## Task 04:

We will divide a for-loop over the array into $n/(n/log(n)) = \log(n)$ parts for the $n/log(n)$ processors.

Define an array $B$ to store the minimum index of first nonzero entry in the $k$-th part.

1. iterate over the array:

```
for i from 0 to n dopar:
    if A[i] != 0:
        B[k] = i
        terminate for-loop for k-th processor
    if no nonzero entry in k-th part:
        B[k] = undefined
```

   $n$ operations using $\frac{n}{\log(n)}$ processors for a runtime of $O(\log(n))$.
2. iterate over $B$ to find the first non-undefined entry, which gives the answer. ($O(\log(n))$)

## Task 05:

See next page.