Student

-id: String
-name: String
-age: int
-email: String
-phonenumber: String
-isTeachAssistence: boolean
-Skill: String
+level: int

+CRUD()
+enrolledStudentInTheCourse(): boolean
+dropCourse(): boolean
+viewEnrolledCourses(): ArrayList Course
+isStudentEligible(): boolean

Instructor

-id: String
-name: String
+age: int
-phonenumber: String
-email: String
-specialty: String
-position: String

+CRUD()
+assignToCourse(String instructorId, String courseId): boolean
+removeFromCourse(String instructorId, String courseId): boolean
+listAssignedCourses(String instructorId): ArrayList
+gradeStudent(String instructorId, String courseId, String studentId, double grade): boolean

Course

+id: String
+name: String
+chapters: int
+isAvailable: boolean
+levelRequaired: int
+positionRequired: String

+CRUD()
+removeStudent(String courseID, String StudentID)
+listEnrolledStudents(String courseId): ArrayList
+calculateAverageGrade(String courseId): double

- id: unique identifier for the student.

- name: student's name.

- age: student's age.

- email: student's email address.

- phonenumber: student's phone number.

- isTeachAssistence: flag to check if student is a teaching assistant.

- Skill: the student's skill (like Java, AI, etc).

- level: level of the student (e.g. 1, 2, 3...).

Methods:

- CRUD(): basic Create, Read, Update, Delete operations for the student.

- enrolledStudentInTheCourse(): enroll the student into a course if eligible.

- dropCourse(): remove the student from a course they are enrolled in.

- viewEnrolledCourses(): returns a list of all courses the student is currently enrolled in.

- isStudentEligible(): checks if the student meets the requirements for enrollment in a course.

Instructor Class:

Attributes:

- id: unique identifier for the instructor.

- name: instructor's name.

- age: instructor's age.

- phonenumber: instructor's phone number.

- email: instructor's email address.

- specialty: instructor's area of expertise (e.g. Networking, AI).

- position: job position (e.g. Professor, Lecturer).

Methods:

- CRUD(): basic Create, Read, Update, Delete operations for the instructor.

- assignToCourse(instructorId, courseId): assign this instructor to teach a specific course.

- removeFromCourse(instructorId, courseId): remove this instructor from a course.

- listAssignedCourses(instructorId): returns a list of courses the instructor is assigned to.

- gradeStudent(instructorId, courseId, studentId, grade): assign a grade to a student for a specific course.

Course Class:

Attributes:

id: unique identifier for the course.

name: name of the course.

chapters: number of chapters in the course.

isAvailable: indicates whether the course is open for enrollment.

levelRequired: the required level a student must have to join.

positionRequired: required instructor position (e.g., must be "Professor").

Methods:

CRUD(): basic Create, Read, Update, Delete operations for the course.

removeStudent(courseId, studentId): remove a student from this course.

listEnrolledStudents(courseId): returns a list of all students currently enrolled in the course.

calculateAverageGrade(courseId): calculates the average grade of all students in the course.