Chapter 6 Assignment (Setters and Getters) – 20 points

Two java files have been added to this project: StudentCreator.java and Student.java.Use the StudentCreator project located on Canvas to get started The Student class should encapsulate the concept of a student, assuming that a student has the following attributes: a name and age. Include a constructor and setter and getter methods for name, age, and type of student. Add the code to the Student class that already exists. Use the StudentCreator class to test all the methods in your class. Do NOT make changes to the StudentCreator class.

- Include the proper instance variables (name, age, and type). Initialize the *name* variable to *null*, the *age* variable to *0*, and the *type* variable to *null*. These variables should be *private*. The *type* variable will be used to store the schooling level of the student based on age. (3 points)
- Include a constructor to set the name and age of the student when the object is created. The constructor should take in two parameters (*newName* and *newAge*) and should call setter methods for name and age. (2 points)
- Create a *setName* method that sets the value of the student's name. (1 point)
- Create a *getName* method that returns the name of the student. (1 point)
- Create a *setAge* method. (1 point)
    - If the age is greater than 0 (1 point), this method should:
        - Set the age (1 point)
        - Call the setType method (1 point)
- Create a *getAge* method that returns the age of the student. (1 point)
- Create a *setType* method that sets the type of the student based on age. This type will be the level of schooling of the student. It is just an approximation based on age. (7 points)
    - Preschool (age 0 – 4)
    - Kindergarten (age 5)
    - Elementary School (age 6-10)
    - Middle School (age 11-13)
    - High School (age 14-17)
    - College (age 18 & up)
- Create a *getType* method that returns the type of the student. (1 point)

When you are finished, your results should look as follows:

```
Name: Bob
Age: 17
Type of Student: High School

Name: Jan
Age: 13
Type of Student: Middle School

Name: Bob
Age: 18
Type of Student: College
```

StudentCreator Class *(it will have errors since the Student code has not yet been written)*

```
/* This program will use setters and getters to compile a user-defined class
 * Name and Date
 * JDK version
 */

package studentcreator;

public class StudentCreator {
    public static void main(String[] args) {
        //Create student objects
        Student student1 = new Student("Bob", 17);
        Student student2 = new Student("Jan", 13);

        //Print out student name, age, and schooling type
        System.out.println("Name: " + student1.getName());
        System.out.println("Age: " + student1.getAge());
        System.out.println("Type of Student: " + student1.getType());
        System.out.println("\nName: " + student2.getName());
        System.out.println("Age: " + student2.getAge());
        System.out.println("Type of Student: " + student2.getType());

        //Change student1 age
        student1.setAge(18);
        System.out.println("\nName: " + student1.getName());
        System.out.println("Age: " + student1.getAge());
        System.out.println("Type of Student: " + student1.getType());
    }
}
```

Student Class *(You need to add the code to this class to make the program work)*

```
/* This program will use setters and getters to compile a user-defined class
 * Name and Date
 * JDK version
 */

package studentcreator;

public class Student {
    //Define instance variables

    //Student Constructor

    //Setter method to set the student name

    //Getter method to get the student name

    //Setter method to check validity of data, set age, and call setType method

    //Getter method to get the student age

    //Setter method to set the student's type based on age

    //Getter method to get the student type

}
```