**BackToSchool**

**Background**:

The HighSchool application described in the lesson has two classes: the Person superclass and the Student subclass. In this lab you will create two new classes, Teacher and CollegeStudent, using inheritance. A Teacher will be like Person but will have additional properties such as *salary* (the amount the teacher earns) and *subject* (e.g. "Computer Science", "Chemistry", "English", and "Other"). The CollegeStudent class will extend the Student class by adding a *year* (current level in college) and *major* (e.g. "Electrical Engineering", "Communications", and "Undeclared").

The inheritance hierarchy follows.

Person

Teacher

Student

CollegeStudent

**Assignment**:

1. You are provided with two source files as shown above: *Person.java* for the Person class, *Student.java* for the Student class. These files should be used throughout this assignment.

**Create a new project called Inheritance. Place the starting classes, Tester, Person and Student into this new project.**

**Class 1. Teacher Class**

Create a new class, a Teacher class, that extends the parent class Person.

a. Add instance variables to the class for *subject* (e.g. “Computer Science”, "Chemistry", "English", "Other”) and *salary* (the teacher’s annual salary). *Subject* should be of type String and *salary* of type **double**. Choose appropriate names for the instance variables.

b. Write a constructor for the Teacher class. The constructor will use five parameters to initialize myName, myAge, myGender, *subject*, and *salary*. Use the **super** reference to use the constructor in the Person superclass to initialize the inherited values.

c. Write “setter” and “getter” methods for all of the class variables. For the Teacher class they would be: getSubject, getSalary, setSubject, and setSalary.

d. Write the toString() method for the Teacher class. Use a **super** reference to do the things already done by the superclass.

**Class 2. College Student Class**

Create a new class, a CollegeStudent subclass, that extends the Student class.

a. Add instance variables to the class for *major* (e.g. “Electrical Engineering”, “Communications”, “Undeclared”) and *year* (e.g. FROSH = 1, SOPH = 2, …). *Major* should be of type String and *year* of type **int**. Choose appropriate names for the instance variables.

b. Write a constructor for the CollegeStudent class. The constructor will use seven parameters to initialize myName, myAge, myGender, myIdNum, myGPA, *year*, and *major*. Use the **super** reference to use the constructor in the Student superclass to initialize the inherited values.

c. Write “setter” and “getter” methods for all of the class variables. For the CollegeStudent class they would be: getYear, getMajor, setYear, and setMajor.

d. Write the toString() method for the CollegeStudent class. Use a **super** reference to do the things already done by the superclass.

**Running the code**

A sample run of the program would give:

Coach Bob, age: 27, gender: M

Lynne Brooke, age: 16, gender: F, student id: HS95129, gpa: 3.5

Duke Java, age: 34, gender: M, subject: Computer Science, salary: 50000.0

Ima Frosh, age: 18, gender: F, student id: UCB123, gpa: 4.0, year: 1, major: English

Your lab assignment should consist of the following 2 files. Turn all of these file in together in the same submission. **NOT IN A ZIP FOLDER!**

*Teacher.java*

*CollegeStudent.java*