Programmierung WS 18
Hausaufgaben - Blatt 3

Julian Giesen (MNR 388487)
Levin Gäher (MNR 395035)
Gruppe 12

HA 2

HA 4

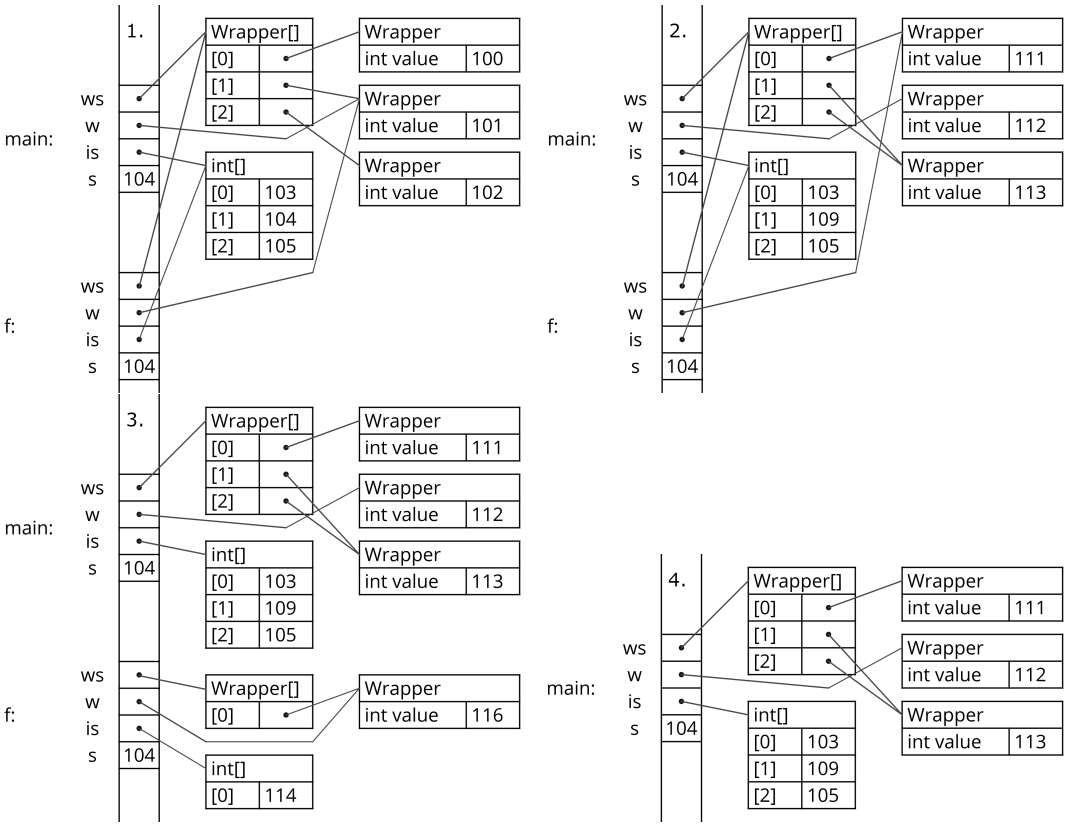
a)

$\langle\ 0 \leq a.length\ \rangle$
$\langle\ 0 \leq a.length \land 1 = 1 \land true = true \land 0 = 0\ \rangle$
$x = 1;$
$\langle\ 0 \leq a.length \land x = 1 \land true = true \land 0 = 0\ \rangle$
$result = true;$
$\langle\ 0 \leq a.length \land x = 1 \land result = true \land 0 = 0\ \rangle$
$i = 0;$
$\langle\ i \leq a.length \land x = 1 \land result = true \land i = 0\ \rangle$
$\langle\ i \leq a.length \land x = 2^i \land result = \forall 0 \leq j < i : a[j] = 2^j\ \rangle$
$while(i \leq a.length)\{$
$\langle\ i < a.length \land i \leq a.length \land x = 2^i \land result = \forall 0 \leq j < i : a[j] = 2^j\ \rangle$
$\langle\ i + 1 \leq a.length \land 2x = 2^{i+1} \land result = \forall 0 \leq j < i : a[j] = 2^j\ \rangle$
$if(a[i]! = x)\{$
$\langle\ a[i]! = x \land i + 1 \leq a.length \land 2x = 2^{i+1} \land result = \forall 0 \leq j < i : a[j] = 2^j\ \rangle$
$\langle\ i + 1 \leq a.length \land 2x = 2^{i+1} \land false = \forall 0 \leq j < i + 1 : a[j] = 2^j\ \rangle$
$result = false;$
$\langle\ i + 1 \leq a.length \land 2x = 2^{i+1} \land result = \forall 0 \leq j < i + 1 : a[j] = 2^j\ \rangle$
$\}$
$\langle\ i + 1 \leq a.length \land 2x = 2^{i+1} \land result = \forall 0 \leq j < i + 1 : a[j] = 2^j\ \rangle$
$x = x * 2$
$\langle\ i + 1 \leq a.length \land x = 2^{i+1} \land result = \forall 0 \leq j < i + 1 : a[j] = 2^j\ \rangle$
$i = i + 1;$
$\langle\ i \leq a.length \land x = 2^i \land result = \forall 0 \leq j < i : a[j] = 2^j\ \rangle$
$\}$
$\langle\ i \leq a.length \land x = 2^i \land result = \forall 0 \leq j < i : a[j] = 2^j \land \neg(i < a.length)\ \rangle$
$\langle\ result = \forall 0 \leq a.length : a[j] = 2^j\ \rangle$

b)

TODO b

HA 6



HA 8

TODO Code