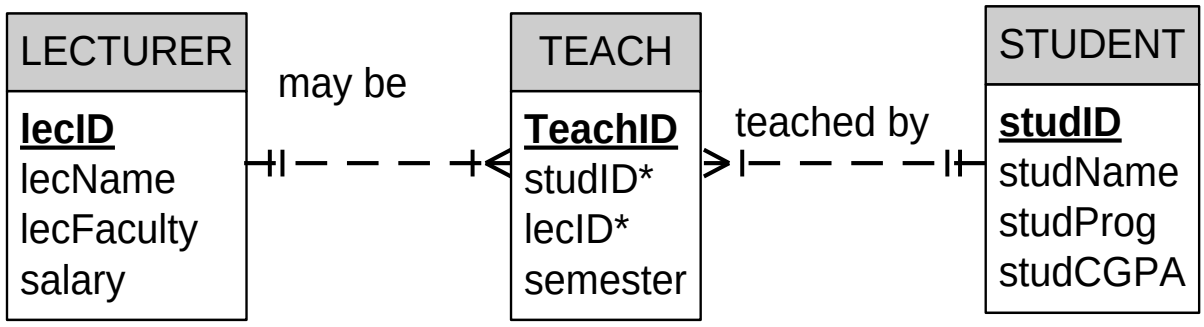
LAB 9 : Data Maintenance and Data Definition Language

Create table follow ERD below:



ERD

1. Create new database (LEARN)

   CREATE DATABASE LEARN

2. Create table statement according ERD above:

   Syntax:
   CREATE TABLE *tablename1* (
   column1 datatype [constraint],
   column2 datatype [constraint],
   ……
   PRIMARY KEY (columname)
   );

   CREATE TABLE *tablename2* (
   column1 datatype [constraint],
   column2 datatype [constraint],
   ……
   PRIMARY KEY (columname),
   FOREIGN KEY(columname) REFERENCES *tablename1*);

   *** remember, attribute and data type FK must match with attribute and data type PK of related table.

   Example:

```
CREATE TABLE VENDOR (
V_CODE          INTEGER             NOT NULL   UNIQUE,
V_NAME          VARCHAR(35)         NOT NULL,
V_CONTACT       VARCHAR(15)         ,
V_AREACODE      CHAR(3)             ,
V_PHONE   CHAR(8)                   ,
V_STATE         CHAR(2)             ,
V_ORDER   CHAR(1)             ,
PRIMARY KEY (V_CODE));
```

```
CREATE TABLE PRODUCT (
P_CODE          VARCHAR(10)     NOT NULL    UNIQUE,
P_DESCRIPT      VARCHAR(35)     NOT NULL,
P_INDATE        DATE            NOT NULL,
P_QOH           INTEGER         NOT NULL,
P_MIN           INTEGER         NOT NULL,
P_PRICE         DECIMAL(8,2)    NOT NULL,
P_DISCOUNT      DECIMAL(5,2)    NOT NULL,
V_CODE          INTEGER,
PRIMARY KEY (P_CODE),
FOREIGN KEY(V_CODE) REFERENCES VENDOR(V_CODE) );
```

EXERCISE :

Table below Shows the table structure for the Supply database which will be used to create each table in database learn.

TABLE_STUDENT

Attribute name	Data declaration
STUD_ID (PK)	VARCHAR(10)
STUD_NAME	VARCHAR(50)
STUD_PROG	VARCHAR(15)
STUD_CGPA	DECIMAL(5,2)

TABLE LECTURER

Attribute name	Data declaration
LEC_ID (PK)	VARCHAR(6)
LEC_NAME	VARCHAR(50)
LEC_FACULTY	VARCHAR(6)
SALARY	DECIMAL(8,2)

TABLE_TEACH

Attribute (Field) Name	Data Declaration
TEACH_ID (PK)	INTEGER
STUD_ID (FK1)	VARCHAR(10)
LEC_ID (FK2)	VARCHAR(6)
SEMESTER	VARCHAR(10)

