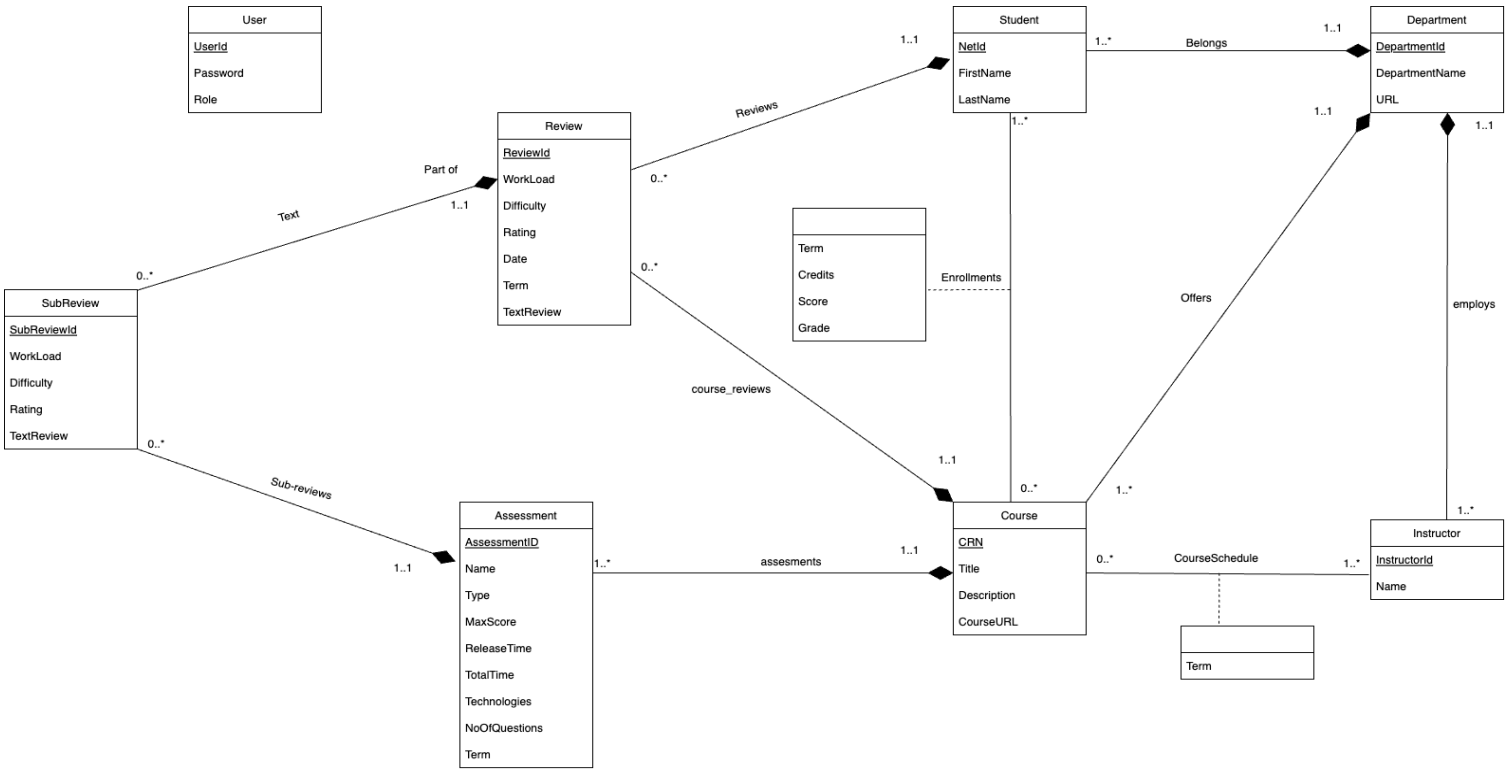
Insightify - UML diagram and Relational Schema



UML Diagram Description and Assumptions

The database stores information about Users, Students, Department, Course, Assessments, Reviews, SubReviews, Instructors

1. Users are uniquely identified by their UserId. Other user attributes are Password and Role.
2. Students are uniquely identified by their NetId. Other student attributes are FirstName and LastName.
3. A Department is uniquely identified by its DepartmentId. Other department attributes are DepartmentName and URL.
4. A Course is uniquely identified by its CRN. Other course attributes are Title, Description, CourseURL.

5. Assessments are uniquely identified by its AssessmentID. Other assessment attributes are Name, Type, MaxScore, NoOfQuestions, ReleaseTime, TotalTime, Technologies,Term.
6. Reviews are uniquely identified by their ReviewId. Other review attributes are WorkLoad, Difficulty, Rating, Date, Term, TextReview.
7. SubReviews are uniquely identified by their SubReviewId. Other subreview attributes are WorkLoad, Difficulty, Rating, TextReview.
8. Instructors are uniquely identified by their InstructorId. Other Instructor attribute is Name.
9. A department must have at least one student and a student can only belong to 1 department.
10. A department can offer multiple courses(at least 1) but a course can be offered by exactly one department.
11. An Instructor should be part of only one department and a department must employ at least 1 instructor.
12. An assessment can have zero or more subreviews and a subreview must belong to only 1 course.
13. An assessment must be a part of exactly one course and one course can have at least 1 assessment.
14. A review must belong to exactly one course and a course can have multiple reviews.
15. A student can take multiple courses and a course can be taken by multiple students (at least 1 student).
16. For each student enrolled in a course, we store information about the Term,Credits,Score and Grade of that student.
17. An instructor can teach multiple courses and a course can be taught by multiple instructors (at least one instructor).
18. For every course we store the instructor information who taught the course and the term they taught it in.

Relational Schema

The schema is composed of the following tables derived from the above UML diagram.

1. User(UserId:VARCHAR(255)[PK], Password:VARCHAR(255), Role:VARCHAR(255))
2. Student(NetId:VARCHAR(255) [PK],DepartmentId:INT [FK to Department.DepartmentId],FirstName:VARCHAR(255), LastName:VARCHAR(255))

3. Instructor(InstructorId:VARCHAR(255)[PK],DepartmentId:INT [FK to Department.DepartmentId], Name:VARCHAR(255))
4. Course(CRN:INT[PK],DepartmentId:INT [FK to Department.DepartmentId], Title:VARCHAR(255), Description: VARCHAR(1024), CourseURL:VARCHAR(255))
5. Assessment(AssessmentId:INT[PK],CRN:INT [FK to Course.CRN], Name:VARCHAR(255), Type:VARCHAR(255), MaxScore:REAL, NoOf Questions:INT, ReleaseTime:DATE, TotalTime:VARCHAR(255), Technologies:VARCHAR(255),Term:VARCHAR(20))
6. Review(ReviewId:INT[PK],NetId:VARCHAR(255) [FK to Student.NetId],CRN:INT [FK to Course.CRN], WorkLoad:REAL, Difficulty:REAL, Rating:REAL, TextReview:VARCHAR(10000), Date:DATE, Term:VARCHAR(255))
7. SubReview(SubReviewId:INT[PK], ReviewId:INT [FK to Review.ReviewId], AssessmentId:INT [FK to Assessment.AssessmentId],WorkLoad:REAL, Difficulty:REAL, Rating:REAL, TextReview:VARCHAR(10000))
8. Enrollments(NetId:VARCHAR(255)[FK to Student.NetId],CRN:INT[FK to Course.CRN],Term:VARCHAR(255),Credits:INT,Score:REAL,Grade:VARCHAR(5))
9. CourseSchedule(CRN:INT[FK to Course.CRN],InstructorId:INT[FK to Instructor.InstructorId],Term:VARCHAR(20))