PT 1 : STAGE 2

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I. ENTITIES:

1. USERS - Users are students who can post reviews. Each user has a unique netid and their email-id and password is used as login credentials. User department is taken as it can be used to show difficulty as per students belonging to diff department and hence department should exist (constraint)

2. REVIEWS - Reviews are posted by existing users only once per existing course (constraint). Reviews are posted by students for the courses that they have taken after their first sem intake in the university and includes ratings over multiple semesters.

3. COURSES - A course belongs to an existing department (constraint) and has a title. A course can be taught by more than one instructor in the same semester. A course can be instructed by the same professor for multiple semesters.

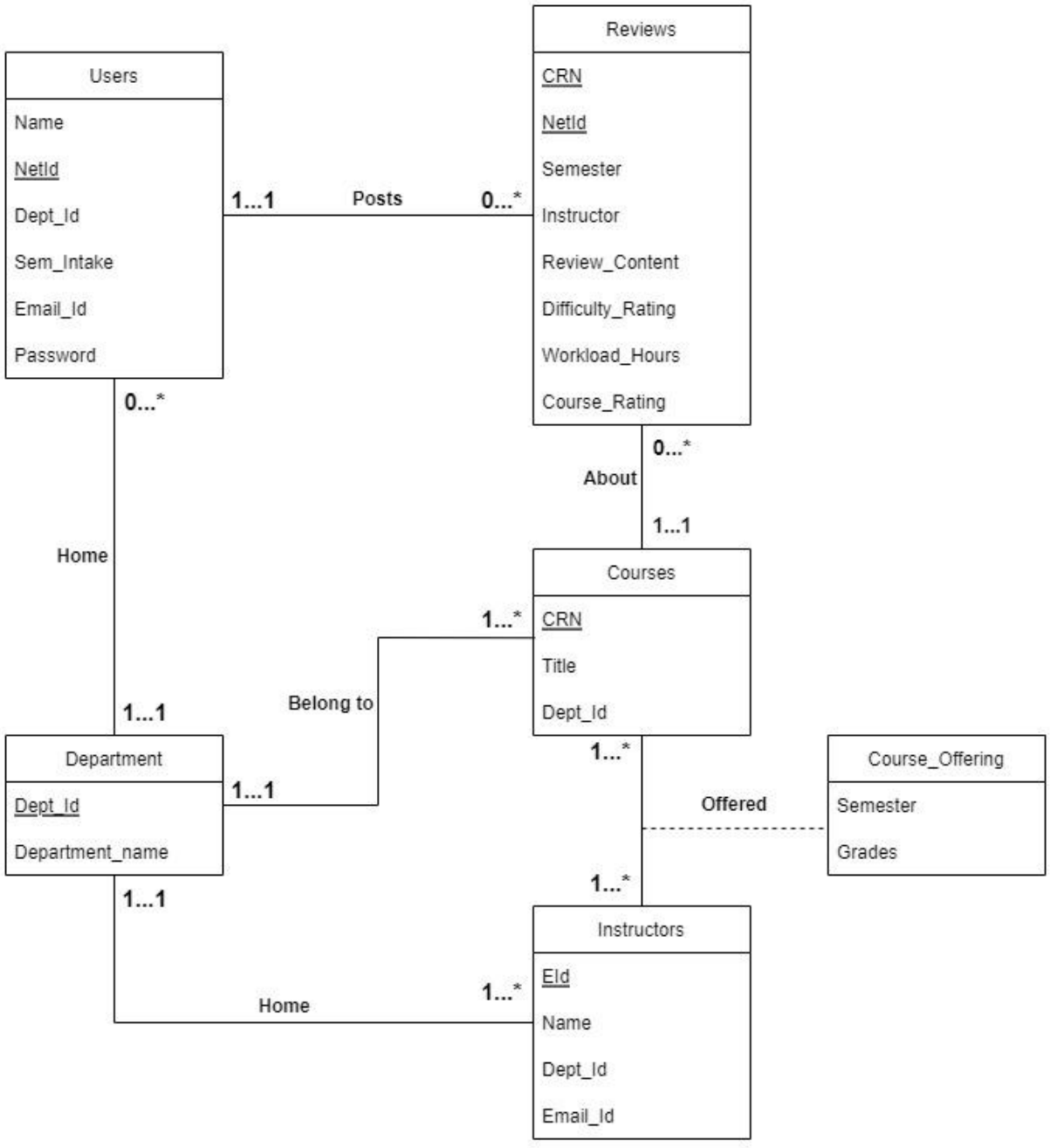
4. DEPARTMENT - A department at UIUC. Has a name and primary key DeptID. Users and instructors belong to a department.

5. INSTRUCTORS - Instructors who belong to a single existing department (constraint). Have an Eid to uniquely identify themselves, along with a name and Email_id. Instructors can instruct courses over many semesters.

II. RELATIONSHIPS:

1. Home (User-Department) :
    a. User can belong exactly to one department
    b. A department can have 0 or more users. The lower cardinality constraint is assumed to be zero because there can be an instance in the beginning phase of the application where there are no user accounts belonging to a certain department.
2. Posts (User-Reviews)
    a. A user can post more than one review but there can be only one review per course per user and this combination is implemented as constraint using it as the primary key for the review entity.
    b. One review can be posted by one user only.
3. Belongs_to (Courses-Department):
    a. A course can belong to exactly one department
    b. A department can have 1 to many courses
4. Home (Department-Instructor):
    a. A department should have one to many instructor
    b. An instructor can belong to exactly one department.
5. Offered (Instructors-Courses)
    a. An instructor can offer more than one course
    b. A course can be offered by more than one instructor
    c. Each course offering has 2 attributes - grade scores distribution (in a relation this is converted to a int column for each grade to denote number of students that scored that grade) and semester offered.
    d. Based on data it is assumed that the same course can be offered by the same instructor over different semesters and more than one instructor can take the same course in the same semester.
6. About (Courses-Reviews)
    a. A review is about one course
    b. About a course there can be many reviews

III. UML DIAGRAM:



IV. RELATIONAL SCHEMA (6 relations):

1. Users(

Netid:VARCHAR(30) [PK],

Name:VARCHAR(30),

Department:VARCHAR(10) [FK to Department.Dept_id],

Sem_Intake:VARCHAR(20),

Email_Id:VARCHAR(30),

Password:VARCHAR(30)

)

Reviews(

Netid: VARCHAR(30) [PK] [FK to Users.Netid],

CRN: VARCHAR(30) [PK] [FK to Courses.CRN],

Sem: VARCHAR(20),

Instructor: VARCHAR(30),

Review_Content: VARCHAR(400),

Difficulty_Rating: INT,

Workload_Hours: INT,

Course_Rating: INT

)

3.Department(

DeptId: VARCHAR(10) [PK],

DeptName: VARCHAR(30)

)

4. Courses(

CRN: INT [PK],

Title: VARCHAR(50),

DeptId: VARCHAR(10) [FK to Department.Dept_id]

)

5.Instructors(

Eid: VARCHAR(20) [PK],

Name: VARCHAR(30),

DeptId: VARCHAR(10) [FK to Department.Dept_id],

Email_id: VARCHAR(30)

)

6. Course_Offerings(

Eid: VARCHAR(20) [PK] [FK to Instructors.Eid],

CRN: INT [PK] [FK to Courses.CRN],

Semester: VARCHAR(20) [PK],

A1: INT,

A2: INT,

A3: INT,

B1: INT,

B2: INT,

B3: INT,

C1: INT,

C2: INT,

C3: INT,

D1: INT,

D2: INT,

D3: INT,

F: INT,

W: INT

)