Task No:- 8 Normalizing database using

Date:- 30-9-25 upto BCNF

(Tools (GUI Tables, Normalization tools Aml, Jiglaw)

Aim:- To perform normalization upto BCNF Based on given dependencies

Booking database.

1. Identify Booking attributes: Customer, Account, Branch, Banker info, loan, Credit_Card.

2. Relational Schema:- Banking(Customer, Account, Branch, Banker info, loan, credit_card)

3. functional dependices (FD's between Attributes):

Customer ID → Name, Address, ph-no

Account_number → Account name, Category

Branch_ID → Branch Name, Location, ifsc_code

Banker_ID → Banker_Name, ph_no

Customer_ID → Account_number

loanID → loan_amount

Customer_ID → loan_ID

Step 2:- Convert to 1NF

* No repeating groups or Arrays

* All attributes are atomic

The Schema is in 1NF

Step 3:- Convert to 2NF

* All primary keys are single-column keys. So no partial dependencies exist

* However, we ensure foreign key attribute are managed Correctly.

output:- The schema is already in 2NF

Step 4:- Convert it to 3NF

Eliminate Transitive dependencies

* Customer_ID → Account number → Loan ID

→ move Loan_ID to a Sperate Loan Table

* Customer_ID → Name, address, ph_no

→ Already in number seperate user table

* Account_number → Customer_ID → Branch_ID

→ No redundancy

All transitive dependencies removed

Step 5:- Convert to BCNF

Check if every determinant is a Candidate key.

Customer_ID, Account_number, Branch_ID, Loan_ID are all unique keys their respective table

* foreign keys like Customer_ID donot violate BCNF Rules

All FD's comply with BCNF_No further decomposition needed.

Using Griffth Tool :-

1. Input relation Schema and functional dependencie
2. Griffth tool generates a dependency graph.
3. Analyse the graph to identify Normalization issues
4. Apply normalization to transform Schema
5. verify the resulting Schema meats BCNF Criteria

Griffth tool Steps :-

1. Create a new p
2. Define the relational Schema and FDS
3. Run the "Dependency Graph" tool.
4. Analyse the graph for normalization process issue.

5. Apply transformations using the 'Normalize Tool'
6 verify BCNF Compilance using "BCNF check" Tool

Normalization Tool :-

Customer (Customer ID, Name, ph-no)
Account (Account_number, Account_name, Category)
Branch (Branch-ID, Branch-name, location, ifsc_code)
Branker_info (Branker_ID, Name, ph-no)
loan (loan ID, Customer_ID, Amount)
Creditcard (credit_card_Number, Customer_ID, limit)

VELTECH	
EX No.	8
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	
TOTAL (20)	15
SIGN WITH DATE	

30/9/25

Result:- Thus, the implementation of normalizing the database upto BCNF Based on given dependence was successfully executed.