

Specifications: Score

In addition to the obvious specifications illustrated in the UML class diagram, the Score class must satisfy the following specifications.

1. Score objects must be immutable.
2. If a constructor is passed a key that is null or empty (i.e., "") then the constructor must throw an `IllegalArgumentException`.
3. The `Score(String key)` constructor must construct a Score object with a value attribute of `0.0`.
4. The `compareTo(Score other)` method must return `-1/0/1` if `this.value` is less than/equal to/greater than `other.value` with the following caveats:
 - 4.1. If `this.value` and `other.value` are both null then it must return `0`.
 - 4.2. If `this.value` is null and `other.value` is not then it must return `-1`.
 - 4.3. If `other.value` is null and `this.value` is not then it must return `1`.
5. The `toString(boolean verbose)` method must return a String representation of the Score object.
 - 5.1. If `verbose` is true then:
 - 5.1.1. If the value attribute is not null then the String must contain the key attribute, followed by the String literal `:"`, followed by a single space, followed by the value attribute (in a field of width 5 with 1 digit to the right of the decimal point).
 - 5.1.2. If the value attribute is null then the String must contain the key attribute, followed by the String literal `:"`, followed by a single space, followed by the String literal `"N/A"` (right-justified in a field of width 5).
 - 5.2. If `verbose` is false then:
 - 5.2.1. If the value attribute is not null then the String must contain the value attribute (in a field of width 5 with 1 digit to the right of the decimal point).
 - 5.2.2. If the value attribute is null then the String must contain the String literal `"N/A"` (right-justified in a field of width 5).
6. The `toString()` method must return a terse String representation of the Score object.

Note that, while null key attributes are invalid (i.e., every Score object must have a non-null, non-empty key attribute), null value attributes are valid (and are used to indicate that the Score is missing).