LONDON METROPOLITAN UNIVERSITY

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(इस्लिङ्टन कलेज)

Module Code & Module Title

CC4057NI Introduction to Information Systems

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Student Name: Karuna Thapa Magar

Group: L1C14

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1. Introduction

Database management System (DBMS) refers to the set of programs that manages and used to optimize database files that acts as an interface between the programs that is related to the application and data in the database. DBMS also facilitates for various purposes like as it changes management, recovery of disaster, monitoring performance and compliance and many others. It is very essential system for all organization as it provides mass storage for huge amount of data. It is also very advantageous to us because it can be stored in the database that can be easily shared with the no of people. Similarly, it also can be mainly used in the large organization where there is no of people who requires same data. It also allows easy excess of files, updating the records and retrieve all the data as required (shrestha, 2017).

In this course work we were told to designed a database of our owned company of our like. I designed a SALESMAN MANAGEMENT which helps to access the data of salesman, customers, orders, items and suppliers easily. The use of foreign key and primary key are implemented properly. We also used different types of quires.

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2. Discussion and Analysis

A database is a collection that is related to information about the subject that is organized so that it can easily retrieve accessed managed and updated.

Data is mainly organized in to rows, columns and tables and it is extended to make it easier to find exact information. When the new information is added data gets expanded, and deleted. Querying the data database contains running application against it as it processes workload to create and update themselves. (shrestha, 2017)

A relational database is a set that is stored in the form of tables that is easy to use, develop and accessed in many ways. The standard application programming interface(API) of relational database is the structural Query language(SQL). SQL statements can be used for both interactive queries for getting information from a relational database and for collecting data for reports.

MYSQL is an Oracle-backed open source relational database management based on structural Query language(SQL) which is often associated with web applications and online application

XAMPP stands for Cross-Plattform(X), Apache(A), MariaDB(M), PHP(P) and Perl(P) which is used to create a local web server for testing and development purposes.

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Database Model
A database model is a type of data model that determines the logical of a database that shows the data how the data is transform in the system. It is commonly used for documenting the system.

ER-Diagram
> There are two world objects known as objects and entities the entity relational diagram is based on these two objects. The ER diagram also represents a database which describe its structures.
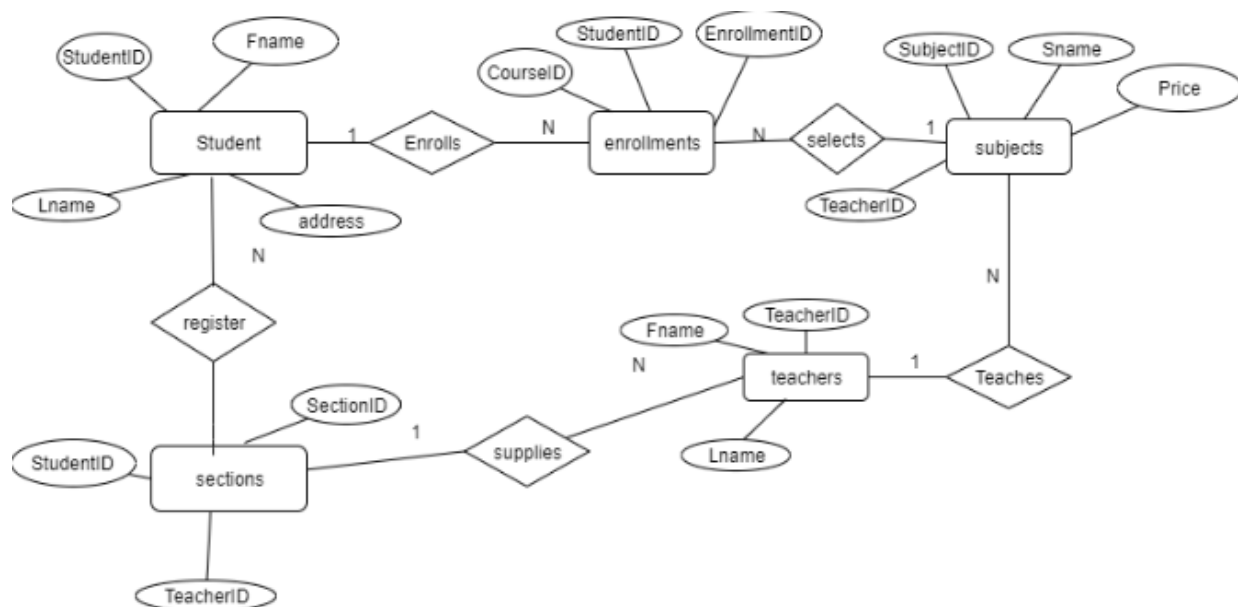

