Lab #04

Object-Orientated Programming

1. Take the existing Java Bubblesort code and modify it so that the inner loop doesn’t go from 0 to N-2 each time, but instead goes to N-3 in the second iteration, goes to N-4 in the third iteration, etc.

PseudoCode here:

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| PROGRAM BubbleSort:  Integer Age[8] <- {44,23,42,33,16,54,34,18};  ReducingIndex <- N-2;  FOR Outer-Index IN 0 TO N-1  DO FOR Index IN 0 TO ReducingIndex  DO IF (Age[Index+1] < Age[Index])  THEN Temp\_Value <- Age[Index+1];  Age[Index+1] <- Age[Index];  Age[Index] <- Temp\_Value;  ENDIF;  ENDFOR;  ReducingIndex <- ReducingIndex – 1;  ENDFOR;  END. |

1. Take the solution to question 1, and add a BOOLEAN to check if the inner loop did any swaps during each iteration, and if it doesn’t, to exit the program, as everything is fully ordered.

PseudoCode here:.

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| PROGRAM BubbleSort:  Integer Age[8] <- {44,23,42,33,16,54,34,18};  ReducingIndex <- N-2;  DidSwap <- FALSE;  FOR Outer-Index IN 0 TO N-1  DO FOR Index IN 0 TO ReducingIndex  DO IF (Age[Index+1] < Age[Index])  THEN Temp\_Value <- Age[Index+1];  Age[Index+1] <- Age[Index];  Age[Index] <- Temp\_Value;  DidSwap <- TRUE;  ENDIF;  ENDFOR;  ReducingIndex <- ReducingIndex – 1;  IF (DidSwap = FALSE)  THEN EXIT;  ENDIF;  ENDFOR;  END. |

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| e-mail me a completed solution in a Word document before next week’s class.  e-mail to [Damian.X.Gordon@TUDublin.ie](mailto:Damian.X.Gordon@TUDublin.ie) with subject heading “DT249 OOP Lab #04” |