University of Barishal

ASSIGNMENT

Course Title : Database Management System

Topic :   Creating relational database using MySQL for department handing.

Submitted to: Md Samsuddoha Sams

              Assistant Professor

              Department of Computer Science & Engineering

              University of Barishal

Submitted By : Jagaran Chakma

Department : Statistics

Roll   : 05-002-10

Session   : 2020-2021

Year   : 3rd

Introduction:

A relational database based on department handling typically organizes data into tables (or relations) that correspond to various entities related to the department structure within an organization. The relationships between these tables are defined through primary and foreign keys.

## Entities used for a Relational Database on Department Handling:

- Department
- Faculty (workers in the department)
- Student
- Course
- Exam
- Assessments
- Results

Relationships:

- **One-to-Many**: A department can have many employees, but each employee belongs to one department. Similarly, a department can oversee many courses, but a project is handled by one department.
- **Many-to-Many**: Students can sit for multiple exams, and each exam can have multiple courses.

Entity relationship (ER) Diagram:

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how "entities" such as people, objects or concepts relate to each other within a system.
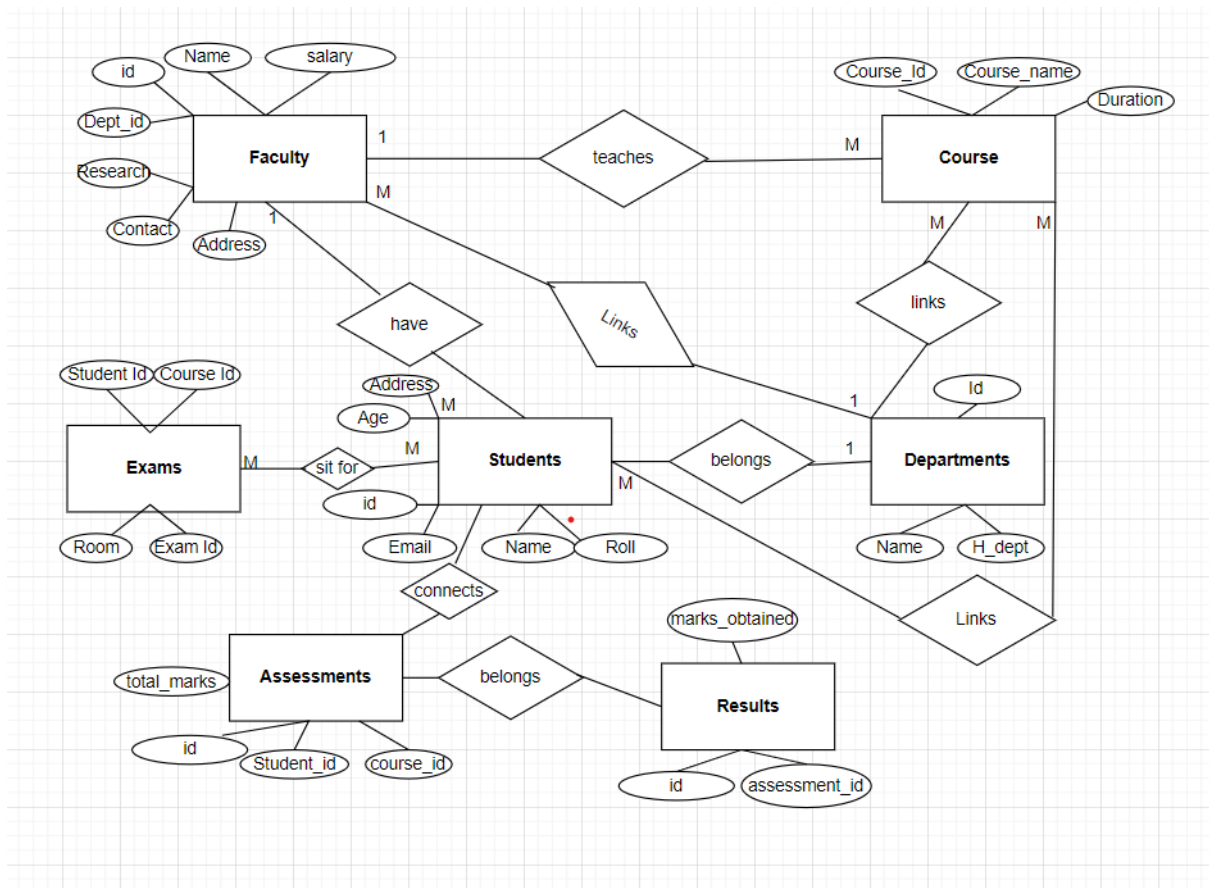
Link of ER diagram:
https://drive.google.com/file/d/1Rk9QKt2k_Z148CMIH7snHYRb0L1rj1L_/view?usp=sharing

Codes used for creating the database:

