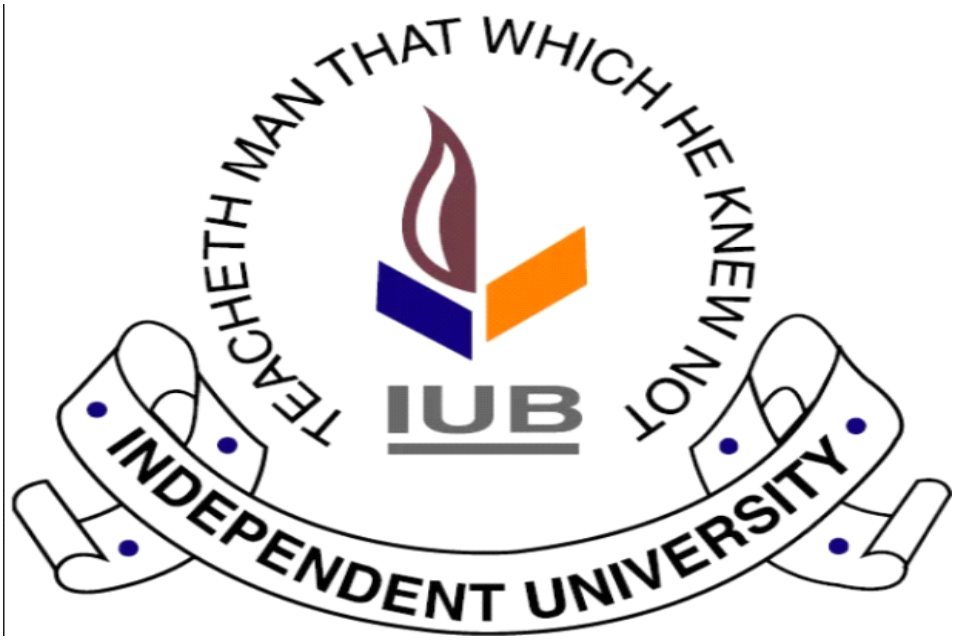

Course Title: Database management
Course ID: **MIS401**
Section: 02

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First, we are Going to create a database by using this command.

```
mysql> create database iub;
Query OK, 1 row affected (0.01 sec)

mysql>
```

Now we will use this database and select this database.

```
mysql> use iub;
Database changed
mysql> select database ();
+-------------+
| database () |
+-------------+
| iub         |
+-------------+
1 row in set (0.00 sec)
```

Create Tables:

Create the necessary tables to represent different entities within the company. We will create few tables.

```
mysql> CREATE TABLE Employees (
    ->     EmployeeID INT PRIMARY KEY,
    ->     FirstName VARCHAR(50),
    ->     LastName VARCHAR(50),
    ->     DepartmentID INT,
    ->     SalaryID INT,
    ->     AddressID INT
    -> );
Query OK, 0 rows affected (0.04 sec)
```

We selected primary key as employeeID because it’s unique here INT means integer and varchar- variable characters.

Now using create table function we're going to create more tables

```
mysql> CREATE TABLE Departments (
    ->     DepartmentID INT PRIMARY KEY,
    ->     DepartmentName VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> CREATE TABLE Projects (
    ->     ProjectID INT PRIMARY KEY,
    ->     ProjectName VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.03 sec)
```

Linking foreign key to private key:

New table is created by linking two tables here using using employee ID and project ID and to check we used the discrete function to check if this was successful

```
mysql> CREATE TABLE Employee_Projects (
    ->     EmployeeID INT,
    ->     ProjectID INT,
    ->     PRIMARY KEY (EmployeeID, ProjectID),
    ->     FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID),
    ->     FOREIGN KEY (ProjectID) REFERENCES Projects(ProjectID)
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> describe Employee_Projects;
+------------+------+------+-----+---------+-------+
| Field      | Type | Null | Key | Default | Extra |
+------------+------+------+-----+---------+-------+
| EmployeeID | int  | NO   | PRI | NULL    |       |
| ProjectID  | int  | NO   | PRI | NULL    |       |
+------------+------+------+-----+---------+-------+
2 rows in set (0.01 sec)
```

We are going to create few more tables to make it complex.

```
mysql> CREATE TABLE Salaries (
    ->     SalaryID INT PRIMARY KEY,
    ->     SalaryAmount DECIMAL(10, 2)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> CREATE TABLE Addresses (
    ->     AddressID INT PRIMARY KEY,
    ->     StreetAddress VARCHAR(100),
    ->     City VARCHAR(50),
    ->     State VARCHAR(2),
    ->     ZipCode VARCHAR(10)
    -> );
Query OK, 0 rows affected (0.08 sec)
```

