Assignment 4F

A teacher wants a program to keep track of grades for students and decides to create a student class for his program as follows:

* Each student will be described by three pieces of data: his/her name, his/her score on test #1, and his/her score on test #2.
* There will be one constructor, which will receive one parameter -- the name of the student.
* There will be three methods: getName, which will return the student's name; inputGrades, which will prompt for and read in the student's test grades from the keyboard; and getAverage, which will compute and return the student's average.

1. Import Student.java. It contains a shell for the Student class. Complete the class definition as follows:

* Declare the instance data (name, score for test1, and score for test2).
* Write the constructor (Take a look at Account.java on the hand-out the talks about writing classes. All it should do is receive parameters, and set instance variables).
* Write the missing methods

1. Import Grades.java. It contains a shell program that uses Student objects. There's already a student object for Mary.

* Create a student2 object for Mike.
* Call the inputGrades() method to read in each student's test scores

1. Now add statements to Grades.java to print the Student objects, e.g.:

System.out.println("Student 1: " + student1);

This should run, but something weird prints! When an object is printed, Java looks for a toString() method for that object. If there isn’t one, java returns this weird text which shows the virtual memory address where the object is located.

Fix this by adding a toString() method to your Student class. No parameters, and a String return type. It should return a string containing the student's name and test scores, and average, e.g.: **Name: Joe Test1: 85 Test2: 91 Average: 88.0** Do not write code to calculate the average here. Instead, call your .getAverage() method that’s already set up to calculate the average. Do not do any printing in this method, only return.

Run the program again (don’t call toString() explicity, just print the object), and you should see the much nicer text generated by your toString() method.

1. Now back in Grades.java, ask each student object for its average, calculate the average of the two students’ averages, and print that as **“The average of Joe’s and Mary’s averages is: 87.0"**
2. **Required for AP students, Bonus for Honor students:** Modify the inputGrades() method of the Student class so that it validates the grades it reads in. That is, if a grade entered is less than 0 or greater than 100, it should print a warning message and ask for another grade. This should be repeated (for each grade entered) until the grade is between 0 and 100. (This is called a data verification loop, and uses the sentinel value type of while loop. It’s not a good idea to try to make a for loop work for this.)