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Lab 2: ER Model
CS6016 - MSD
UofU
Summer Semester 2024

User:
- User_ID(Primary Key)
- First_Name
- Last_Name
- DOB

Student: subtype of user - Inherits User Attributes
- major_department_ID (FK to department)
Professor: subtype of user - Inherits User Attributes
- department_ID (FK to department)
Administrator: subtype of user - Inherits User Attributes

Department:
- Department_ID (Primary Key)
- Name
- Subject_Abbreviation (Unique)

Course: (weak entity relative to Department)
- Course_ID (Partial Key)
- Name
- Number (unique within department)
- Department_ID (PK, FK to Department)

Class: (weak entity relative to Course)
- Class_ID (Partial Key)
- Semester
- Location
- Start_time
- End_time
- Course_ID (PK, FK to Course)
- Professor_ID (FK to professor)

Section: (weak entity relative to Class)
- Section_ID (Partial Key)
- Class_ID (PK, FK to Class)

Assignment category: (weak entity relative to Class)
- Category_ID (Partial Key)

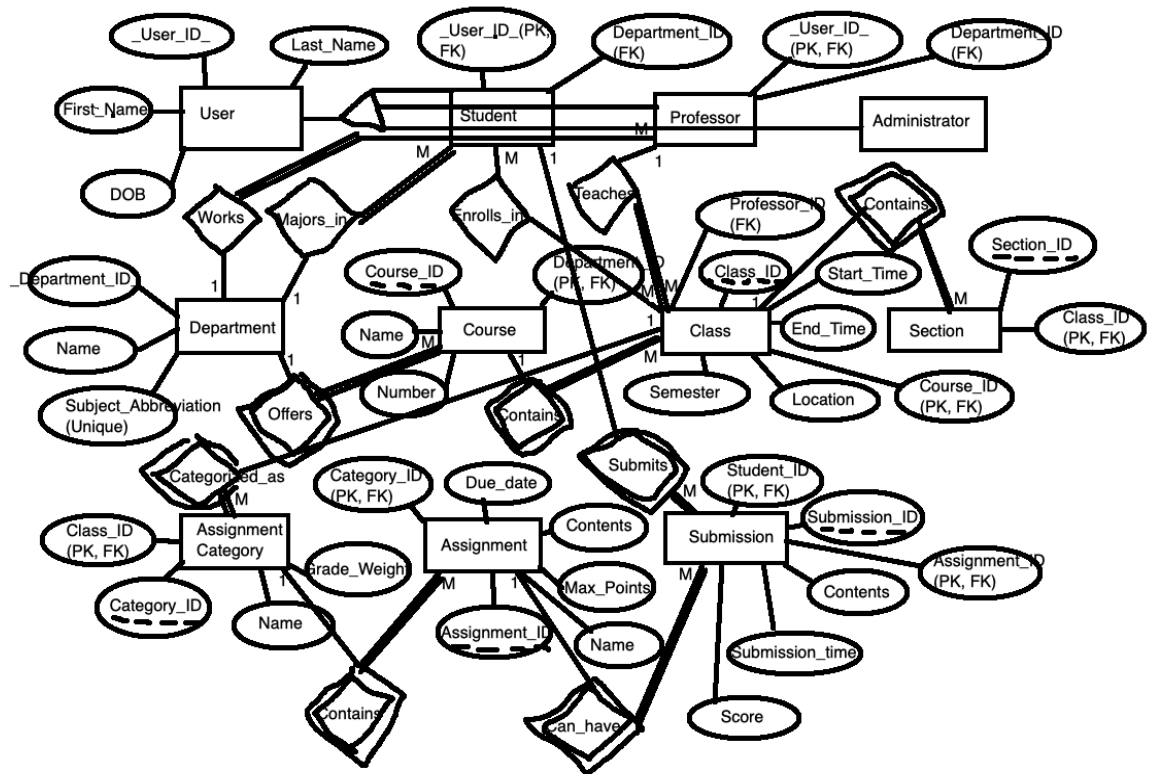- Name (Unique within class)
- Grade_weight
- Class_ID (PK, FK to Class)

Assignment: (Weak entity relative to Assignment category)
- Assignment_ID (Partial Key)
- Name (unique within Assignment category)
- Max_points
- Contents
- Due_Date
- Category_ID (PK, FK to Assignment Category)

Submission: (Weak entity relative to student and assignment)
- Submission_ID (Partial Key, Assignmnet_ID, Student_ID)
- Contents
- Score
- Submission_time
- Assignment_ID (PK, FK to assignment)

- Student_ID (PK, FK to student)

Relationships and Cardinality
- **User and sub-types**: Total participation of Student, Professor, and Administrator in User.
- **Student and Department (Majors_in)**: Many-to-one (total participation of Student in Department).
- **Professor and Department (Works)**: Many-to-one (total participation of Professor in Department).
- **Department and Course (Offers)**: One-to-Many (total participation of Course in Department).
- **Course and Class (Contains)**: One-to-Many (total participation of Class in Course).
- **Class and Section (Contains)**: One-to-Many (total participation of Section in Class).
- **Class and Professor (Teaches)**: Many-to-One (total participation of class in Professor).
- **Class and Student (Enrolls_in)**: Many-to-Many (partial participation of students in class).

- **Class and Assignment Category (Categorized_as)**: One-to-Many (total participation of Assignment Category in class).
- **Assignment Category and Assignment (Contains)**: One-to-Many (total participation of Assignment in Assignment Category)
- **Assignment and Submission (Can_have)**: One-to-Many (total participation of Submission in Assignment).
- **Submission and Student (Submits)**: Many-to-One (total participation of Submission in Student).