AH Computing Science

STANDARD ALGORITHMS – SELECTION SORT
Selection sort – using 2 lists

This involves an unsorted list (ListA) and an empty list (ListB). Values are selected from ListA in order and placed into their correct sorted position in ListB until ListB is composed of a sorted list.

FOR EACH item FROM ListA Do
    Find minimum value in ListA and place it in position in ListB
    Replace Item removed from ListA with a dummy value
NEXT ITEM
Standard algorithms – Selection Sort

Efficiency
- The sort is not very efficient because
- It checks each item in ListA each time the loop executes
- It requires more storage for the second list (ListB), This can be a problem for large lists of data.
- Because of the inefficiency is not usually implemented when a sort algorithm is needed.

Careful selection of the dummy value is needed

Comparisons
- Always $n^2 - 1$

Passes
- $n$

Moves
- $n$
Standard algorithms – Selection Sort

Pseudocode:

PROCEDURE selectionSort()

DECLARE dummy AS STRING INITIALY "x"
DECLARE minimumPosition INITIALLY 0

FOR listBcounter FROM 0 TO listLength DO
    SET minimumPosition TO listBcounter
    FOR listAcounter FROM 0 TO listLength DO
            SET minimumPosition TO listAcounter
        END IF
    END FOR
    SET listB[listBcounter] TO listA[minimumPosition]
    SET listA[minimumPosition] TO dummy
END FOR

END PROCEDURE