

Task 8:- Normalizing databases using functional dependencies upto BCNF.

Upon relational tables created in task-2 Derhorn normalization upto BCNF based of given opened errors as following to the assumed relations specified below

Employee Databases:-

- 1) Identify employee attributes - Employee-ID, Name, Department, Job-Title, manager-ID, hire-Date, salary.
- 2) Determine functional dependences (FDs) between attributes:-
* Employee-ID \rightarrow Name, Department, Job-Title, manager-ID, Hire-Date, salary-Department \rightarrow Manager-ID
manager-ID \rightarrow Name

step 2:- Convert to 2 NP

- 1- Eliminate repeating group or array (more in this example);
- 2- create separate tables for each repeating group (none in this examples);

step 3:- Convert to 3NF

- 1) Ensure there are no transitive dependents
* create manager table: Manager (Manager-ID, Name).
- update Department table: Department (Department-ID, Manager-ID) y.

step 4:- Convert to 3NF

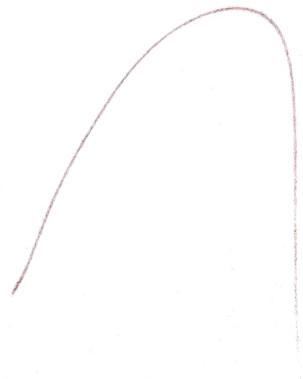
- 1) Ensure there are no transitive dependencies.
- 2) Move non-key attributes to separate, tables if they depend on another non-key attribute.

step 5:- Convert to BCNF

- 1) Ensure every determinant is a candidate key.
 - 2) check for overlapping candidate keys - No further decomposition needed using Toad tool.
- * Input relational schema and function dependencies.
* Graph tool generates a dependency graph.
* Analyse the graph to identify normalization issues.

OUTPUT :-

Tablename	Attributes
Employee	Employee-ID (PK), Name, Department-ID (FK), Job-Title, Hire-Date, Salary.
Department	Department-ID (PK), Manager-ID (FK)
Manager	Manager-ID (PK), Name



Griffith Tool steps:-

- 1.) create a new project in Griffith.
- 2.) Define the relational schema and FDs.
- 3.) Run the "Dependency Graph" tool.
- 4.) Analyse the graph for normalization issues.

Normalized schema

- 1.) Employee (Employee-ID, Name, Department-ID, Job-Title, Hire-Date, salary).
- 2.) Department (Department-ID, manager-ID).
- 3.) Manager (manager-ID, Name).

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EX NO.	8
PERFORMANCE (5)	5
RESULT ANALYSIS (5)	5
VIVA (5)	5
RECORD (5)	5
TOTAL (20)	20
DATE	26/9/25

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