

ELEM/ ADATSZERKEZETEK & ADATTÍpusok

Stack

- A: T[]

- m: N

- constant max: $N_f := 16$

+ Stack(max: $N_f := m_0$)

{ A := new T[max]; m := 0 }

+ push(X: T)

+ pop(): T

+ top(): T

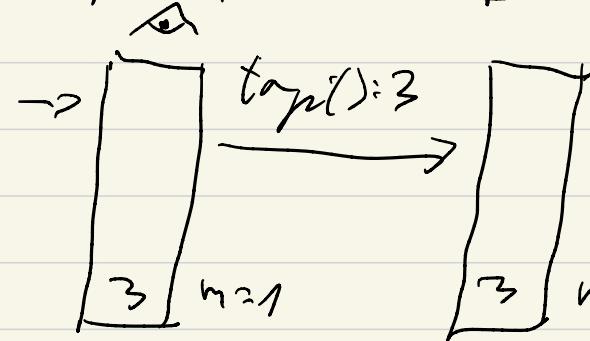
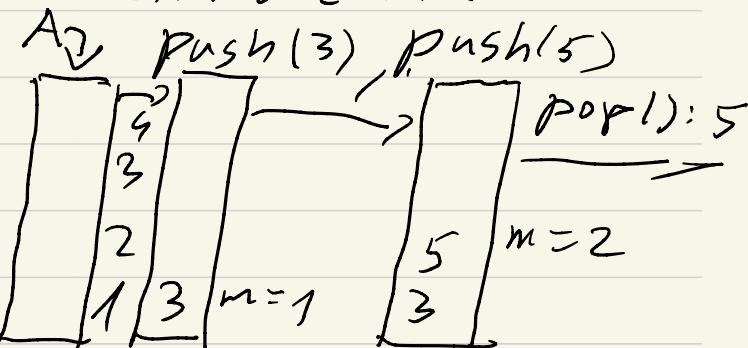
+ isEmpty(): B { return m = 0 }

+ setEmpty() { m := 0 }

+ ~Stack() { delete A }

UML körz (Verum)

LIFO tároló



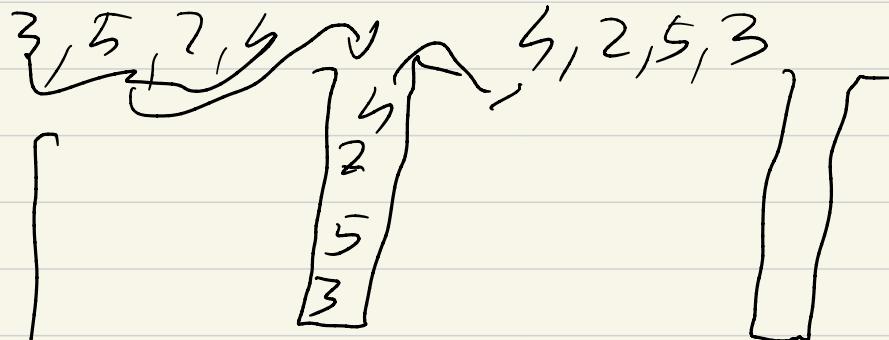
{ S: Stack; . . . } | AT $\stackrel{(m)}{\text{push}} \in \Theta(1)$, $| \Theta(1) | / \text{hil. push}() \stackrel{\text{end}}{\in} \Theta(1)$

$| \Theta(1) | / \text{HT}(m) \in \Theta(m)$

`read(&x:y):B`

function

`S:Stack`
`read(x)`
`S.push(x)`
`G.using(y)`
`write(S.pop())`



Queue

- constante $m_0 := N_t := 16$

- $Z : \mathbb{T}^{\lceil \rceil}$

- $k, n : \mathbb{N}$

+ Queue($m := N_t := m_0$)

{ $Z := \text{new } \mathbb{T}^{\lceil \rceil}[m]; k := n := 0$ }

+ add($x : \mathbb{T}$)

