RIT | Golisano College of Computing and Information Sciences
School of Information

Name: _____

ISTE-120
Lab 05: Implementing Classes & Data Types

Exercise 1 - Implementing a class and tester (10 points)
The exercise must be completed during the lab period.

Write a simple class grade report program. This will work for a class of exactly three students (quite a limitation). Write a class to represent the student's record. This class (named Student) should have a constructor to which we will pass the student's name (String) and id number (int). It will have attributes for these two values, plus two other attributes which we could call sumGrades and numGrades, both ints and both initialized to zero.

Besides the constructor, write a method
```
public void addGrade(int newGrade)
```
which will add the grade to sumGrades and will also add 1 to numGrades.

Also, write a method
```
public double getAverage()
```
which calculates the student's average (this is the sum of the grades divided by the number of grades - beware of integer division here).

Finally, write a toString method in this class:
```
public String toString()
```
which will return a string formatted as follows:
```
name           id   grade
....+....1....+....2....+
```
That's 10 characters for the name (exactly, no overflow), left justified, then a space, then 5 characters for the id, right justified, then a space, then 7 characters for the grade (right justified) with 2 spaces to the right of the decimal point. Use String.format in this method.

Now, write another class (the Tester) named Report3. The main program is here and will follow the following input/output script:
```
Student 1:
  Name: Fred Smith
  ID: 12345
  Grade1: 80
  Grade2: 70
  Grade3: 80
Student 2:
  Name: Martha Stewart
  ID: 54321
  Grade1: 90
  Grade2: 60
```

```
   Grade3: 75
Student 3:
  Name: Josh Brown
  ID: 2468
  Grade1: 70
  Grade2: 80
  Grade3: 90
Fred Smith 12345    76.67
Martha Ste 54321    75.00
Josh Brown  2468    80.00
```

HINTS:

When you have read in a student's name and id, instantiate a Student object. Then, as you read in grades, call addGrade through that student as you read in the three grades.

As you read in the name, id and three grades for each student, you will have to use the Scanner method nextLine() to read the name (because names can have spaces in them). Beware of forgetting to clear off the end of the previous line before you start to read the name, or you will read in an empty name and try to read the name in as the id.

When all three student objects have been instantiated, and all grades added, print out the return of toString for each, one per line.

There is a lot of repetitive code in Report3. Use copy and paste, with some small editing to speed this process up.

Signature: _____ Date: _____