Rushma Parajuli

**CSE 4503: Project Part 2 Sample Project**

1. Create a relational schema for the above ER diagram.

COURSE

|  |  |  |  |
| --- | --- | --- | --- |
| prefix | number | key | department |

LEAD\_TEACHER

|  |  |  |  |
| --- | --- | --- | --- |
| netid | name | c\_key | email |

REQUIRE

|  |  |  |  |
| --- | --- | --- | --- |
| semester | bisbn | c\_key | year |

BOOK

|  |  |  |  |
| --- | --- | --- | --- |
| title | author | isbn | author\_email |

The above relationship schema is based on the following information about the ERD:

Course and Teacher have **M:1 relationship** i.e., consider same relationship set enroll exist between entity sets lead\_teacher and course. Here course is many side entity set while lead\_teacher is one side entity set which means many student can enroll in one course.

Course(key, prefix, number, department)

Lead\_Teacher(netid, name, email, c\_key)

Course and Book have **M:N relationship** i.e., consider same relationship set enrolled exist between entity sets course and book ,which means multiple books is required in multiple courses.

Require(c\_key, bisbn, semester, year)

Course(key, prefix, number, department)

Book(isbn, title, author, author\_email)

Course also has a M:N **recursive relationship** with itself let us consider number to be the primary key.

1. Normalize the schema to 3NF.

Diagram

Description automatically generated

1. Write CREATE TABLE statements for the normalized schema.

CREATE TABLE COURSE

(key int not null,

prefix varchar (5) ,

number int not null,

department varchar (10) not null,

PRIMARY KEY (key),

FOREIGN KEY(number)

);

CREATE TABLE LEAD\_TEACHER

(netid varchar (6) not null,

name varchar (25) not null,

c\_key int not null,

email varchar (25) not null,

PRIMARY KEY (netID),

FOREIGN KEY(c\_key)

);

CREATE TABLE BOOK

(ISBN int not null,

title varchar (50) not null,

author varchar (25) not null,

PRIMARY KEY (ISBN),

FOREIGN KEY (author)

);

CREATE TABLE REQUIRE

(number int not null,

semester varchar (15) not null,

bisbn int ,

c\_key int not null,

PRIMARY KEY (number),

FOREIGN KEY (bisbn) REFERENCES BOOK(isbn),

FOREIGN KEY(c\_key) REFERENCES COURSE(key)

);

CREATE TABLE SEMESTER

(semester varchar (15) not null,

year int ,

PRIMARY KEY (semester),

);

CREATE TABLE COURSE\_PREREQ

(number int not null,

s\_key int not null,

PRIMARY KEY (super\_key)

);

CREATE TABLE AUTHOR

(author varchar(15) not null,

author\_email varchar(30) not null,

PRIMARY KEY(author)

);