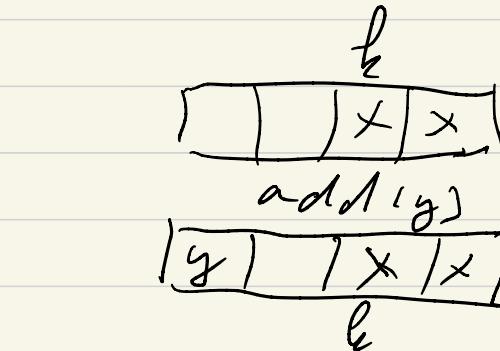
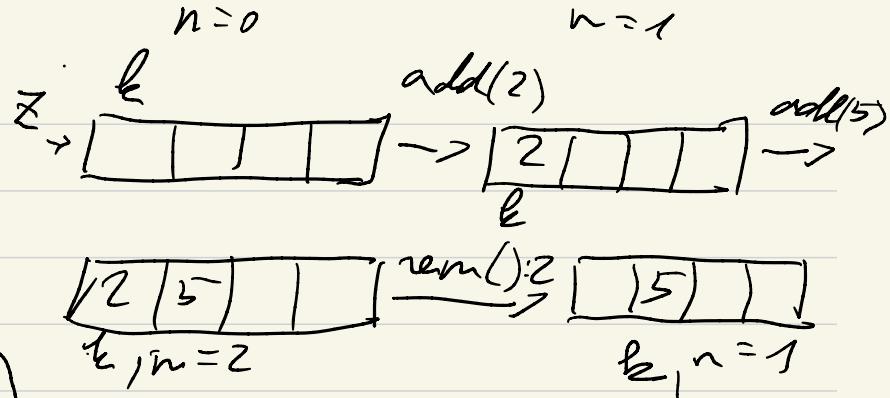
+ rem() : \mathbb{T}

+ first() : \mathbb{T}

+ length() : \mathbb{N} {return n }

+ setEmpty() { $k := n := 0$ }

+ ~Queue() {delete Z }



$O(1)$

$\left\{ \begin{array}{l} \text{MT}(n) \in O(n) \\ \text{AT}(n) \in O(1) \\ \text{mT}(n) \in O(1) \end{array} \right.$

AMORTIZIERT
ZÄLT min.
wegen
Nameita,

Möglichkeit: $\Theta(1)$, bzw. $\text{add}(x)$

$\left\{ \begin{array}{l} \text{AT}(n) \in O(1) \\ \text{mT}(n) \in O(1) \end{array} \right.$

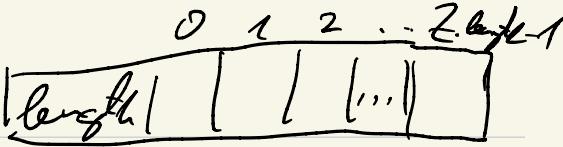
Queue :: add(x: T)

$n = Z.length$

DoubleQueueArray(Z, k) | X

$Z[(k+n) \bmod Z.length] := x$

$n++$



Z

$*Z = Z[0]$

$*Z + 1 = Z[1]$
:

Queue :: rem(): T

1

$n \geq 0$

$i := k; n--$

$k := (k+1) \bmod Z.length$

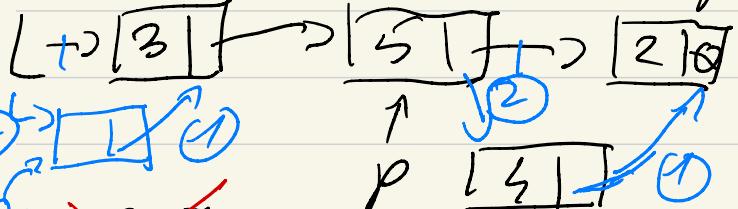
return $Z[i]$

throw

EMPTY_QUEUE_ERROR

LÄNCÖLJS LISTÁK

$\langle 3, 5, 2 \rangle$ reprezentációja



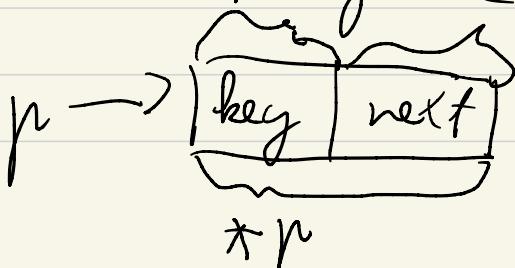
$L[i]$

Beszívás

a lista elején

$p \rightarrow \text{key}$

$(\ast p), \text{key}$

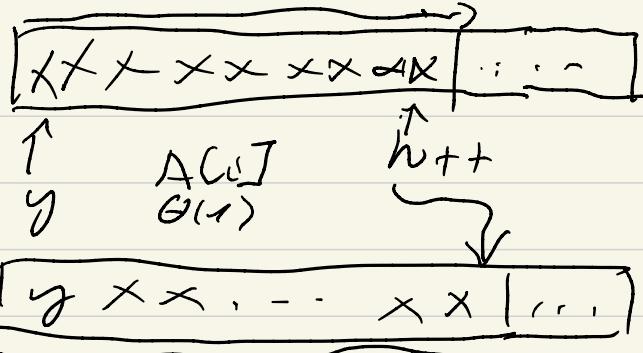


$p \rightarrow \text{next}$

$(\ast p). \text{next}$

Beszívás($\ast p$)
után

A



$q \rightarrow \text{next} := p \rightarrow \text{next}$
 $p \rightarrow \text{next} := q$

E1
+key: 5
+next: E1 *
:= q