CREATE DATABASE department_entities;

CREATE TABLE department(

      id int PRIMARY KEY auto_increment,

      name VARCHAR(20) NOT NULL,

      est_data DATE NOT NULL,

      dept_of_head VARCHAR(40) NOT NULL

);

CREATE TABLE faculty(

  id int PRIMARY KEY auto_increment,

  name VARCHAR(20) NOT NULL,

```sql
    dept_id INT(20) NOT NULL,

    salary DECIMAL(10,2) NOT NULL,

    research varchar(20) NOT NULL,

    address VARCHAR(40) NOT NULL,

    contact varchar(20) NOT NULL,

    FOREIGN KEY(dept_id) REFERENCES department(id)

);

  CREATE TABLE student(

  id int PRIMARY KEY auto_increment,

  name VARCHAR(20) NOT NULL,

  roll VARCHAR(10) NOT NULL,

  age INTEGER(10) NOT NULL,

  semester INT(20) NOT NULL,

  email varchar(20) NOT NULL,

  address VARCHAR(40) NOT NULL


);

CREATE TABLE course(

        id int(20) PRIMARY KEY auto_increment,

        title varchar(20) NOT NULL,

        duration time NOT NULL,

        code int(10) NOT NULL


);

CREATE TABLE exam(

        id int PRIMARY key auto_increment,

        student_id int(20) NOT NULL,

        course_id int(20) NOT NULL,

        room_no int(20) NOT NULL,

        FOREIGN key(course_id) REFERENCES course(id),

        FOREIGN KEY(student_id) REFERENCES student(id)

);
```

```sql
CREATE TABLE assessments(
   id INT PRIMARY KEY AUTO_INCREMENT,
   course_id INT(20) NOT NULL,
   student_id INT(20) not null,
   total_marks INT(20) NOT NULL ,
       FOREIGN KEY(course_id) REFERENCES course(id),
       FOREIGN KEY(student_id) REFERENCES student(id)
);
CREATE TABLE results(
   id INT PRIMARY KEY AUTO_INCREMENT,
   assessment_id INT(20) NOT NULL,
   marks_obtained INT(20) NOT NULL,
   FOREIGN KEY(assessment_id) REFERENCES assessments(id)
);
-- Dumping data for table `course`
INSERT INTO `course` (`id`, `title`, `code`, `duration`) VALUES
(1, 'Statistical inferenc', 'Stat-301', '75:35:35'),
(2, 'Time Series Analysis', 'Stat-305', '79:43:23'),
(3, 'Calculus', 'Stat-104', '08:26:23');


-- Dumping data for table `department`
INSERT INTO `department` (`id`, `name`, `est_data`, `dept_of_head`) VALUES
(3, 'Statistics', '2018', 'Donald J. Trump'),
(4, 'History', '2013', 'David Luis'),
(5, 'Political Science', '2016', 'Sohel Sir'),
(6, 'Mathematics', '2012', 'David Luis');


-- Dumping data for table `student`
INSERT INTO `student` (`id`, `name`, `roll`, `age`, `semester`, `email`, `address`) VALUES
(1, 'Neymar Junior', '21STA-012', 23, 3, 'brushfasjfhahj@gmail', 'Brazil'),
(2, 'Cristiano Ronaldo', '21Stat-32', 25, 5, 'cristiano@gmail.com', 'Portugal'),
(3, 'Halland', '21Pol-21', 23, 3, 'brushfasjfhahj@gmail', 'Norway'),
```

(4, 'Vinicious Junior', '18His-31', 25, 5, 'vinicius.j@gmail.com', 'Brazil');

-- Dumping data for table `faculty`

INSERT INTO `faculty` (`id`, `name`, `dept_id`, `salary`, `research`, `address`, `contact`) VALUES

(1, 'Mr Haque', 3, 45000.00, 'Social Science', 'Barishal', '0132785354'),

(2, 'King Khan', 3, 89000.00, 'Public Health', 'Dhaka', '0183328423'),

(3, 'Dr. Ubaida', 3, 50000.00, 'Numerical analysis', 'Rajshahi', '0123412354'),

(4, 'Prof. Taj', 5, 89000.00, 'Political Psychology', 'Dhaka', '01423423544');

-- Dumping data for table `exam`

INSERT INTO `exam` (`id`, `student_id`, `course_id`, `room_no`) VALUES

 (NULL, '1', '1', '4004'),

 (NULL, '4', '2', '4232'),

 (NULL, '3', '1', '3434'),

 (NULL, '1', '3', '3432');

-- Dumping data for table `assessments`

INSERT INTO `assessments` (`id`, `course_id`, `student_id`, `total_marks`) VALUES

(NULL, '1', '3', '67'),

 (NULL, '3', '3', '70'),

 (NULL, '2', '2', '80'),

 (NULL, '3', '3', '55');