Task 8 Normalizing Databases using functional dependencies upto BCNF

Upon relational tables created in task 2. Perform normalization upto BCNF based on given Dependencies as following for the assumed relations specified below.

Employee Database:

1 Identify employee attributes: Employee_ID, Name, Department, Job_Title, Manager_ID, Hire_Date, Salary.

2. Define relational schema: Employee (Employee_ID, Name, Department, Job_Title_manager ID)

3. Determine functional dependencies, Job_title, manager_ID, Hire_Date, Salary

Determine -> Manager_ID

Manager_ID -> Name

Step-2: Convert to 1NF

1. Eliminate repeating groups or arrays.

2. Create seperate tables for each repeating group.

Step-3: Convert to 2NF

1 Ensure each non-key attribute depends on the entire primary key.

2 Move non-key attributes to seperate tables if they depends on only part of the primary key.

- Create Department table: Department (Department_ID, Manager_ID, Name)
- Update Department table: Department (Department_ID, Manager_ID).

Output

Table Name	Attributes
Employee	Employee_ID (PK), Name, Deptment_ID (FK), Job_Title, Hire_Data, Salary
Department	Department_ID (PK), Manager_ID (FK)
Manager	Manager_ID (PK), Name.

Step 4:

- Create manager table: Department (Department_ID, ~~Manager_ID~~) Name)
- Update Department table: Department (Department_ID, Manger_ID)

Using griffith Tool:

1. Input relational schema and functional dependencies.
2. Griffith tool generates a dependency graph.
3. Analyze the graph to identify normalization issues.
4. Apply normalization rules.
5. verify the result.

Griffith Tool Series:

1 Create a new project in Griffith.
2 Define the relational schema and FDS
3. Run the "Dependency Graph" tool.
4. Analyze the graph for normalization issue.
5 Apply the transformations using the "Normalize" tool.

Normalized Scheme:

1 Employee (Employee_ID, Name, Department_ID, Job_Title, Hire_Date, Salary)
2 Department (Department_ID, Manager_ID)
3. Manager (manager_ID, Name) .

Result:- Thus, the normalizing database using functional dependencies upto BCNF is executed successfully.

VEL TECH - CSE	
EX NO.	8
PERFORMANCE (5)	5
RESULT AND ANALYSIS	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	20
SIGN WITH DATE	07/10/21