

Jakub Kowalski, 323519, zadanie 2

def element(X, n, k):

- if $n == 1$ and $k == 1$: return $X[c]$

- $L = 0$

- $m = 0$

- for i in range(1, n):

- • if $X[i] < X[c]$: $m = m + 1$

- • else: $L = L + 1$

- if $m == k - 1$: return $X[c]$

- elif $m < k - 1$:

- • $Y = \text{Array}(L + 1)$

- • $Y[L] = X[c]$

- • $i = 0$

- • $j = 0$

- • while $i < L$:

- • • if $X[j] > X[c]$:

- • • • $Y[i] = X[j]$

- • • • $i = i + 1$

- • • $j = j + 1$

- • return element($Y, L + 1, k$)

- else:

- • $Y = \text{Array}(m + 1)$

- • $Y[m] = X[c]$

- • $i = 0$

- • $j = 0$

temp = $Y[c]$

$Y[c] = Y[\frac{L+1}{2}]$

$Y[\frac{L+1}{2}] = \text{temp}$

- • while $i < m$:

- • • if $X[j] < X[c]$:

- • • • $i = i + 1$

- • • • $Y[i] = X[j]$

- • • $j = j + 1$

- • return element($Y, m + 1, k$)

temp = $Y[c]$

$Y[c] = Y[\frac{m+1}{2}]$

$Y[\frac{m+1}{2}] = \text{temp}$