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**Green University of Bangladesh**

**Department of Computer Science and Engineering(CSE)**

**Faculty of Sciences and Engineering**

**Semester: (Spring, Year:2024), B.Sc. in CSE (Day)**

**LAB REPORT NO #03**

**Course Title: Database Lab**

**Course Code: CSE 210 Section: 221\_D9**

**Experiment Name: Modifying MySQL databases and Updating Data in**

**MySQL Table**

**Student Details**

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**Lab Date : 09 – 03 – 2024**

**Submission Date : 16 – 03 – 2024**

**Course Teacher’s Name : Md. Nazmus Shakib**

**[For Teachers use only: Don’t Write Anything inside this box]**

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| **Lab Report Status**  **Marks: ………………………………… Signature:.....................**  **Comments:.............................................. Date:..............................** |

**1. TITLE OF THE LAB EXPERIMENT:**

Modifying MySQL databases and Updating Data in MySQL Table

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**2. OBJECTIVES:**

After complementing this lab experiment, we will gain practical knowledge and the outcomes of this experiment are

* To gain the advance knowledge for modifying and updating MySQL databases.
* To implement diﬀerent types of modifying statements using ADD, DROP, CHANGE and UPDATE.
* To Update columns of already existing table.

**3. PROCEDURE:**

To successfully complete the outcomes, we have done the following.

1. Database Design:

Database Name: Bank, consisting of 6 tables.

1. Table Cration:
   1. Branch has one primary key.
   2. customer has 1 primary key: customer\_id

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Figure 01: DESCRIBE customer.

* 1. account has 1 primary key

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Figure 02: DESCRIBE account.

* 1. borrower table has 2 columns.

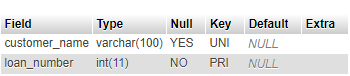


Figure 03: DESCRIBE borrower.

* 1. loan with 3 columns and 1 primary key

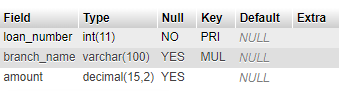


Figure 04: DESCRIBE loan.

**4. IMPLEMENTATION**

Here’s I have included all the code we need to obtain all the outcomes of this experiment.

**Codes:**

*CREATE DATABASE bank;*

*use bank;*

Now we need to create 6 tables: branch, customer, account, loan, depositor, borrower.

1. **Table creation:**

*CREATE TABLE branch(branch\_name VARCHAR(100),branch\_city VARCHAR(100),assets DECIMAL(15, 2),PRIMARY KEY(branch\_name)*

*);*

*CREATE TABLE customer(customer\_id INT PRIMARY KEY,customer\_name VARCHAR(100),customer\_city VARCHAR(100)*

*);*

*CREATE TABLE ACCOUNT(account\_number INT PRIMARY KEY,branch\_name VARCHAR(100),balance DECIMAL(15, 2),FOREIGN KEY(branch\_name) REFERENCES branch(branch\_name)*

*);*

*CREATE TABLE loan(loan\_number INT PRIMARY KEY,branch\_name VARCHAR(100),amount DECIMAL(15, 2),FOREIGN KEY(branch\_name) REFERENCES branch(branch\_name)*

*);*

*CREATE TABLE depositor(customer\_name VARCHAR(100),account\_number INT,*

*FOREIGN KEY(customer\_name) REFERENCES customer(customer\_name),*

*FOREIGN KEY(account\_number) REFERENCES ACCOUNT(account\_number)*

*);*

*CREATE TABLE borrower(customer\_name VARCHAR(100),loan\_number INT,*

*FOREIGN KEY(customer\_name) REFERENCES customer(customer\_name),*

*FOREIGN KEY(loan\_number) REFERENCES loan(loan\_number)*

*);*

1. **Insertion in the table:**
   1. **Branch Table:**

INSERT INTO branch (branch\_name, branch\_city, assets) VALUES

('Dhaka Branch', 'Dhaka', 1000000.00),

('Chittagong Branch', 'Chittagong', 1500000.50),

('Sylhet Branch', 'Sylhet', 2000000.75),

('Khulna Branch', 'Khulna', 1200000.25),

('Rajshahi Branch', 'Rajshahi', 1800000.80),

('Barisal Branch', 'Barisal', 2200000.90);

