CODSOFT TASK 5:

STUDENT COURSE REGISTRATION SYSTEM

import java.util.ArrayList;  
import java.util.HashMap;  
import java.util.List;  
import java.util.Map;  
import java.util.Scanner;  
  
class Course {  
 String code;  
 String title;  
 String description;  
 int capacity;  
 String schedule;  
  
 Course(String code, String title, String description, int capacity, String schedule) {  
 this.code = code;  
 this.title = title;  
 this.description = description;  
 this.capacity = capacity;  
 this.schedule = schedule;  
 }  
}  
  
class Student {  
 String id;  
 String name;  
 List<Course> registeredCourses;  
  
 Student(String id, String name) {  
 this.id = id;  
 this.name = name;  
 this.registeredCourses = new ArrayList<>();  
 }  
}  
  
public class CourseRegistrationSystem {  
 static Map<String, Course> courses = new HashMap<>();  
 static Map<String, Student> students = new HashMap<>();  
  
 public static void main(String[] args) {  
 initializeCourses(); // Initialize some courses for testing  
 Scanner scanner = new Scanner([System.in](https://system.in/));  
 int choice;  
 do {  
 System.out.println("1. Course Listing");  
 System.out.println("2. Student Registration");  
 System.out.println("3. Course Removal");  
 System.out.println("4. Exit");  
 System.out.print("Enter your choice: ");  
 choice = scanner.nextInt();  
 switch (choice) {  
 case 1:  
 displayCourseListing();  
 break;  
 case 2:  
 registerStudent(scanner);  
 break;  
 case 3:  
 removeCourse(scanner);  
 break;  
 case 4:  
 System.out.println("Exiting...");  
 break;  
 default:  
 System.out.println("Invalid choice. Please try again.");  
 }  
 } while (choice != 4);  
 scanner.close();  
 }  
  
 static void initializeCourses() {  
 courses.put("CSE101", new Course("CSE101", "Introduction to Computer Science", "An introduction to the basics of computer science.", 50, "Monday 10:00 AM - 12:00 PM"));  
 courses.put("CSE201", new Course("CSE201", "Data Structures and Algorithms", "Study of fundamental data structures and algorithms.", 40, "Wednesday 2:00 PM - 4:00 PM"));  
 courses.put("CSE301", new Course("CSE301", "Database Management Systems", "Introduction to database concepts and design.", 30, "Friday 9:00 AM - 11:00 AM"));  
 }  
  
 static void displayCourseListing() {  
 System.out.println("Course Listing:");  
 for (Course course : courses.values()) {  
 System.out.println("Code: " + course.code);  
 System.out.println("Title: " + course.title);  
 System.out.println("Description: " + course.description);  
 System.out.println("Capacity: " + course.capacity);  
 System.out.println("Schedule: " + course.schedule);  
 System.out.println();  
 }  
 }  
  
 static void registerStudent(Scanner scanner) {  
 System.out.print("Enter student ID: ");  
 String id = scanner.next();  
 System.out.print("Enter student name: ");  
 String name = scanner.next();  
 Student student = new Student(id, name);  
 students.put(id, student);  
  
 boolean continueRegistering = true;  
  
 while (continueRegistering) {  
 System.out.println("Available Courses:");  
 displayCourseListing();  
  
 System.out.print("Enter course code to register: ");  
 String courseCode = scanner.next();  
 Course course = courses.get(courseCode);  
 if (course != null && course.capacity > 0) {  
 if (!student.registeredCourses.contains(course)) {  
 student.registeredCourses.add(course);  
 course.capacity--;  
 System.out.println("Student " + name + " registered for course " + course.title + " successfully.");  
 } else {  
 System.out.println("Student is already registered for this course.");  
 }  
 } else {  
 System.out.println("Invalid course code or course is full.");  
 }  
  
 System.out.print("Do you want to register for another course? (yes/no): ");  
 String response = scanner.next();  
 continueRegistering = response.equalsIgnoreCase("yes");  
 }  
 }  
  
 static void removeCourse(Scanner scanner) {  
 System.out.print("Enter student ID: ");  
 String id = scanner.next();  
 Student student = students.get(id);  
 if (student != null) {  
 System.out.println("Registered courses for student " + student.name + ":");  
 for (Course course : student.registeredCourses) {  
 System.out.println(course.code + ": " + course.title);  
 }  
 System.out.print("Enter course code to remove: ");  
 String code = scanner.next();  
 Course courseToRemove = null;  
 for (Course course : student.registeredCourses) {  
 if (course.code.equals(code)) {  
 courseToRemove = course;  
 break;  
 }  
 }  
 if (courseToRemove != null) {  
 student.registeredCourses.remove(courseToRemove);  
 courseToRemove.capacity++;  
 System.out.println("Course " + courseToRemove.title + " removed successfully.");  
 } else {  
 System.out.println("Course not found.");  
 }  
 } else {  
 System.out.println("Student not found.");  
 }  
 }  
}