

# Worksheet: One-dimensional Iterative Averaging Example

- 1) Assuming  $n=9$  and the input array below, perform a “half-iteration” of the iterative averaging example by only filling in the blanks for odd values of  $j$  in the `myNew[]` array (different from the real algorithm). Recall that the computation is “`myNew[j] = (myVal[j-1] + myVal[j+1])/2.0;`”

index, j	0	1	2	3	4	5	6	7	8	9	10
myVal	0	0	0.2	0	0.4	0	0.6	0	0.8	0	1
myNew	0		0.2		0.4		0.6		0.8		1

- 2) Will the contents of `myVal[]` and `myNew[]` change in further iterations?
- 3) Write the formula for the final value of `myNew[i]` as a function of  $i$  and  $n$ . In general, this is the value that we will get if  $m$  (= #iterations in sequential for-iter loop) is large enough.

