Example: Quicksort

$$isSorted([]) = \mathsf{True}$$
$$isSorted([x]) = \mathsf{True}$$
$$isSorted([x_1, x_2, \ldots, x_n]) = (x_1 \leq x_2) \wedge \cdots \wedge (x_{n-1} \leq x_n)$$

Example: Quicksort

```
{- lo >= 0 && hi >= 0 -}
{- lo < hi -}
{- length(A) > 0 -}
algorithm quicksort(A:List Int, lo:Int, hi:Int) {
   if (lo >= 0 && hi >= 0 && lo < hi && length(A) > 0) {
     p := partition(A, lo, hi)
     quicksort(A, lo, p)
     quicksort(A, p + 1, hi)
   } else {
      return ERROR
   }
}
{- isSorted(A) -}
```

```
algorithm partition(A:List Int, lo:Int, hi:Int) {
   mid = (lo + hi) / 2
   pivot := A[mid]
   …
}
```