Figure 1ERD Diagram

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Relational Diagram

It is the diagram where data is stored in the dimensional table that makes us easy to use , develop and understand.

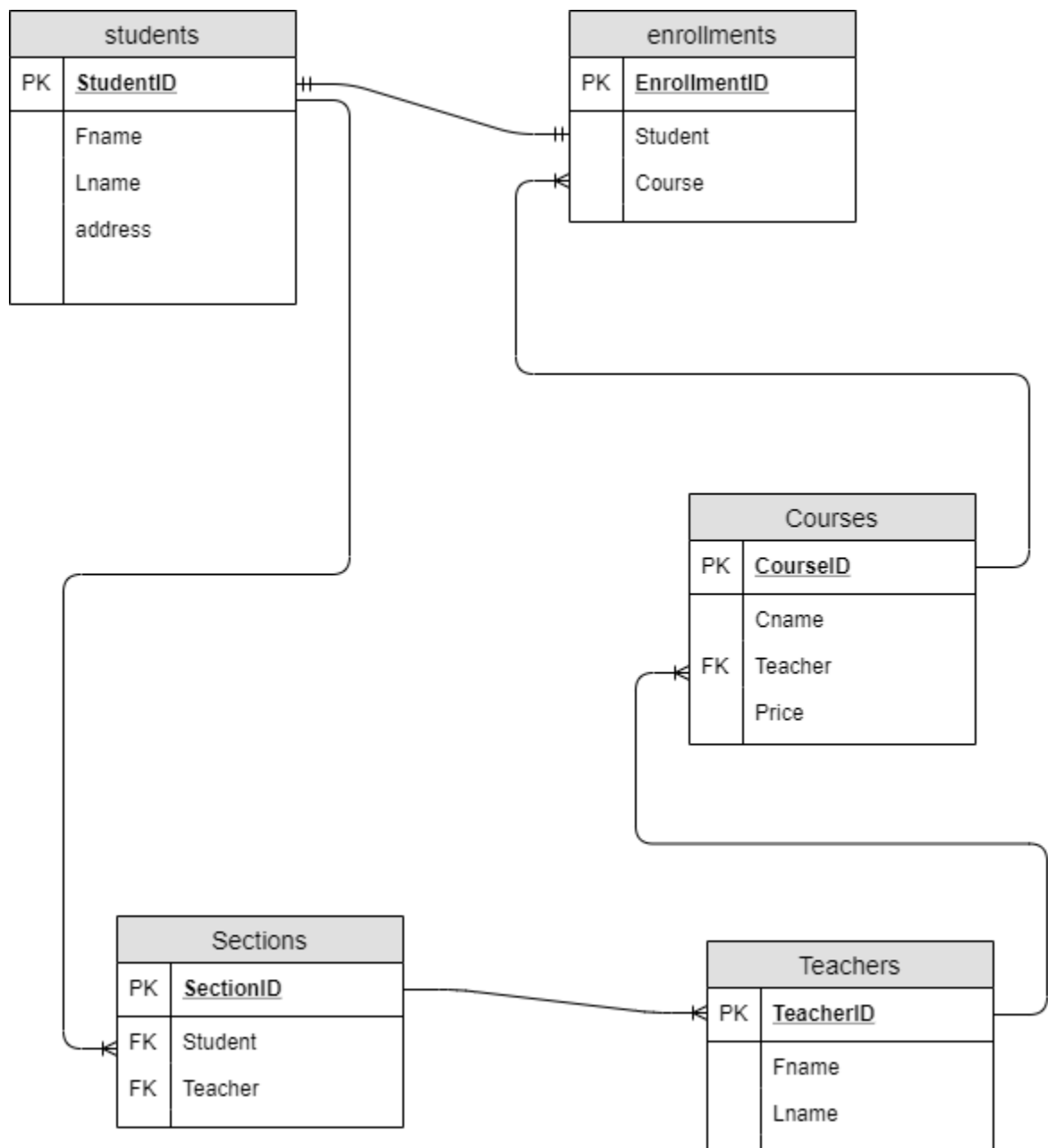*Figure 2Relational diagram*

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3. Creating Table

```
MariaDB [colegemanagements]> create table students(StudentID varchar(1) primary key,Fname varchar(10),Lname varchar(30),address varchar(20));
Query OK, 0 rows affected (0.343 sec)

MariaDB [colegemanagements]> create table teachers(TeacherID varchar(20) primary key,Fname varchar(11),Lname varchar(21));
Query OK, 0 rows affected (0.370 sec)

MariaDB [colegemanagements]> create table subjects(SubjectID varchar(3) primary key,Fname varchar(50),Teacher varchar(70),Foreign key(Teacher) references teachers(Teach
erID),Price int);
Query OK, 0 rows affected (0.592 sec)

MariaDB [colegemanagements]> create table enrollments(EnrollmentID varchar(4) primary key,Student varchar(56),foreign key(Student) references students(StudentID),Subjec
t varchar(8),foreign key(Subject) references subjects(SubjectID));
Query OK, 0 rows affected (0.333 sec)

MariaDB [colegemanagements]> create table sections(SectionID varchar(5),Student varchar(30),foreign key(Student) references students(StudentID),Teacher varchar(7),forei
gn key(Teacher) references(TeacherID));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '(TeacherID)
)' at line 1
MariaDB [colegemanagements]> create table sections(SectionID varchar(5),Student varchar(30),foreign key(Student) references students(StudentID),Teacher varchar(7),forei
gn key(Teacher) references teachers(TeacherID));
Query OK, 0 rows affected (0.377 sec)

MariaDB [colegemanagements]>
```

Figure 3creating table

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Inserting values in Tables

Figure 4inserting values in students table

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Figure 5 inserting teacher values

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Figure 6insert in to section values

Figure 7insert in to subjects values

```
ERROR 1064 (42000): You have an error in your SQL syntax; che
