Initial value of D_i is 0
After an operation, the value of D_i is updated as follows

(I) if the next operation is a block allocate request:
    if there is any free block, select one to allocate
      if the selected block is locally free
          then $D_i := D_i + 2$
          else $D_i := D_i + 1$
    otherwise
      first get two blocks by splitting a larger one into two (recursive operation)
      allocate one and mark the other locally free
      D_i remains unchanged (but D may change for other block sizes because of the
          recursive call)

(II) if the next operation is a block free request
    Case $D_i \geq 2$
      mark it locally free and free it locally
      $D_i := D_i - 2$
    Case $D_i = 1$
      mark it globally free and free it globally; coalesce if possible
      $D_i := 0$
    Case $D_i = 0$
      mark it globally free and free it globally; coalesce if possible
      select one locally free block of size 2^i and free it globally; coalesce if possible
      $D_i := 0$

Figure 8.22 Lazy Buddy System Algorithm