

## Hint

The invariant  $Inv$  should express type correctness as well as conditions HS1 and HS2. Here is a suitable definition of an inductive invariant  $Inv$ . The second conjunct expresses HS1 and HS2, with HS1 being the case  $i = N$ .

$$\begin{aligned} Inv \triangleq & \quad \wedge ca \in [0 \dots (N - 1) \rightarrow \{0, 1\}] \\ & \quad \wedge \exists i \in 1 \dots N : \\ & \quad \quad \forall j \in 1 \dots (N - 1) : (ca[j] = ca[0]) \equiv (j < i) \end{aligned}$$

[CLOSE](#)