Task - 8

Normalizing database using functional dependencies upto BCNF tool: (GUI table Normalization Tool ALM: Jigsaw)

Aim:- To perform normalization upto BCNF based on given dependencies.

Mobilephone Database:-

1. Identify mobile phone attributes: phone-ID, Mobile_name, Mobile_price, Data.
2. Define relational schema:- mobile (phone-ID, Mobile_name, mobile_Date, mobile_price, Product_ID
3) Determine functional dependencies (FDs) between attributes:
   - Mobile_name, phone-ID : mobile_price_
   - Mobile_Date · Product ID.

Step 2: Convert to 1NF

* No repeating groups or arrays.
* All attributes are atomic

The schema in CNF

Step 3: Convert to 2NF

* All primary keys are single_column keys, so no partial dependencies
* However, we ensure foreign key attributes are managemet correctly.

output:- The schema is already in 2NF

step4 :- convert to 3NF

Elimate Transitive dependenies

* product-ID → category-ID → category-name.

→ move category-name to a seperate categories mobile table.

* User-ID → name, Email, Address phone.

→ Already insepect Users table.

* phone-ID → un → user Details

→ no redundy, as only user-ID is stored in phone.

All transitive depondencies removed

step: 5 Convert to BCNF

check if every determinant is a condidate key:

* user-ID, Product ID, Payment_ID, model_name, are all unique.

keys for their respective tables.

* foregin keys like category-ID, user-ID

ex.---- do not violate BCNF rules

All FD's empty with BCNF no functn decomposition needed.

Using ciriffith tool:

1. Input relabonal schema and functional dependenies.

2) Griffith tool generate a dependn graph

3. Analyze the graph to identify normalization issues

4. Apply normalization rules to transform the schema.

5. verify the resulting schema meet BCNF Criteria

Griffith tool steps:

1. Create a new project in Griffith
2. Define the relational schema and fd
3. Run the Dependency Graph tool
4. Analyze the graph for normalization issue
5. Apply transformation using the normalization tool.
6. verify BCNF compliance using the BCNF Check tool

Normalized schema:

Users (user_ID, Name, Email, Address)

categories (category ID, Name of the category)

Mobile (phone_ID, name, category_ID, price)

Mobile Details (phone_ID, Quality, price)

Payment_ID, total_amount)

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

Result: Thus the implementation of 3NF normalizing the database upto BCNF based on given dependencies was executed successfully. 30/9/3