Data Types in MySQL

	Data Type	Example	Description
String / Alphanumneric	CHAR(size)	fieldName CHAR(10) EX: COURSECODE CHAR(5)	Stores up to 255 characters. If the content is smaller than the field size, the content will have trailing spaces appended
	VARCHAR(size)	fieldName VARCHAR(100) EX: ADDRESS VARCHAR(50)	Stores up to 255 characters, and a minimum of 4 characters. No trailing spaces are appended to the end of this datatype.
Numeric	INTEGER	fieldName INT EX: QUANTITY INT	Round number
	DECIMAL	EX; PRICE DECIMAL (8,2)	Length of numeric value 8, decimal point 2
	FLOAT	fieldName FLOAT	Used for single precision floating point numbers.
	DOUBLE	fieldName DOUBLE	Used for double precision floating point numbers
Date/Time	DATE	fieldName DATE	Stores dates in the format YYYY-MM-DD.
	TIMESTAMP(size)	fieldName DATETIME	Stores dates and times in the format YYYY-MM-DD HH:MM:SS.
	TIME	fieldName TIME	Stores times in the format HH:MM:SS.
	YEAR(size)	fieldName YEAR(4)	Stores the year as either a 2 digit number, or a 4 digit number, depending on the size provided.

3. Insert Record into the table

Syntax:

INSERT INTO tablename
VALUES (dataColumn1, dataColumn2,…… .);

INSERT INTO tablename (ColumnA, ColumnB,……)
VALUES (dataColumnA, dataColumnB,……);

EXERCISE:

Insert record .

STUDENT TABLE

STUD_ID	STUD_NAME	STUD_PROG	STUD_CGPA
S1234	Siti	CS110	3.1

S1235	Muhamad	CS143	3.2
S1236	Aliya	CS111	3.3
S1237	Munir	CS143	2.5

LECTURER TABLE

LEC_ID	LEC_NAME	LEC_FACULTY	SALARY
L01	Nasir	CS143	3000.00
L02	Siti Rozana	CS110	4000.00
L03	Samsiah	CS110	2500.00

TABLE TEACH

TEACH_ID	STUD_ID	LEC_ID	SEMESTER
1	S1234	L01	JULAI 19
2	S1236	L01	MAC 19
3	S1236	L02	MAC 20

4. Altering the table structure

   All changes in the table structure are made by using the **ALTER TABLE** command, followed by a keyword that produces the specific change you want to make.

   Three options are available: ADD, MODIFY, and DROP.
   ADD enables you to add a column,

   EX: ALTER TABLE < TABLE NAME>
   ADD ATTRIBUTE NAME DATA TYPE;

   DROP enables you to drop column,
   Ex: ALTER TABLE < TABLE NAME>
   DROP ATTRIBUTE NAME ;

MODIFY enables you to change column characteristics
ALTER TABLE< TABLE NAME>
MODIFY ATTRIBUTE NAME DATATYPE

Supposing you wanted to add the column STUD_ADDRESS VARCHAR(50) **in the STUDENT table**

You would execute the following command:

ALTER TABLE STUDENT
ADD STUD_ADDRESS VARCHAR(50) ;

EXERCISE :

a. Add new column stud_DOB in student table. (Show the table record before add and after add) . Also show sql statement.

b. Remove STUD_ADDRESS from student table. (show the table record before and after remove) . Also show sql statement.

5. Update data

Syntax:

```
UPDATE tablename
SET columnname = columnvalue
WHERE columname = columvalue;
```

Example:

```
UPDATE      PRODUCT
SET    P_INDATE = '2008/1/18'
WHERE       P_CODE = '13-Q2/P2';

UPDATE      PRODUCT
SET    P_INDATE = '2008/1/18', P_PRICE = 17.99, P_MIN =10
WHERE       P_CODE = '13-Q2/P2';
```

EXERCISE:

a. Update student name 'Siti' to 'siti Rahimah' for student id S1234 (show table record before and after update) . Also show sql statement.

b. Update lecture name to mohd nasir and salary 6000.00 for lecturer id L01 (show table record before and after update) . Also show sql statement.

6. Delete table rows

Syntax:

DELETE FROM *tablename*
WHERE *columname* = *columnvalue*;

(If WHERE condition is not specified, all rows from specified table will be deleted)

Example;

```
DELETE FROM   PRODUCT
WHERE         P_CODE = 'BRT-345';
```

EXERCISE ;

a. Delete Record student where student id 'S1237' (show the table before and after delete) . Also show sql statement.