

Assignment 5

Inheritance & Polymorphism

Goals:

- Write classes extending other classes.

Program:

For this assignment, you should do the following:

1. Modify the Student class you created for assignment2 and add a new method called `getTuitionFees`. The Tuition fee for each credit is \$101.41 (create a constant for this value), so the student's tuition fee is calculated as follows:
$$\text{number-of-credits} * 101.41$$
2. Implement two new classes, `GraduateStudent` and `InternationalStudent`. Each class extends the Student class (from Assignment2).
 - `GraduateStudent` objects have all the attributes and methods of Student plus:
 - i. research topic
 - ii. name of the student's supervisor
 - iii. To create a new Graduate student, the name, address, research topic, and name of the student's advisor should be provided.
 - `InternationalStudent` object have all the attributes and methods of Student plus:
 - i. The name of the country where the student come from
 - ii. The tuition fees for International students are \$625.40 (create a constant for this) per credit
 - iii. To create a new International student, the name, address and the name of the country should be provided.
3. Modify you collgeTester program from your Assignment3 to allow users to create a regular student, an International student or a graduate student to the college:
4. Add `toString` method to your Student, GraduateStudent, InternationalStudent classes.
5. Add `equals` method to your Student, GraduateStudent, InternationalStudent classes.
6. Note that all the methods of the College class should work with GraduateStudent and InternationalStudent objects.

Submit a single ZIP (Compressed) file to BrightSpace containing:

The source code for all five classes: Student.java, InternationalStudent.java, GraduateStudent.java, College.java and an application program like CollegeTester.java.

Marking Scheme

- [15] Changes to the Student class
 - New instance variable and changes to the constructors.
 - New method, getTuitionFees.
 - Override toString, and equals methods.
- [20] InternationalStudent class
 - Instance variables and constructor(s)
 - Method to get the value of the country attribute.
 - Override getTuitionFees, toString, and equals methods.
- [20] GraduateStudent class
 - Instance variables and constructor(s)
 - Methods to get the value of the research topic and the name of the student's supervisor.
 - Override toString, and equals methods.
- [30] Changes to the CollegeTester program
 - Allow users to be able to add a new Student, a new International student or a new Graduate student to the college.
 - Allow users to get the tuition fee of a student.
 - Make sure all the actions (from the menu) works with both graduate and International students.
- [10] Documentation: Javadoc for all the methods headers, purpose of the program, inline comments
- [5] Programming Style: Meaningful variable names and constants following the conventions, consistent indentation.