

The algorithmic pattern of summation on enumerator

Problem:

Let \mathcal{H} be an arbitrary set where an associative operation exists, with a left-hand neutral element denoted by 0. Let us call the operation addition and suppose that its operator is denoted by the $+$ sign. Given an enumerator t enumerating elements of type E and a function $f: E \rightarrow \mathcal{H}$. Let us calculate the sum of the values that f assigns to the elements produced by t .

Specification:

$A = (t:enor(E), s:\mathcal{H})$

$Pre = (t = t')$

$Post = (s = \sum_{e \in t'} f(e))$

Algorithm:

$s := 0$		
$t.first()$		
$\neg t.end()$		
<table> <tr> <td>$s := s + f(t.current())$</td></tr> <tr> <td>$t.next()$</td></tr> </table>	$s := s + f(t.current())$	$t.next()$
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