MariaDB [colegemanagements]> insert into enrollments values
    -> ("E1","a","C1"),
    -> ("E2","b","C3"),
    -> ("E3","c","C4"),
    -> ("E4","d","C3"),
    -> ("E5","e","C2");
Query OK, 5 rows affected (0.097 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [colegemanagements]>
```

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```
Database changed
MariaDB [colegemanagements]> describe students;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| StudentID | varchar(1)  | NO   | PRI | NULL    |       |
| Fname     | varchar(10) | YES  |     | NULL    |       |
| Lname     | varchar(30) | YES  |     | NULL    |       |
| address   | varchar(20) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.169 sec)

MariaDB [colegemanagements]> describe teachers;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| TeacherID | varchar(20) | NO   | PRI | NULL    |       |
| Fname     | varchar(11) | YES  |     | NULL    |       |
| Lname     | varchar(21) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.395 sec)

MariaDB [colegemanagements]> describe enrollments;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| EnrollmentID | varchar(4)  | NO   | PRI | NULL    |       |
| Student      | varchar(56) | YES  | MUL | NULL    |       |
| Subject      | varchar(8)  | YES  | MUL | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
3 rows in set (0.066 sec)

MariaDB [colegemanagements]> describe sections;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| SectionID | varchar(5)  | YES  |     | NULL    |       |
| Student   | varchar(30) | YES  | MUL | NULL    |       |
| Teacher   | varchar(7)  | YES  | MUL | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.085 sec)

MariaDB [colegemanagements]> describe subjects;
```

```
MariaDB [colegemanagements]> describe subjects;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| SubjectID | varchar(3)  | NO   | PRI | NULL    |       |
| Fname     | varchar(50) | YES  |     | NULL    |       |
| Teacher   | varchar(70) | YES  | MUL | NULL    |       |
| Price     | int(11)     | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.090 sec)
```

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Show tables

