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Recitation 2

1. Loop invariant: At the start of array iteration of the “for” loop, A[j] is the smallest

Initialization: j=n. Array contains only A[n]=smallest element in A [j…...n]

Maintenance: Suppose loop invariant holds at start of loop, so that A[j] is the smallest. Then following “if” comparts A[j] and A[j-1] and make A[j-1] smallest. Therefore, at start of loop(j-1), A[j-1] is smallest in subarray A[j-1…..n]

Termination: Loop terminate when j=I, so A[i] is smallest in A[i……n]

1. Loop invariant: A[1,…,i-1] is sorted and it is less than A[i,…,n]

Initialization: i=1, so that it goes through all the elements of the array. And A[1, i-1] is empty

1. Maintenance: Suppose A[1,…,i-1] is sorted and it is less than A[I,…,n], A[i] is smallest element inn A[i,…n], so that A[1,…i] is sorted and smaller than A[i+1,…,n] which holds the loop invariant

Termination: i=n, A[1….n-1] is sorted and smaller than A[i,…n] so that A[i,…n] is sorted.