Requirements Analysis

Assignment 3

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Step 1:

The Users of this software system will be the Students, the Instructors, and the TAs.

Step 2:

Students' Activities:

1. The student shall login with school credentials to access the system
2. The student can select the class/section they have access to
3. The student can choose what assignment to submit under
4. The student can submit a file, such as a programming assignment
5. The student can re-submit a file and overwrite the original
6. The student can view previously submitted work, with the date/time submitted
7. The student can only post an assignment before the deadline

TAs' Activities:

1. The TA can login with school credentials to access their system
2. The TA can select the class/section that they have access to
3. The TA can upload/download/re-upload the assignment in case of error
4. The TA can choose what assignment to collect from the students
5. The TA can set/re-set the deadline for an assignment

Instructors' Activities:

1. The Instructor can login with school credentials to access their system
2. The Instructor can create and select a class and section
3. The Instructor can assign/remove TAs to/from the class and section
4. The Instructor can assign/remove students to/from the class section
5. The Instructor can create new assignments for the class and view them
6. The Instructor can set/change the due date for each assignment
7. The Instructor can upload/download/re-upload the assignment in case of error
8. The Instructor can choose what assignment to collect from the students
9. The Instructor can set/re-set the deadline for an assignment

Step 3:

Entities: Student, TA, Instructor, Assignment, Class

Class Entity Attributes:

- classID: A unique integer associated with the specific class and section
- classSection: The section number/letter of the class
- className: The name of the class

Class Constraints:

- (Primary Key) The classID must be unique
- A class must have a Teacher assigned to it
- className cannot be NULL

Assignment Entity Attributes:

- assignmentName: The name of the assignment
- dueDate: The date the assignment is due
- submitDate: The date the student submits their assignment
- assignmentDescription: The description/instructions of the assignment
- assignmentSubmission: The assignment submission of the student

Assignment Constraints:

- (Primary Key) the assignment name must be unique for the class it's in
- dueDate cannot be NULL

Student Entity Attributes:

- studentUniqueID: the ID the student will use to login with
- studentUniquePassword: the password the student will use to login with
- studentName: The first and last name of the student

Student Constraints:

- (Primary Keys) The student must have both a studentUniqueID and studentUniquePassword that cannot already be taken
- The student must be added to a class and section by the Instructor
- The student can only change the assignmentSubmission attribute in the Assignment Entity set
- The student cannot submit an assignment if the submitDate is past the dueDate

TA Entity Attributes:

- taUniqueID: the ID the TA will use to login with
- taUniquePassword: the password the TA will use to login with
- taName: The first and last name of the TA

TA Constraints:

- (Primary Keys) The TA must have both a taUniqueID and taUniquePassword that cannot already be taken
- TA must be added to a class and section by the Instructor
- TA can only access classes and their respective assignments that they are added to
- The TA can change the assignmentDescription and dueDate in the Assignment Entity Set, but not the submitDate or assignmentSubmission
- The TA cannot add or delete Assignment Entity Sets

Instructor Entity Attributes:

- instructorUniqueID: the ID the Instructor will use to login with
- instructorUniquePassword: the password the Instructor will use to login with
- instructorName: The first and last name of the Instructor