Adding a new column using alter table. E-mail was added in employees table and after we will check if it was added or not.

```
mysql> ALTER TABLE Employees
    -> ADD Email VARCHAR(100);
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> describe Employees;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| EmployeeID   | int         | NO   | PRI | NULL    |       |
| FirstName    | varchar(50) | YES  |     | NULL    |       |
| LastName     | varchar(50) | YES  |     | NULL    |       |
| DepartmentID | int         | YES  |     | NULL    |       |
| SalaryID     | int         | YES  |     | NULL    |       |
| AddressID    | int         | YES  |     | NULL    |       |
| Email        | varchar(100)| YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

Insert data now it's time to input data in these tables.

We had few simple error’s but i learned from it and made it right and also used two different types of insert the picture is below

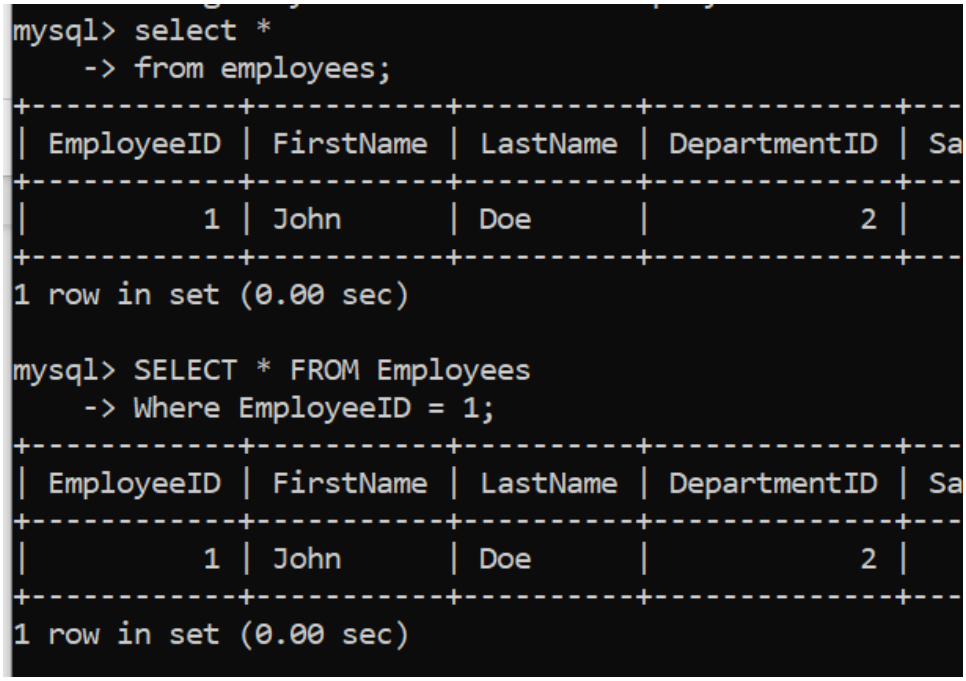
```
 for the right syntax to use near '1, 'ram', 'rahim', 1, 1, 1,'ram@
mysql> INSERT INTO Employees (EmployeeID, FirstName, LastName, Depa
    -> VALUES (1, 'John', 'Doe', 1, 1, 1, 'john.doe@example.com');
Query OK, 1 row affected (0.01 sec)

mysql> insert into Departments values (1, 'HR');
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO Projects (ProjectID, ProjectName)
    -> VALUES (1, 'Employee Management');
Query OK, 1 row affected (0.01 sec)
```

Now we'll update data

```
mysql> UPDATE Employees
    -> SET DepartmentID = 2
    -> WHERE EmployeeID = 1;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

Getting info from database(query)

2 types of select function was used one was with condition and another without any condition to get data



```
mysql> select *
    -> from employees;
+------------+-----------+----------+--------------+---
| EmployeeID | FirstName | LastName | DepartmentID | Sa
+------------+-----------+----------+--------------+---
|          1 | John      | Doe      |            2 |
+------------+-----------+----------+--------------+---
1 row in set (0.00 sec)

mysql> SELECT * FROM Employees
    -> Where EmployeeID = 1;
+------------+-----------+----------+--------------+---
| EmployeeID | FirstName | LastName | DepartmentID | Sa
+------------+-----------+----------+--------------+---
|          1 | John      | Doe      |            2 |
+------------+-----------+----------+--------------+---
1 row in set (0.00 sec)
```

Null value if want null inside the tables we can use this below command in another method we can just keep it blank but sometimes keeping blank shows errors

```
mysql> INSERT INTO Employees (EmployeeID, FirstName, LastName, DepartmentID, SalaryID, AddressID, Email)
    -> VALUES (3, 'Jane', 'Smith', 5, 4, 3, NULL);
Query OK, 1 row affected (0.01 sec)
```

Delete Data or we can use delete from Employees; to delete all data

```
mysql> DELETE FROM Employees
    -> WHERE EmployeeID = 2;
Query OK, 0 rows affected (0.00 sec)
```

Dropping a Column (e.g., dropping the "Email" column)

```
mysql> ALTER TABLE Employees
    -> DROP COLUMN Email;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

By using select we can create a lot of complex queries some of them are given below oh we can arrange order by name and many different conditions such as(=,or,and,>,<,IN)

In this below we used order by lastname but in descending order

```
mysql> select *
    -> from employees
    -> order by LastName desc;
+------------+-----------+----------+--------------+----------+-----------+
| EmployeeID | FirstName | LastName | DepartmentID | SalaryID | AddressID |
+------------+-----------+----------+--------------+----------+-----------+
|          3 | Jane      | Smith    |            5 |        4 |         3 |
|          1 | John      | Doe      |            2 |        1 |         1 |
+------------+-----------+----------+--------------+----------+-----------+
2 rows in set (0.00 sec)
```