Laborator 13

function Max(a: int, b: int):int

{

if a > b then a else b

}

method MaxSum(x: int , y: int) returns (s: int, m: int)

ensures s == x + y && m == Max(x, y)

{

s := x + y;

m := Max(x, y);

}

method Caller(){

var x := 1928;

var y := 1;

var sum, maximum := MaxSum(x, y);

assert sum == x+y;

assert maximum == Max(x, y);

}

method ReconstructFromMaxSum(s: int, m: int) returns (x: int, y: int)

requires m <= s && s <= 2\*m

ensures s == x+y

ensures (m == x || m==y) && x <= m && y <= m

{

x := m;

y := s - m;

}

method TestMaxSum(x: int, y: int){

var s, m := MaxSum(x,y);

assume m <= s <= 2\*m;

var xx, yy := ReconstructFromMaxSum(s,m);

assert (xx == x && yy == y) || (xx == y && yy == x);

}