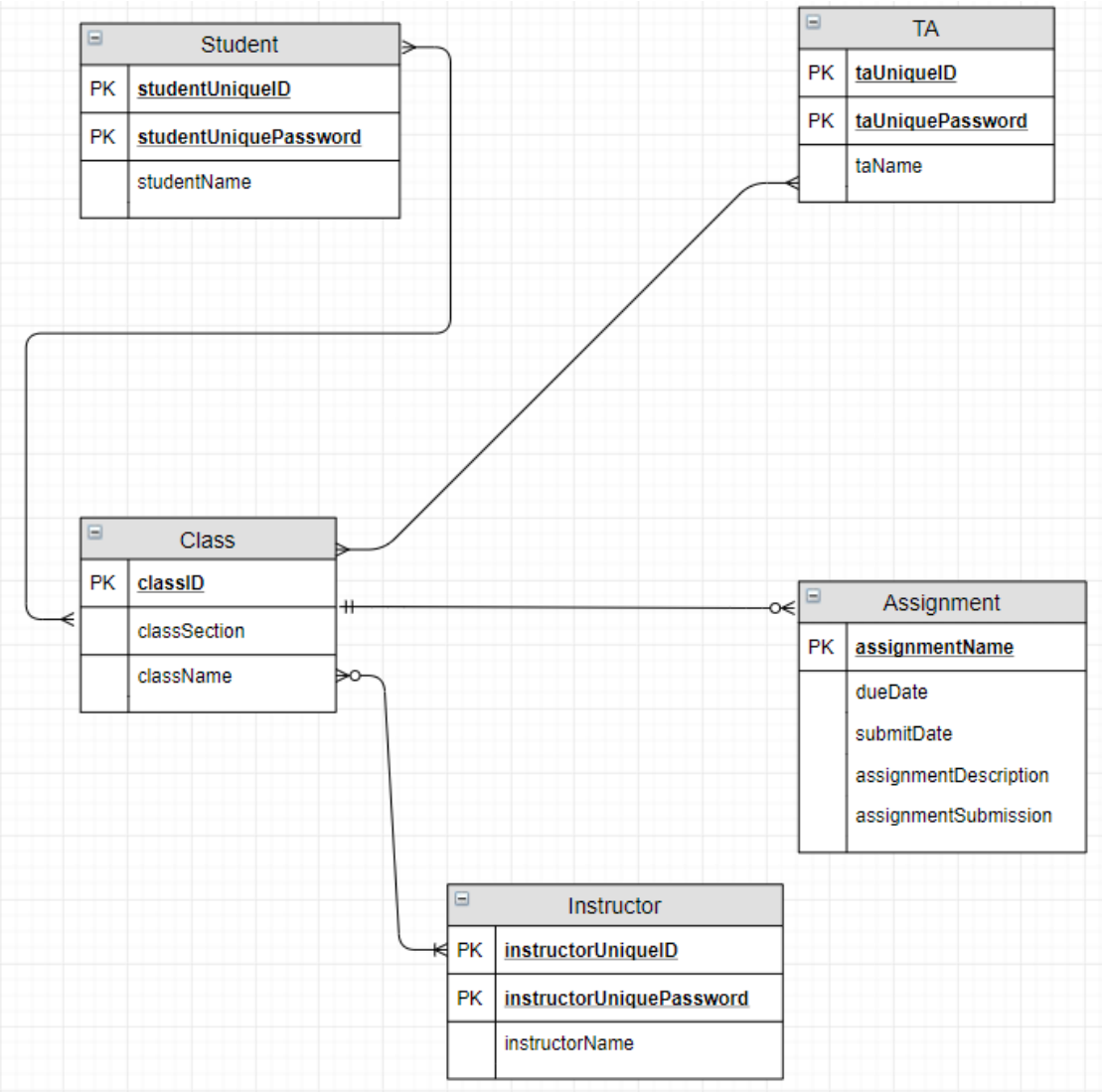
Instructor Constraints:

- (Primary Keys) The Instructor must have both a instructorUniqueID and instructorUniquePassword that cannot already be taken
- The Instructor can add and remove Students and TAs from their class
- The Instructor can add or delete an Assignment Entity Set for their class
- The Instructor can add or delete their class/section

- The Instructor can delete/change the dueDate and assignmentDescription of their Assignments
- The Instructor can add or delete an Assignment

***For the Student, TA, and Instructor Entities there should be a permission level associated with each table that they're in, that limits what they can see, access, or change. This attribute would most likely be set by default to an integer that cannot be changed.

***Below is a rough diagram showing the sets and some constraints



Step 4:

System Requirements/Constraints:

- A sever system to hold the database
- Internet connection
- The ability to host a large amount of users
- An encryption system for the logins and passwords of the users
- An access level system for the users, aka what each user type can access/change in the database
- A website interface for the database
- Enough memory and processing power to provide multiple database operations, such as joining tables and projecting to the web interface