

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 \$107.62 (create a constant for this value), so the student's tuition fee is calculated as follows:
number-of-credits * 107.62
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 \$637.91 (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.
 - iv. Override the getTuitionFee method.
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 constant.
 - 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.