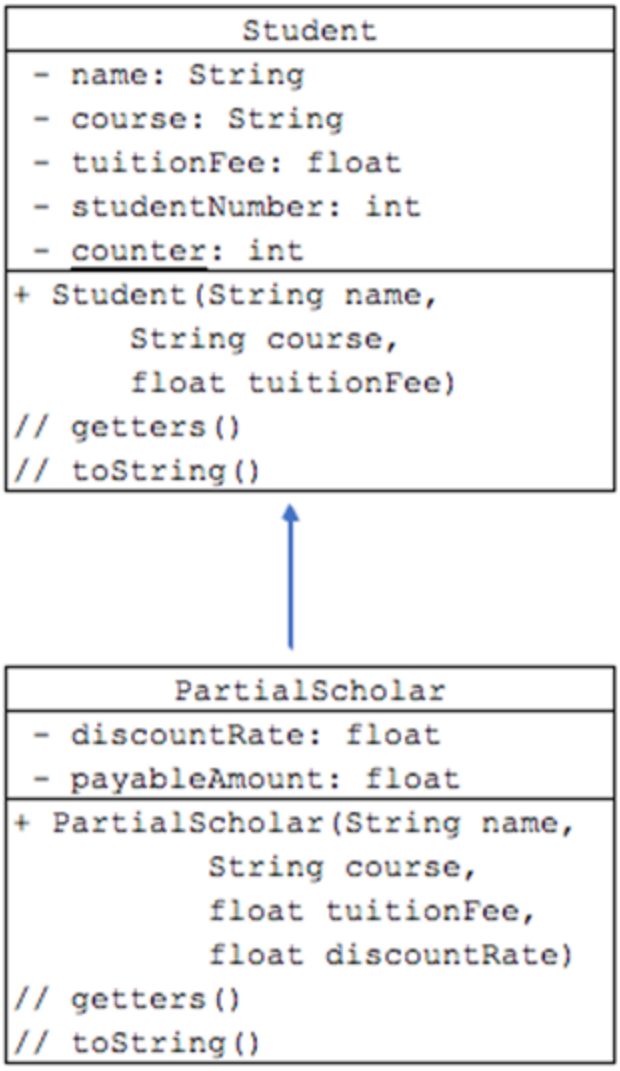
Machine Problem 3

New Attempt

- Due Feb 21 by 6pm
- Points 70
- Submitting a website url
- Attempts 1
- Allowed Attempts 2
- Available after Feb 21 at 3:20pm

You are hired by your University to create an application that will manage the student records and their scholarship and tuition fee information.

Part of your first project is to set up the hierarchy of the Student classes. You have to write 2 Java classes. Student – this represents a regular paying student. PartialScholar which is a subclass of the Student class that has a tuition fee discount. The percentage of the scholarship may vary and is sponsored by a certain scholarship provider.



Given the UML above, create the respective classes, attributes, constructors and methods.

For the Student class, the constructor should accept the name of the student, the course and the tuitionFee amount. Create a static counter variable and a non-static variable called studentNumber that will be used to compute for the student number of each created student object and return it in the toString() method.

For the PartialScholar class, the constructor should accept the name of the student, the course the tuitionFee amount and the discountRate. You are to reuse the constructor of the Student class and pass the name, course and tuitionFee values. In the constructor of the PartialScholar class, you are to compute for the payableAmount by using the tuitionFee value and deduct the product of the tuitionFee and the discountRate.

You are also required to override the toString() methods on both classes. Please see the sample output and the provided test class named TestStudent.

Here's the test class TestStudent, do not edit this code.

```
public class TestStudent {
   public static void main(String args[])  {
      Student students[] =
         {     new Student("Mathew", "BSCS", 10000.0F),
            new Student("Mark", "BSIT", 12000.0F),
            new PartialScholar("Luke", "BSIT", 12000.0F, 0.25F),
            new PartialScholar("John", "BSIT", 11000.0F, 0.5F),
         };

      float totalCollection = 0.0F;

      for(int i = 0; i < students.length; i++)  {
         System.out.println(students[i]);
      }

      // compute totalCollection value
      for(int i = 0; i < students.length; i++)  {
         if (students[i] instanceof PartialScholar)
            totalCollection +=
((PartialScholar)students[i]).getPayableAmount();
         else if (students[i] instanceof Student)
            totalCollection += students[i].getTuitionFee();
      }
```

```
        System.out.println("\nTotal Collectible Amount: " + totalCollection);
    }
}
```

SAMPLE OUTPUT:

Student # 1: Mathew is taking up BSCS with a tuition fee of 10000.0

Student # 2: Mark is taking up BSIT with a tuition fee of 12000.0

Student # 3: Luke is taking up BSIT with a tuition fee of 12000.0
Discount Rate of: 25%
Net Payable Tuition Fee is: 9000.0

Student # 4: John is taking up BSIT with a tuition fee of 11000.0
Discount Rate of: 50%
Net Payable Tuition Fee is: 5500.0

Total Collectible Amount: 36500.0

OOP