GRADING RUBRIC
==============

[

This rubric has been annotated in order to encode my assessment philosophy
within this rubric. The following question was given in Fall 2010 for an
Object-Oriented Languages and Systems course.

The exam is open book, open notes, open Internet, and open laptop. Really, the
only restriction is that the student may not communicate with other
individuals during the exam.

This has several implications for assessment:

  - The question cannot be a "fact", since Google can quite easily answer
    knowledge database style questions.
  - The question cannot focus on "programming tricks", since all students
    have access to their laptop and can simply type in the program and
    execute it using their programming tool.
  - The question must be more conceptual in nature, such that it is easy
    to answer if the student has grasped the material, but difficult to
    answer if the student tries random search queries online.
  - The question should be quick to answer if the student understands the
    concept, but should be time intensive if the student did not do any
    preparation before the exam.

].

QUESTION
========

Bridge Pattern. One of the concepts within the bridge pattern is that of a
refined abstraction. In this question, you will implement a refined
abstraction for the following class:

```
public abstract class DataStructure<T> {
    public T remove();
    public add(T e);
    public boolean isEmpty();
}
```

Create the class RefinedDataStructure, such that it adds support for the clear
method. The clear method will remove all elements from the data structure
until it is empty.

ANSWER
======

```
class RefinedDataStructure extends DataStructure<T> {
  public void clear() {

    while (!isEmpty()) {
      remove();
```

```
      }

    }

  }
```

ASSESSMENT
==========

[

There are many instructors who attempt to quantify this type of problem by
assigning point values to errors, but this process is fundamentally subjective
in itself. For instance, notice the line "remove();". If the student forgets
to place a semi-colon, should this be considered: a) a trivial error? b) -1,
c) - 2? Does the fact that the student has a laptop change the magnitude of
this missing character?

Rather than deliberate and endlessly frustrate myself on quantifying
subjectivity, I instead recognize that inherent subjectivity exists and assess
this question on the basis of understanding, rather than trying to
characterize individual errors.

Then, the question can be categorized as:

  5 thorough understanding
  4 adequate understanding
  3 needs work
  0 - 2 reserved for clear misunderstanding of the concept

Such a Likert scale is subjective, but becomes usable as long as a single
individual is grading the assignment. That is the case here.

Because of the broad "bucketing", minor errors have little to no effect on the
overall score. Here, missing a ";" cannot move a student from a 5 to a 4.

]

GRADING RUBRIC
==============

5 thorough understanding
  - properly extends DataStructure<T>, demonstrating that the student
    understanding the term refined.
  - provides a working implementation that uses the existing clear()
    method, demonstrating that the student understands the word
    abstraction.
4 adequate understanding
  - student appears to understand both refined and abstraction, but makes
    an algorithmic error that prevents the data structure from actually
    clearing the elements
3 needs work
  - student only implements refined or abstraction, but not both.
2 - 0

- assigned based on severity of issue.