

The algorithmic pattern of summation on enumerator

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Programming theory - extra homework

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

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

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$$Pre = (t = t')$$

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$$Pre = (t = t')$$

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

Algorithm

$s := 0$
$t.first()$
$\neg t.end()$
$s := s + f(t.current())$
$t.next()$