Java Practice: Create Composition Classes

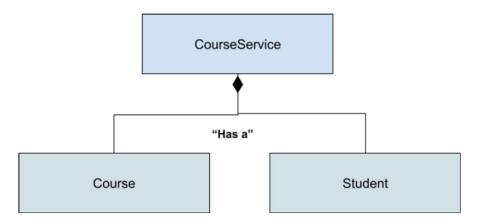
Composition in java is the design technique to implement **has-a** relationship in classes. We can use <u>java</u> <u>inheritance</u> or Object composition in java for code reuse.

Java composition is achieved by using instance variables that refer to other objects.

- A Course Service "has' Courses and Students.
- A Student "has' Enrolled Courses.

Implement the CourseService Class, Course Class and Student Class from the following Class Diagrams.

Imagine you are the JFSD for an online course service provider (e.g. Codecademy, Udemy etc).



Course Class

Course

- name :Stringid : Stringcredits : int
- +Course(name:String, id:String, credits: int)
- +getName(): String
- +setName(name: String): void
- +getId(): String +setId(id: String): void +getCredits(): int
- +setCredits(credits: int): void
- +toString(): String

Student Class

Student

- -name : String
 -id : String
- -enrolledCourses : ArrayList
- +Student(name:String, id:String)
- +getName(): String
- +setName(name: String): void
- +getId():String
- +setId(id: String): void
- +enroll(course: Course):void
- +unEnroll(course:Course):void
- +totalEnrollmentCourses():int
- +getEnrolledCourses():ArrayList<Course>
- +toString():String

CourseService

- -students: HashMap<String, Student>
 -courses: HashMap<String, Course>
- +CourseService()
- +addCourse(id:String, name:String, credit:int): void
- +getCourse(): HashMap<String, Course>
- +findCourse(courseld:String): Course
- +addStudent(id:String, name:String): void
- +enrollCourseToStudent(studentId:String, courseId:String):void
- +unEnrollCourseFromStudent(studentId:String, courseld:String):void
- + display Student Information (student Id: String): Student
- +totalEnrolledCourse(studentId:String):int
- +totalCredit(studentId:String):int
- +toString():String