 2020 AND p.rank != 1) GROUP BY s.name, s.class;`
- d) Change class of student KIRAN JOSHI to FYBCA who participated in Poster competition.
`UPDATE Student SET class = 'FYBCA' WHERE name = 'Kiran Joshi' AND sreg_no IN (SELECT sreg_no FROM Participates_In WHERE c_no = 2);`