```
MariaDB [colegemanagements]> select * from teachers;
+-----------+-------+-----------+
| TeacherID | Fname | Lname     |
+-----------+-------+-----------+
| T1        | Ram   | Sharma    |
| T2        | Sham  | Maharjan  |
| T3        | Ashim | Manandhar |
| T4        | Aman  | Tamang    |
| T5        | Kisan | Tandukar  |
+-----------+-------+-----------+
5 rows in set (0.210 sec)

MariaDB [colegemanagements]> select * from students;
+-----------+--------+----------+-----------+
| StudentID | Fname  | Lname    | address   |
+-----------+--------+----------+-----------+
| a         | Abinas | Gautam   | Anamnagar |
| b         | Alam   | Magar    | Satungal  |
| c         | Sama   | Maharjan | Lalitpur  |
| d         | Sudha  | Thapa    | Hetauda   |
| e         | Karina | Maskey   | Finland   |
+-----------+--------+----------+-----------+
5 rows in set (0.001 sec)
```

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```
MariaDB [colegemanagements]> select * from sections;
+-----------+---------+---------+
| SectionID | Student | Teacher |
+-----------+---------+---------+
| F1        | a       | T1      |
| F2        | b       | T2      |
| F3        | c       | T3      |
| F4        | d       | T4      |
| F5        | e       | T5      |
+-----------+---------+---------+
5 rows in set (0.001 sec)

MariaDB [colegemanagements]> select * from enrollments;
+--------------+---------+---------+
| EnrollmentID | Student | Subject |
+--------------+---------+---------+
| E1           | a       | C1      |
| E2           | b       | C3      |
| E3           | c       | C4      |
| E4           | d       | C3      |
| E5           | e       | C2      |
+--------------+---------+---------+
5 rows in set (0.000 sec)

MariaDB [colegemanagements]> select * from subjects;
+-----------+---------+---------+-------+
| SubjectID | Fname   | Teacher | Price |
+-----------+---------+---------+-------+
| C1        | IS      | T1      | 9000  |
| C2        | OS      | T5      | 7000  |
| C3        | Java    | T3      | 8000  |
| C4        | Program | T2      | 3000  |
| C5        | Python  | T5      | 2000  |
+-----------+---------+---------+-------+
5 rows in set (0.000 sec)

MariaDB [colegemanagements]>
```

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6.Queries

1.Count

```
MariaDB [colegemanagements]> select count(EnrollmentID) as Total_Enrollment from enrollments;
-----------------+
 Total_Enrollment |
-----------------+
               5 |
-----------------+
 row in set (0.086 sec)
```

1. Distinct

d

```
MariaDB [colegemanagements]> select DISTINCT(address) from students;
+-----------+
| address   |
+-----------+
| Anamnagar |
| Satungal  |
| Lalitpur  |
| Hetauda   |
| Finland   |
+-----------+
5 rows in set (0.050 sec)
```

3.Like

```
MariaDB [colegemanagements]> select* from students where Fname like "A%";
+-----------+--------+--------+-----------+
| StudentID | Fname  | Lname  | address   |
+-----------+--------+--------+-----------+
| a         | Abinas | Gautam | Anamnagar |
| b         | Alam   | Magar  | Satungal  |
+-----------+--------+--------+-----------+
2 rows in set (0.098 sec)
```

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4.Limit

```
MariaDB [colegemanagements]> select* from students order by address limit 1;
+-----------+--------+--------+-----------+
| StudentID | Fname  | Lname  | address   |
+-----------+--------+--------+-----------+
| a         | Abinas | Gautam | Anamnagar |
+-----------+--------+--------+-----------+
1 row in set (0.449 sec)
```

5.Group by

```
MariaDB [colegemanagements]> select EnrollmentID, count(*) as total_Enrollments from enrollments group by EnrollmentID;
+--------------+-------------------+
| EnrollmentID | total_Enrollments |
+--------------+-------------------+
| E1           |                 1 |
| E2           |                 1 |
| E3           |                 1 |
| E4           |                 1 |
| E5           |                 1 |
+--------------+-------------------+
5 rows in set (0.046 sec)
```

