DATABASE MANAGEMENT SYSTEM – WEEK 05 ASSIGNMENT

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```
CREATE TABLE Student(
  student_id INT,
  first_name VARCHAR(20),
  last_name VARCHAR(20),
  CONSTRAINT PRIMARY KEY (student_id)
);
 mysql> CREATE TABLE Student(
           student_id INT,
           first_name VARCHAR(20),
         last name VARCHAR(20),
         CONSTRAINT PRIMARY KEY (student_id)
     -> );
 Query OK, 0 rows affected (0.04 sec)
 mysql> DESC Student;
 Field
                         | Null | Key | Default | Extra |
              Type
 | student_id | int
                           NO PRI NULL
 | first_name | varchar(20) | YES |
| last_name | varchar(20) | YES |
                                        NULL
                                        NULL
 3 rows in set (0.02 sec)
 mysql>
CREATE TABLE student_contact(
  student_id INT,
  email_address VARCHAR(30),
  contact VARCHAR(15),
  CONSTRAINT PRIMARY KEY (student_id),
  CONSTRAINT FOREIGN KEY (student_id) REFERENCES Student(student_id)
);
   mysql> CREATE TABLE student_contact(
       -> student_id INT,
           email_address VARCHAR(30),
           contact VARCHAR(15),
             CONSTRAINT PRIMARY KEY (student_id),
             CONSTRAINT FOREIGN KEY (student_id) REFERENCES Student(student_id)
       -> );
   Query OK, 0 rows affected (0.03 sec)
   mysql> DESC student_contact;
                  | Type | Null | Key | Default | Extra |
   | Field
    student_id | int
                               NO PRI NULL
     email_address | varchar(30) | YES |
contact | varchar(15) | YES |
                                            NULL
    contact
                                            NULL
   3 rows in set (0.02 sec)
   mysql>
```

INSERT INTO Student VALUES

```
(1,'Kamal','Perera'),
```

(2,'Nimal','Samson'),

(3,'Amal','Perera'),

(4,'Roy','Silva');

SELECT * FROM Student;

INSERT INTO student_contact VALUES

(1, 'kamal@school.edu', '77234512'),

(2,'nimal@school.edu','77456396'),

(3,'amal@school.edu','077743566');

SELECT * FROM student_contact;

SELECT student_id, first_name FROM Student;

Question 03

SELECT Student.student_id, Student.first_name, student_contact.email_address AS Email

FROM Student

INNER JOIN student_contact

ON Student.student_id = student_contact.student_id;

SELECT CONCAT(Student.first_name, ' ', Student.last_name) AS "Full Name", student_contact.email_address

FROM Student

INNER JOIN student_contact

ON Student.student_id = student_contact.student_id;

Question 05

SELECT Student.student_id, Student.first_name, student_contact.email_address AS Email

FROM Student

INNER JOIN student_contact

ON Student.student id = student contact.student id

WHERE first_name LIKE '%mal%';

DESC DepartmentInfo;

```
CREATE TABLE DepartmentInfo(
DepartmentID INT,
DepartmentName VARCHAR(20),
CONSTRAINT PRIMARY KEY (DepartmentID)
);
```

```
mysql> CREATE TABLE DepartmentInfo(
         DepartmentID INT,
        DepartmentName VARCHAR(20),
         CONSTRAINT PRIMARY KEY (DepartmentID)
    -> );
Query OK, 0 rows affected (0.15 sec)
mysql>
mysql> DESC DepartmentInfo;
                            | Null | Key | Default | Extra |
| Field
               Type
 DepartmentID | int
                       NO PRI NULL
| DepartmentName | varchar(20) | YES |
                                        NULL
2 rows in set (0.04 sec)
```