* 1. **Account Table:**

INSERT INTO account (account\_number, branch\_name, balance) VALUES

(1001, 'Dhaka Branch', 50000.00),

(1002, 'Chittagong Branch', 75000.50),

(1003, 'Sylhet Branch', 100000.75),

(1004, 'Khulna Branch', 60000.25),

(1005, 'Rajshahi Branch', 90000.80),

(1006, 'Barisal Branch', 110000.90);

* 1. Customer Table:

INSERT INTO customer (customer\_id, customer\_name, customer\_city) VALUES

(1, 'Mohammad Rahman', 'Dhaka'),

(2, 'Fatima Begum', 'Chittagong'),

(3, 'Abdul Ali', 'Sylhet'),

(4, 'Nusrat Jahan', 'Khulna'),

(5, 'Hasan Ahmed', 'Rajshahi'),

(6, 'Ayesha Khan', 'Barisal');

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Figure 05: Inserting in Customer Table.

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Figure 06: Inserting in branch Table.

* 1. borrower table:

INSERT INTO borrower (customer\_name, loan\_number) VALUES

('Mohammad Rahman', 10001),

('Fatima Begum', 10002),

('Abdul Ali', 10003),

('Nusrat Jahan', 10004),

('Hasan Ahmed', 10005),

('Ayesha Khan', 10006);

* 1. loan table:

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Figure 07: loan table data insertion.

1. Modifying exiting table.
   1. Add column Email in customer table.

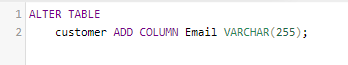


Figure 08: Added new column email to the customer table.

* 1. Change customer\_city to address

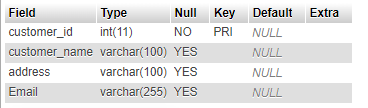


Figure 09: Showing update field name address in customer table.

* 1. Modified assets column to DECIMAL with two-point float position.



Figure 10: Altered a single column data type of tbale branch.

**5. OUTPUT:**

We can see the data of our earlier created database uing the following command.

***SELECT \* FROM***

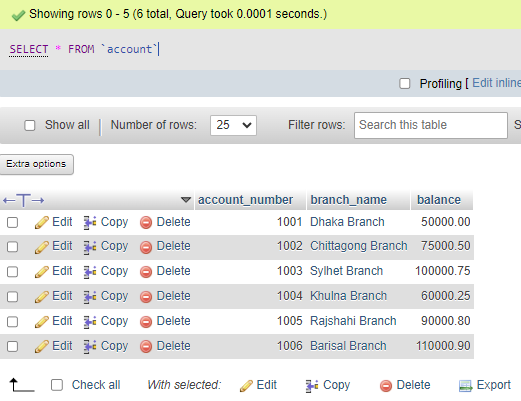
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Figure 11: Account table.

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Figure 12: branch table.

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Figure 13: customer table with a newly created email field where default value is NULL.

**6. ANALYSIS AND DISCUSSION:**

The objective was to create a bank database schema with tables for **branches, customers, accounts, loans, depositor, and borrower** is successfully obtained.

I followed the database & table structure with appropriate PRIMARY KEY and FOREIGN KEY constraints. Data types are defined as per requirements, and additional features like an email column is also included later.

The whole task was easy to implement except defining foreign key with another table to create relation and data retrieval between different table.

**7. SUMMARY:**

The lab experiment is successfully completed on creating and inserting data in the database with the given Lab Task.

The data insertion has reference integrity by referencing existing data from another tables. The lab aimed to demonstrate the implementation of integrity constraints and foreign key relationships in MySQL databases while updating existing tables and data in it.

Data types are chosen differently, with DECIMAL though the given instruction was to choose INTEGER type for numerical values like amount and balance, and VARCHAR for textual data.