Sample Questions for QUIZ-3

Normalization

Q. 1: Given the relation

Book\_Pub\_Author(Title, PubId, AuId, Price, AuAddress)

The functional dependencies are given below.

* 1. Key 🡪 {Title, PubId, AuId}
  2. {Title, PubId, AuID} 🡪 {Price}
  3. {AuID} 🡪 {AuAddress}

Which normal form is the relation? Normalize it up to 3NF.

Q. 2: Given the relation

**City\_Population(City, Street, HouseNumber, HouseColor, CityPopulation)**

* 1. **key** 🡪 **{City, Street, HouseNumber}**
  2. **{City, Street, HouseNumber}** 🡪 **{HouseColor}**
  3. **{City}** 🡪 **{CityPopulation}**

Which normal form is the relation? Normalize it up to 3NF.

Q.3. Given the relation R(A, B, C, D, E, F, G, H)

The functional dependencies are given as follows:

ABC 🡪 DEFGH

So ABC is the primary key. The other functional dependencies are given as follows:

BC 🡪D

ABC 🡪 E

E 🡪 F

E 🡪 G

Q. Which normal form R is?

Q. Is the relation is 2NF? Why?

Q. Transform it into 2NF.

Q. Is R1 and R2 are in 3NF? Why?

Q. Transform R2 into 3NF.

**Q4:** The relation schema and the functional dependencies are given as follows:

R(A, B, C, D, E, F, G, H, I)

ABC → DEFGHI

B → G, B → H, D → E, D → I

Normalize up to 3NF.

User Management

Q5:

There three students users S1, S2 and S3, two teacher users T1 and T2 and one departmental head (Dr. Sajjad) user.

The relational schema has been given as follows:

Student (Sid, name, street, city. Mobile, email, CGPA, age, tot-cred)

Enroll (course-id, Sid, semester, year, grade)

Course (course-id, title, credit-hour)

Teacher (Tid, name, designation, street, city, Mobile, email, salary, date-of-birth)

Offer (course-id, Tid, semester, year, remuneration)

S1, S2 and S3 can insert and update on student and enroll table, T1 and T2 can insert and update on teacher and offer table and head can insert, delete and update to all tables.

Manage these users by

1. Granting individual privileges
2. Creating and granting role (st for student, tch for teacher and hd for head).
3. Give a comparison of these two methods.

Q6:

New head is Dr. Rashed. How can you authorize Dr. rashed by

1. Revoking and Granting individual privileges
2. Revoking and granting role.

Integrity Constraint

Q7:

Given the schema

Student (Sid, name, street, city. Mobile, email, CGPA, age, tot-cred)

Enroll (course-id, Sid, semester, year, grade)

Define DDL to have the following integrity constraints:

1. The composite primary key will be (course-id, Sid, semester, year).
2. Semester can be only ‘Spring’, ’Summer’ or ’Fall’.
3. Year must be higher than 2017.
4. Grade must be 0 to 4
5. Sid not present in student is not allowed in the enroll table.

**View**

Q8: create a view st-grade-22 with Sid, name, course-id, grade for year 2022

Q9: create a view st-list-22 with Sid, name for year 2022 using the view st-grade-22.

Student (Sid, name, street, city. Mobile, email, CGPA, age, tot-cred)

Enroll (course-id, Sid, semester, year, grade)

Course (course-id, title, credit-hour)

Teacher (Tid, name, designation, street, city, Mobile, email, salary, date-of-birth)

Offer (course-id, Tid, semester, year, remuneration)