CS 101 Algorithms & Programming I - Fall 2021 - Section 1 Quiz 4 - **Week of December 13, 2021**

Below are a couple of classes for representing *students* and *departments* that the students are in as described in Quiz 3. A department should know about the students in that department as well as the student knowing about their department. Now that you know how to properly store and refer to a collection of objects, make the necessary changes in these classes to reflect this fact.

Make sure you pay attention to the principle of information hiding but due to limited space, do not worry as much about style and checking of any invalid values being specified.

```
public class Student {
  private static int count = 0;
  private int ID;
  private String name;
  private Dept dept;
  public Student(String aName, Dept aDept) {
    this.ID = ++Student.count;
    this.name = aName;
    this.dept = aDept;
    aDept.addStudent(this);
  }
  public int getID() { return this.ID; } // no set method
  public String getName() { return this.name; }
  public void setName(String aName) { this.name = aName; }
  public Dept getDept() { return this.dept; } // no set method
  public String getDeptName() { return this.dept.getName(); }
}
```

```
public class Dept {
  private int count = 0;
  private ArrayList<Student> students; // no get/set methods
  private String name;
  private String code;
  public Dept(String aName, String aCode) {
    this.students = new ArrayList<Student>();
    this.name = aName;
    this.code = aCode;
  }
  public String getName() { return this.name; } // no set method
  public String getCode() { return this.code; } // no set method
  public int getNoOfStudents() { return this.students.size(); } // no set method
  public void addStudent(Student student) {
    this.students.add(student);
    this.count++;
  }
  public String toString() {
    return this.name + " Department (" + this.code +
      ") has " + this.getNoOfStudents() + " students!";
  }
}
```

Name: _____ ID: _____ Signature: _____