

Specifications: ThresholdFilter

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

1. The explicit value constructor is passed a threshold and one or more int values (named sign) that indicate the conditions to use in the apply() method (both of which must be stored in the attribute of the same name).
 - 1.1. A sign of 1 indicates that an element in the List that is greater than the threshold will not be filtered out by the apply() method.
 - 1.2. A sign of 0 indicates that an element in the List that is equal to the threshold will not be filtered out by the apply() method.
 - 1.3. A sign of -1 indicates that an element in the List that is less than the threshold will not be filtered out by the apply() method.
 - 1.4. The sign values need not be ordered.
2. You may assume that the apply() method is passed a List that does not contain any null elements.
3. The apply() method must not have any side effects. That is, it must not change the parameters that it is passed in any way and it must not change any attributes in any way.
4. The apply() method must construct a new List that is a subset of the List it is passed.
 - 4.1. If the apply() method is passed a null List then it must throw a SizeException.
 - 4.2. If the apply() method is passed a non-null then it must return a new List that contains some or all of the elements in data.
 - 4.2.1. The elements of the new List must be aliases for (**not** copies of) the LabeledDouble objects in the List it is passed.
 - 4.2.2. If there are no sign attributes (i.e., the array is null or has 0 elements) then the apply() method must return an empty List.
 - 4.2.3. If any of the conditions represented by the sign attribute holds for a particular element that that element must be included in the result (i.e., the conditions must be combined using a logical OR).
 - 4.2.4. The elements in the returned List must be in the same order they appeared in the original List (though not all elements must be in the result).