```
CREATE TABLE StudentInfo(
StudentID INT,
StudentName VARCHAR(20),
DepartmentID INT,
CONSTRAINT PRIMARY KEY (StudentID),
CONSTRAINT FOREIGN KEY (DepartmentID) REFERENCES DepartmentInfo(DepartmentID)
);
```

DESC StudentInfo;

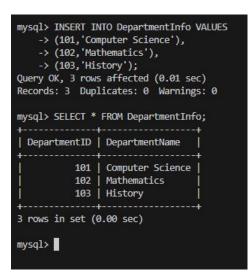
mysql>

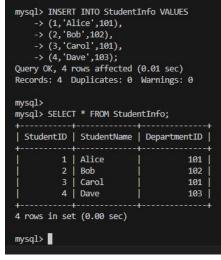
```
mysql> CREATE TABLE StudentInfo(
         StudentID INT,
         StudentName VARCHAR(20),
       DepartmentID INT,
       CONSTRAINT PRIMARY KEY (StudentID),
         CONSTRAINT FOREIGN KEY (DepartmentID) REFERENCES DepartmentInfo(DepartmentID)
   -> );
Query OK, 0 rows affected (0.02 sec)
mysql> DESC StudentInfo;
                          | Null | Key | Default | Extra |
Field
             Type
             int NO
                                 PRI | NULL
StudentID
 StudentName | varchar(20) | YES |
                                      NULL
| DepartmentID | int
                          YES | MUL | NULL
3 rows in set (0.01 sec)
mysql>
```

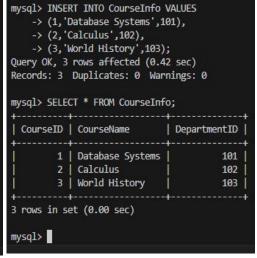
```
CREATE TABLE CourseInfo(
CourseID INT,
CourseName VARCHAR(30),
DepartmentID INT,
CONSTRAINT PRIMARY KEY (CourseID),
CONSTRAINT FOREIGN KEY (DepartmentID) REFERENCES DepartmentInfo(DepartmentID)
);
```

DESC CourseInfo;

```
mysql> CREATE TABLE CourseInfo(
         CourseID INT,
          CourseName VARCHAR(30),
         DepartmentID INT,
          CONSTRAINT PRIMARY KEY (CourseID),
          CONSTRAINT FOREIGN KEY (DepartmentID) REFERENCES DepartmentInfo(DepartmentID)
   -> );
Query OK, 0 rows affected (0.02 sec)
mysql> DESC CourseInfo;
Field
                           | Null | Key | Default | Extra |
              Type
                           NO
 CourseID
               int
                                   PRI | NULL
 CourseName
               varchar(30) YES
                                        NULL
                                 MUL NULL
 DepartmentID | int
                           YES
3 rows in set (0.00 sec)
mysql>
```







SELECT StudentName, DepartmentName

FROM StudentInfo

INNER JOIN DepartmentInfo

ON

DepartmentInfo.DepartmentID = StudentInfo.DepartmentID;

Question 08

SELECT StudentName, DepartmentName

FROM StudentInfo

LEFT JOIN DepartmentInfo

ON

DepartmentInfo.DepartmentID = StudentInfo.DepartmentID;

SELECT DepartmentName, StudentName

FROM DepartmentInfo

LEFT JOIN StudentInfo

ON

DepartmentInfo.DepartmentID = StudentInfo.DepartmentID;

Question 10

SELECT DepartmentName,COUNT(*) AS Student_Count

FROM DepartmentInfo

LEFT JOIN StudentInfo

ON

DepartmentInfo.DepartmentID = StudentInfo.DepartmentID

GROUP BY DepartmentName;

SELECT StudentName, CourseName, DepartmentName

FROM DepartmentInfo

INNER JOIN CourseInfo ON CourseInfo.DepartmentID = DepartmentInfo.DepartmentID

INNER JOIN Studentinfo ON DepartmentInfo.DepartmentID = Studentinfo.DepartmentID;

```
mysql> SELECT StudentName, CourseName, DepartmentName
   -> FROM DepartmentInfo
   -> INNER JOIN CourseInfo ON CourseInfo.DepartmentID = DepartmentInfo.DepartmentID
    -> INNER JOIN StudentInfo ON DepartmentInfo.DepartmentID = StudentInfo.DepartmentID;
 StudentName | CourseName
                                DepartmentName
 Alice
             | Database Systems | Computer Science
Carol
             | Database Systems | Computer Science
Bob
             Calculus
                                Mathematics
             | World History | History
Dave
4 rows in set (0.05 sec)
mysql>
```

Question 12

SELECT StudentName AS "Student Enrolled to Computer Science"

FROM StudentInfo

INNER JOIN DepartmentInfo ON DepartmentInfo.DepartmentID = StudentInfo.DepartmentID

WHERE DepartmentName = "Computer Science";

SELECT DepartmentName, COUNT(*) AS student_count

FROM DepartmentInfo

LEFT JOIN Studentinfo ON DepartmentInfo.DepartmentID = Studentinfo.DepartmentID

GROUP BY DepartmentName

HAVING COUNT(*) > 1;

Question 14

SELECT StudentName AS "Student Who Taking DataBase Systems Course"

FROM DepartmentInfo

INNER JOIN StudentInfo ON DepartmentInfo.DepartmentID = StudentInfo.DepartmentID

INNER JOIN CourseInfo ON CourseInfo.DepartmentID = DepartmentInfo.DepartmentID

WHERE DepartmentInfo.DepartmentName = "Computer Science" AND CourseInfo.CourseName = "Database Systems";

```
CREATE TABLE Author(

AuthorID INT,

AuthorName VARCHAR(30),

Country VARCHAR(10),

CONSTRAINT PRIMARY KEY (AuthorID)

