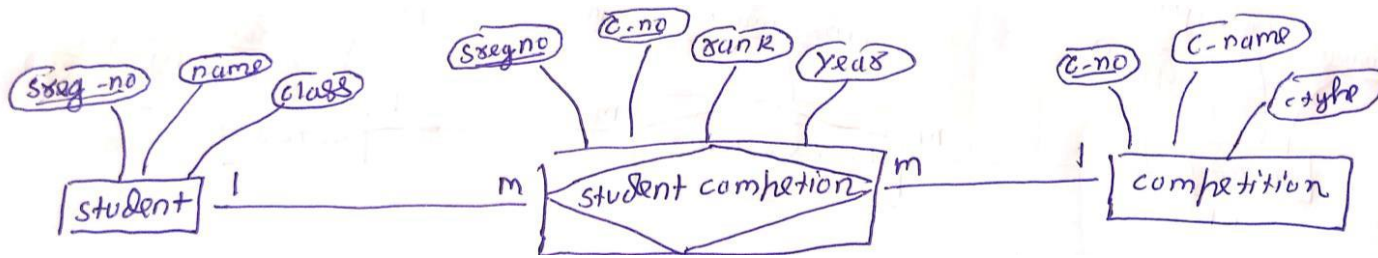


## Q1) Practical Questions on PostgreSQL

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 SERIAL PRIMARY KEY, name VARCHAR(100), class VARCHAR(10));
```

```
CREATE TABLE COMPETITION (c_no SERIAL PRIMARY KEY, name VARCHAR(100), c_type VARCHAR(20));
```

```
CREATE TABLE STUDENT_COMPETITION (sreg_no INT REFERENCES STUDENT, c_no INT REFERENCES COMPETITION, rank INT, year INT);
```

```
INSERT INTO STUDENT (name, class) VALUES ('Amit Kumar', 'FYBCA'), ('Priya Patel', 'SYBCA'), ('Rahul Sharma', 'FYBCA'), ('Neha Gupta', 'TYBCA'), ('Kiran Joshi', 'SYBCA');
```

```
INSERT INTO COMPETITION (name, c_type) VALUES ('Debate Competition', 'Debate'), ('Poster Making Competition', 'Poster'), ('Quiz Competition', 'Quiz');
```

```
INSERT INTO STUDENT_COMPETITION (sreg_no, c_no, rank, year) VALUES (1, 2, 1, 2018), (2, 2, 1, 2019), (3, 2, 2, 2019), (4, 2, 1, 2019), (5, 2, 2, 2019), (1, 3, 2, 2019), (2, 3, 1, 2019), (3, 3, 2, 2019), (4, 3, 1, 2019), (5, 3, 1, 2019);
```

## Q2) Using above database, solve the following queries:

- a) List the names of all students participated in Quiz Competition.

```
SELECT S.name FROM Student S INNER JOIN Participates_In PI ON S.sreg_no = PI.sreg_no INNER JOIN Competition C ON PI.c_no = C.c_no WHERE C.C_type = 'Quiz';
```

- b) List the names of students participated in more than two competitions.

```
SELECT s.name FROM STUDENT s JOIN STUDENT_COMPETITION sc ON s.sreg_no = sc.sreg_no GROUP BY s.name HAVING COUNT(DISTINCT sc.c_no) > 2;
```

- c) List the names of students of TYBCA scoring 1st rank in all different competitions in year 2019.

```
SELECT S.name FROM Student S INNER JOIN Participates_In PI ON S.sreg_no = PI.sreg_no WHERE S.class = 'TYBCA' AND PI.rank = 1 AND PI.year = 2019 GROUP BY S.name HAVING COUNT(DISTINCT PI.c_no) = (SELECT COUNT(DISTINCT c_no) FROM Competition);
```

- d) Change rank of student KIRAN JOSHI of class SYBCA to 2<sup>nd</sup> rank participated in Poster competition

```
UPDATE Participates_In PI SET rank = 2 FROM Student S WHERE S.name = 'Kiran Joshi' AND S.class = 'SYBCA' AND PI.sreg_no = S.sreg_no AND (SELECT C.C_type FROM Competition C WHERE C.c_no = PI.c_no) = 'Poster';
```