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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 #02**

**Course Title: Database Lab**

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

**Experiment Name: Implementation of Integrity Constraints in MySQL**

**Student Details**

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**Lab Date : 02 – 03 – 2024**

**Submission Date : 09 – 03 – 2024**

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**[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**

**Implementation of Integrity Constraints in MySQL**

**2. OBJECTIVES**

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

1. Database creation and Insert Data in each table using sql code.
2. Declare Primary Key
3. Assign primary key for each table.
4. Create Composite Key
5. Assign a unique in at least two tables.
6. Implement Unique Constraint
7. Implement Foreign Key Constraint
8. Browse data for each table.

**3. PROCEDURE**

**To successfully complete the outcomes we have done the followings.**

1. **Database Desgin: first of all, I need to come up with a idea of three table where I can implement all the outcomes like declaring primary and foregin key, and it’s constraint I needed to think of a relation between three tables so that we can build a meaningful database.**
2. **Table Cration: courselist , advisor\_list, students three tables.**
   1. **courselist has one primary key: course\_code**
   2. **advisor list has 2 primary key**

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**Firgur 1: DESCRIBE advisor\_list;**

* 1. **students table has 1 primary key, 1 MUL key and 1 unique key which is also foregin key.**

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**Firgur 2: DESCRIBE students;**

**4. IMPLEMENTATION**

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

**Codes:**

*CREATE DATABASE exp3\_lab\_rpt2 ;*

*use exp3\_lab\_rpt2;*

1. **Table: courselist ,**
2. **Table creation:**

*CREATE TABLE courselist(course\_code int NOT NULL, course\_name varchar(30) NOT NULL, batch int NOT NULL, PRIMARY KEY(course\_code), UNIQUE(course\_code));*

1. **INSERTion in the table.**

*INSERT INTO courselist (course\_code, course\_name, batch) VALUES*

*(307, 'Data Communication', 221),*

*(308, 'Data Communication Lab', 221),*

*(209, 'Database System', 221),*

*(210, 'Database System Lab', 221),*

*(205, 'Electrical Drives and Instrumentation', 221),*

*(309, 'Operating System', 221),*

*(310, 'Operating System lab', 221),*

*(313, 'Software Engineering', 221);*

1. **Table : students**
2. **Table creation:**

*CREATE TABLE students(*

*id INT NOT NULL,*

*NAME VARCHAR(15) NOT NULL,*

*department VARCHAR(5) NOT NULL,*

*course\_code INT NOT NULL,*

*faculty\_name varchar(15) NOT NULL,*

*phone INT,*

*PRIMARY KEY(id),*

*UNIQUE(course\_code),*

*FOREIGN KEY(faculty\_name) REFERENCES advisor\_list(faculty\_name),*

*FOREIGN KEY(course\_code) REFERENCES courselist(course\_code)*

*);*

1. **INSERT in the table.**

**To insert data in this table we need to first input data in the courselist and advisor\_list as students table has a foregin key relationship with these two table.**

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Figure 3: student table has a foregin key reference from courelist table (column:course\_code).

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Figure 4: student table has a foregin key reference from advisor\_list table(faculty\_name).

1. **Table: advisor\_list:**
2. **Table creation:**

*CREATE TABLE advisor\_list(faculty\_name varchar(15) NOT NULL, faculty\_id int NOT NULL, email varchar(15) NOT NULL, PRIMARY KEY(faculty\_name(15), faculty\_id ));*

1. **INSERT in the table.**

*INSERT INTO advisor\_list (faculty\_name, faculty\_id, email) VALUES*

*('MR. MD. JAHIDUL ISLAM', 100, 'jahid@cse.green.edu.bd'),*

*('MS. JAKIA SULTANA', 101, 'jakia@cse.green.edu.bd'),*

*('MS. FARHANA AKTER SUNNY', 102, 'farhana@cse.green.edu.bd'),*

*('Sharmin Sultana, 103, 'sharmin@cse.green.edu.bd'),*

*('MR. HUMAYAN KABIR RANA', 104, 'humayan@cse.green.edu.bd'),*

*('Monirul, 105, 'monirul@cse.green.edu.bd'),*

*('MR. JARGIS AHMED', 106, 'jargis@cse.green.edu.bd'),*

*('MS. SAMIHA ISLAM TANNI', 107, 'samiha@cse.green.edu.bd'),*

*('MR. MD. ROBIUL ISLAM', 109, 'robiul@cse.green.edu.bd'),*

*('MS. BABE SULTANA', 111, 'babe@cse.green.edu.bd'),*

*('MS. UMME HABIBA', 113, 'umme@cse.green.edu.bd'),*

*('MS. ROKEYA KHATUN', 115, 'rokeya@cse.green.edu.bd');*

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Figure 5: inseting data in advisor\_list table.

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Figure 6: insetion successful in advisor\_list table.

**5. OUTPUT**

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

***SELECT \* FROM***

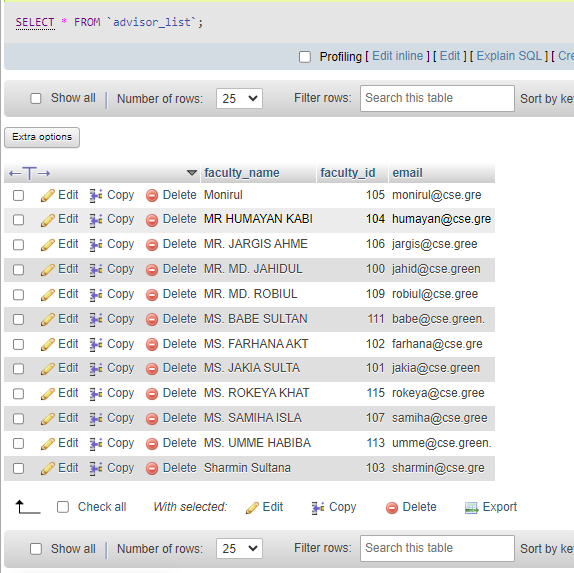


Figure 7: advisor\_list table.

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Figure 8: courselist table.

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Figure 9: student table. By [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/8.0/en/select.html) \* FROM `students`;

**6. ANALYSIS AND DISCUSSION:**

I reflected on how integrity constraints maintained data accuracy. Explored relationships between tables, noting their role in data retrieval. Despite challenges, I found the implementation efficient, with scope for future enhancements.

**7. SUMMARY:**

The lab experiment is successfully completed on creating and inseting data in the database with three tables: "courselist," "advisor\_list," and "students."

The data insertion has reference integrity by referencing existing course codes and faculty names from the respective tables. Overall, the lab aimed to demonstrate the implementation of integrity constraints and foreign key relationships in MySQL databases.