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import java.util.*;

public class StudentInfoTracker {
    private static void bubbleSort(int[] intArray){
        int n = intArray.length;
        int temp = 0;
        for (int i = 0; i < n; i++) {
            for (int j = 1; j < (n - i); j++) {
                if (intArray[j - 1] > intArray[j]) {
                    temp = intArray[j - 1];
                    intArray[j - 1] = intArray[j];
                    intArray[j] = temp;
                }
            }
        }
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Welcome to the Student Information Tracker!");
        System.out.println("How many students are in the class: ");
        int number = scanner.nextInt();

        String[] names = new String[number];
        LinkedList<String> studentData = new LinkedList<String>();
        ArrayList<String> assignmentList = new ArrayList<>();
        Stack<Integer> studentGrades = new Stack<>();
        int[] gradesArray = new int[number];
        Queue<String> AssignmentCompletion = new LinkedList<String>();
        Hashtable<String, Integer> studentID = new Hashtable<String, Integer>();

        while(true){
            System.out.println("Please select an option:");
            System.out.println("1: Enter Student Names");
            System.out.println("2: Add or Delete Student Names");
            System.out.println("3: Replace Student Names");
            System.out.println("4: Submit Student Assignments");
            System.out.println("5: Enter Student Grades");
            System.out.println("6: Enter Student ID Numbers");
            System.out.println("7: Exit Program");

            int choice = scanner.nextInt();

            switch (choice){
                case 1 -> {
                    ///Array to store student information
                    for (int i = 0; i < number; i++) {
                        System.out.println("Please enter student name: ");

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        names[i] = scanner.next();
    }
    System.out.println("Here are the student names: ");
    for (int i = 0; i < number; i++) {
        System.out.println(names[i]);
    }
    break;
}
case 2 -> {
    for (String name : names) {
        studentData.add(name);
    }
    System.out.println("Here is the student data before we add,
remove, or replace any students: ");
    System.out.println(studentData);
    System.out.println("Would you like to add or delete students
from your list: ");
    System.out.println("type 'add' to add and 'delete' to delete
a student: ");
    String response = scanner.next();
    if (response.equals("add")) {
        System.out.println("What is the student name: ");
        String ans = scanner.next();
        studentData.add(ans);
        number += 1;
    }
    if (response.equals("delete")) {
        System.out.println("What is the student name: ");
        String ans2 = scanner.next();
        studentData.remove(ans2);
        number -= 1;
    }
    System.out.println("Here are the names after these changes:
");
    System.out.println(studentData);
    break;
}
case 3 -> {
    System.out.println("Enter the index you would like to
replace: ");
    int index = scanner.nextInt();
    System.out.println("What is the name of the student: ");
    String nameEntered = scanner.next();
    studentData.remove(index);
    studentData.add(index, nameEntered);
    System.out.println("Here are the names after these changes:
");
    System.out.println(studentData);
    break;
}

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    }
    case 4-> {
        System.out.println("Lets have students submit the
assignments: ");
        for (String students : studentData) {
            System.out.println(students + " what assignment would
you like to submit: ");
            String answer = scanner.next();
            AssignmentCompletion.offer(answer);
            assignmentList.add(answer);
        }
        System.out.println("Here are the students and their
respective assignments: ");
        for (String studentDatum : studentData) {
            String answer = AssignmentCompletion.poll();
            System.out.println(studentDatum + " here is your
assignment: " + answer);
        }
        break;
    }
    case 5 -> {
        ///Let's add grades associated with these students:
        gradesArray = new int[studentData.size()];
        System.out.println("Lets assign what grade each student got
on their math exam: ");
        for (int i = 0; i < studentData.size(); i++) {
            String student = studentData.get(i);
            String assignment = assignmentList.get(i);
            System.out.println("What did " + student + " get on " +
assignment + ": ");
            int grade = scanner.nextInt();
            studentGrades.push(grade);
            gradesArray[i] = grade;
            System.out.println(student + " - Grade: " +
studentGrades.pop());
        }
        System.out.println("Would you like to sort the grades from
lowest to highest? (y or n)");
        String ans3 = scanner.next();
        if(ans3.equalsIgnoreCase("y")){
            bubbleSort(gradesArray);
            System.out.println();
            System.out.println("Grades After Sort");
            for (int j : gradesArray) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
        else{

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        break;
    }
    break;
}
case 6 -> {
    System.out.println("Assign each of the students a Unique student ID");
    for (String studentTracker : studentData) {
        System.out.println(studentTracker + " please enter the student ID: ");

        int ID = scanner.nextInt();
        studentID.put(studentTracker, ID);
    }
    for (String StudentInfo : studentData) {
        int studentTracker = studentID.get(StudentInfo);
        System.out.println(StudentInfo + " - ID: " + studentTracker);
    }
    break;
}
case 7 -> {
    System.out.println("Exiting Program");
    System.exit(0);
}
default -> {
    System.out.println("Invalid input");
    break;
}
}
}
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