

26/9

Task - 8

Normalizing Databases using functional
upto BCNF

Employee Database:

1. Identify Employee attributes: Emp-ID, Name, Dept., Job-title, Manager-ID, Salary.
2. Define relational schema
3. Determine functional dependencies between attributes
 - $\text{Emp-ID} \rightarrow \text{Name, Dept, Job-title, Manager-ID, HireDate}$
 - $\text{Dept} \rightarrow \text{Manager-ID}$
 - $\text{Manager-ID} \rightarrow \text{Name}$.

Step 2: Convert to 1NF

1. Eliminate repeating groups
2. Create separate table for each repeating group

Step 3: Convert to 2NF

1. Ensure each non-key attribute depends on entire key
2. Move non-key attribute to separate tables
 - Create Dept Table
 - Create Employee Table

Step 4: Convert to 3NF

1. Ensure there are no transitive dependencies.
2. Move non-key attributes to separate tables
 - Create Manager Table
 - Update Dept Table

Step 5: Convert to BCNF

1. Ensure every determinate is a candidate key
2. Check for overlapping keys
3. Decompose relations to eliminate redundancy.
4. No further decomposition.

output

Normalized Tables

Table name

Attributes

Employee Emp-ID (P), Name, Dept-ID (PK),
Job-title, Hire-Date, Salary

Department

Dept-ID (PK), Manager-ID (FK)

Manager

Manager-ID (PK), Name

Relationships

join

Manager->Employee

Employee->Dept

Manager->Dept

Employee->Dept

Manager->Dept

Employee->Dept

Using Griffith tool

1. Input relational schema
2. Griffith tool generates a dependency
3. Analyze the graph
4. Apply Normalization rule
5. verify the resulting schema

Griffith tool steps

1. Create a new project
2. Define the relational schema
3. Run the tool
4. Analyze the graph
5. Apply transformation using "Normalize" tool
6. Verify BCNF

Normalized Schema

1. Employee
2. Dept
3. Manager.

Result: Thus, the normalization is executed successfully.

VEL TECH - CSE	
EX NO.	8
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
DATE	20/07/14
INTERVIEW DATE	05/08/14