);

DESC Author;

mysql> CREATE TABLE Author(

-> AuthorID INT,
```

```
mysql> CREATE TABLE Author(
           AuthorName VARCHAR(30),
          Country VARCHAR(10),
           CONSTRAINT PRIMARY KEY (AuthorID)
    -> );
Query OK, 0 rows affected (0.15 sec)
mysql> DESC Author;
  Field
                          | Null | Key | Default | Extra |
             Type
  AuthorID
             int
                           NO
                                 PRI
                                       NULL
  AuthorName | varchar(30) | YES
                                         NULL
  Country
             | varchar(10) | YES
                                         NULL
3 rows in set (0.62 sec)
mysql>
```

```
CREATE TABLE Book(
  BookID INT,
  Title VARCHAR(40),
  AuthorID INT,
  PublicationYear INT,
  CONSTRAINT PRIMARY KEY (BookID),
  CONSTRAINT FOREIGN KEY (AuthorID) REFERENCES Author(AuthorID)
);
DESC Book;
```

```
mysql> CREATE TABLE Book(
           BookID INT,
   -> Title val...
-> AuthorID INT,
DublicationYe
           Title VARCHAR(40),
    -> PublicationYear INT,
           CONSTRAINT PRIMARY KEY (BookID),
           CONSTRAINT FOREIGN KEY (AuthorID) REFERENCES Author(AuthorID)
    -> );
Query OK, 0 rows affected (0.05 sec)
mysql>
mysql> DESC Book;
 Field
                   Type
                                 | Null | Key | Default | Extra |
 BookID
                   | int
                                   NO
                                          PRI | NULL
 Title
                   | varchar(40) | YES
                                                NULL
                   | int
                                          MUL | NULL
 AuthorID
                                   YES
 PublicationYear | int
                                 YES
                                               NULL
4 rows in set (0.01 sec)
```

```
CREATE TABLE Reader(

ReaderID INT,

ReaderName VARCHAR(30),

BookID INT,

CONSTRAINT PRIMARY KEY (ReaderID),

CONSTRAINT FOREIGN KEY (BookID) REFERENCES Book(BookID)

);

DESC Reader;
```

```
mysql> CREATE TABLE Reader(
          ReaderID INT,
          ReaderName VARCHAR(30),
          BookID INT,
          CONSTRAINT PRIMARY KEY (ReaderID),
          CONSTRAINT FOREIGN KEY (BookID) REFERENCES Book(BookID)
    -> );
Query OK, 0 rows affected (0.03 sec)
mysql> DESC Reader;
 Field
             Type
                           | Null | Key | Default | Extra |
 ReaderID
                            NO
                                   PRI NULL
              int
 ReaderName | varchar(30) | YES
                                        NULL
                                   MUL | NULL
 BookID
                           YES
3 rows in set (0.00 sec)
mysql> |
```

```
mysql> INSERT INTO Reader VALUES
   -> (101, 'Alice',1),
   -> (102, 'Bob',2),
-> (103, 'Carol',3),
-> (104, 'David',1);
Query OK, 4 rows affected (0.01 sec)
Records: 4 Duplicates: 0 Warnings: 0
mysql>
mysql> SELECT * FROM Reader;
| ReaderID | ReaderName | BookID |
       101 | Alice
                                  1 1
       102 | Bob
                                  2
       103 | Carol
       104 | David
                                  1
4 rows in set (0.00 sec)
mysql>
```

SELECT Author.AuthorName, COUNT(Book.BookID) AS BooksPublished

FROM Author

INNER JOIN Book

ON Author.AuthorID = Book.AuthorID

GROUP BY Author. AuthorID, Author. AuthorName

HAVING COUNT(Book.BookID) > 0;

Question 17

SELECT Author.AuthorName, COUNT(Book.BookID) AS TotalBooks

FROM Author

LEFT JOIN Book ON Author.AuthorID = Book.AuthorID

GROUP BY Author. AuthorID, Author. AuthorName;

SELECT Book.Title,Book.PublicationYear,Author.AuthorName

FROM Book

INNER JOIN Author ON Book. AuthorID = Author. AuthorID

WHERE Book.PublicationYear < 2020;

Question 19

SELECT Reader.ReaderName,Book.Title

FROM Reader

INNER JOIN Book

ON Reader.BookID = Book.BookID

WHERE Reader.ReaderID = 101 OR Reader.ReaderID = 102;

SELECT Reader.ReaderName,Book.Title

FROM Reader

INNER JOIN Book

ON Reader.BookID = Book.BookID

WHERE (Reader.ReaderID = 101 OR Reader.ReaderID = 102) AND Book.BookID = 2;