Problem 1. Write an algorithm that implements a *fetch-and-increment* object using atomic registers and compare-and-swap objects.

Reminder: Fetch-and-increment is a shared object that maintains a single variable $c$, initialized to 0, and provides a single operation $fetch\&inc$ with the following sequential specification:

```
operation fetch\&inc()
  c' := c
  c := c + 1
  return c'
end
```

A compare-and-swap object is a shared object that maintains a single variable $v$, initialized to $\bot$, and provides a single operation $CAS$ with the following sequential specification:

```
operation CAS(oldVal, newVal)
  v' := v
  if $v = oldVal$ then $v := newVal$
  return $v'$
end
```