6. Order by

```
MariaDB [colegemanagements]> select * from students order by Lname;
+-----------+--------+----------+-----------+
| StudentID | Fname  | Lname    | address   |
+-----------+--------+----------+-----------+
| a         | Abinas | Gautam   | Anamnagar |
| b         | Alam   | Magar    | Satungal  |
| c         | Sama   | Maharjan | Lalitpur  |
| e         | Karina | Maskey   | Finland   |
| d         | Sudha  | Thapa    | Hetauda   |
+-----------+--------+----------+-----------+
5 rows in set (0.000 sec)
```

7.left join

```
MariaDB [colegemanagements]> select* from students right join sections on students.StudentID=sections.Student;
+-----------+--------+----------+-----------+-----------+---------+---------+
| StudentID | Fname  | Lname    | address   | SectionID | Student | Teacher |
+-----------+--------+----------+-----------+-----------+---------+---------+
| a         | Abinas | Gautam   | Anamnagar | F1        | a       | T1      |
| b         | Alam   | Magar    | Satungal  | F2        | b       | T2      |
| c         | Sama   | Maharjan | Lalitpur  | F3        | c       | T3      |
| d         | Sudha  | Thapa    | Hetauda   | F4        | d       | T4      |
| e         | Karina | Maskey   | Finland   | F5        | e       | T5      |
+-----------+--------+----------+-----------+-----------+---------+---------+
5 rows in set (0.082 sec)
```

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8.Average

```
MariaDB [colegemanagements]> select AVG(PRICE) from subjects;
------------+
| AVG(PRICE) |
------------+
|  5800.0000 |
------------+
1 row in set (0.030 sec)
```

9.MIN()

```
MariaDB [colegemanagements]> select MIN(PRICE) from subjects;
+------------+
| MIN(PRICE) |
+------------+
|       2000 |
+------------+
1 row in set (0.047 sec)

MariaDB [colegemanagements]>
```

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Data dictionary

Entity name	Entity Description	Column name	Column description	Data type	Length	Primary key	Foreign key	Nullable	unique	notes
students	A student is someone who study	StudentID	ID for unique identificaton	Varchar	1	True	False	False	True	
		Fname	First name of student	Varchar	10	False	False	True	False	
		Lname	Last name of student	Varchar	30	False	False	True	False	
		address	Address of student	Varchar	20	False		True	False	
enrollments	Enrollment is a group where students enroll	EnrollmentID	ID of enrollment	Varchar	4	True	False	False	False	
		Student	ID of students	Varchar	56	False	True	True	False	References to studentID columns of student tables
		Subject		Varchar	8	False	True	True	False	Refrences to

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			ID of subjects	Varcha r	8					SubjectI D columns of subjects tables
Tea cher s	Teacher is who teaches studeb	TeacherID	ID of teacher for unique identifica tion	Varcha r	20	True	False	False	True	
		Fname Lname	First name of teacher Lastnam e of teacher	Varcha r Varcha r	11 21	False False	False False	True True	Fals e Fals e	
Sect ions	Sections are the group of students	SectionID	ID of sections	Varcha r	5	True	False	False	True	
		Student	ID of students	Varcha r	30	False	False	False	Fals e	Referen ces to studentI D columns of students table
		Teacher	ID of teachers	Varcha r	20	False	False	False	Fals e	Referen ces to TeacherI D columns of teachers table
Subj ects	Subject is a package that students choose to read	SubjectID	Id of the subject is identifica tion of each subjects	Varcha r	3					

		Sname	Name of the subject	Varchar	50	False	False	True	False	
		Teacher	ID of the teacher	Varchar	70	False	True	False	False	Refrences to teacher ID column of the teachers table
		Price	Prices of the subject	Int		False	False	True	False	

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Conclusion

This project is based on the colegesmanagement which carry out various task that held under college. This database deals with all the activities done by each individual in the computer with the essential work done by students, teachers etc. It gives also detailed information regarding subjects and soon. In conclusion I faced a lot of difficulties during this course works such as syntax error as well as problems related to queries. But after my hard work and research regarding to these topics, I am capable to do my work myself now. Database can make us more easy and comfortable to find information of certain company.

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