Task 8 : Normalizing database using functional dependencies upto BCNF.

Aim : To implement the normalization database upon relational table created in task 2. perform normalization up to BCNF with given dependencies as following for assumed relations specified below

1. Identify Employee attributes Employee_ID, Name, department, Job_Title, Doctor id, Here_Date :
2. Define relational schema : patient (Patient_ID, Name, Department, Medicine_ID, Doctor_ID.).
3. Determine functional dependencies (FDs) between attributes :

patient_ID > Name, Department, salary_ID, Doctor_ID

- Department -> Doctor_ID
- Doctor_ID -> Name

Step 2 : convert into INF

1. Eliminate repeting groups in arrays
2. create separate tables for each repeating group.

Step 3 : Convert in 2NF

1. Ensure each non-key attribute depends on the entire primary key.
2. Move non-key attributes to seperate table if they depend on only part of primary key.

- create department table : Department (Dept_ID, Doctor_ID)

step4 : 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 attributes.

- create Doctor table : Doctor (Doctor_ID, Name)
- update department table : Department (Department_ID, Doctor_ID).

step5 : Convert to BCNF

1. Ensure every determinant is a candidate key
2. Check for overlaping candidate keys.
3. Decompose relations to eliminate redundancy

using Griffith Tool

1. Input relational schema and functional dependencies.
2. Griffith tool generate a dependency graph
3. Analyze the graph to identify normalization issues.
4. Apply normalization rules to transform the schema.
5. Verify the resulting schema meets BCNF criteria.

Griffith Tool steps :

1. Create a new project in Griffith.
2. Define the relational schema and FDs.
3. Use the "Dependency Graph" tool.

4. Analyze the graph for normalization issues.
5. Apply transformations using the "Normalize" tool.
6. Verify BCNF compliance using the "BCNF check".

Normalized schema.

1. patient (Patient_ID, Name, Medicine_Name, Medicine ID, ...).
2. Department (Department_ID, Doctor_ID);
3. Doctors (Doctor_ID, Name).

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EX NO.	8
PERFORMANCE (5)	3
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	
RECORD (5)	15
TOTAL (20)	
SIGN WITH DATE	30/9/25

Result : Thus the implementation of Normalizing database using functional dependencies upto BCNF has been executed successfully.