toron of correctness for selection sort to Selection Selection Sort (array): " " " Joseph Carray - Z do: arrow Cit rabbni tronuminiparables dement for j from 1+I to length(array) do: 14 tollows effetiarray [j]: Edriay [minimum\_inder] then: of eventures friendly myshiring continues to with swap tarray [i] with array [minimum\_inder] end for Termination: - when in n-1 landy bridge bridge expension the order is deciral -> loop Invariant: At the beginning of each iteration the submarray garrays Eo: 13 Julic contains and smallest i smillement from entire array execution. The algorithm guranites -Base cose. Thisteration, the subarrey are array (0:0) . 13 rempty 1-7 it bishowson ted, the loop invariant is valid at this stage. Inductive step: for first i iteration. This implies that the Subarrey array [o:i] consist af smallest element. So loop invariant

Proof of wording for selection for iteration it 1: - the algorithm scans the unsorted postion of array Co: nJ Joto locate smallest element. After swapping, the element array (i) the smallest element for from the confidences of So array Co: itil rontains smallest it! clement, so loop invoriant continues to hold true after thiteration Termination: - when i=n-1 loop completetes the orray is sorted workers i de le principal all it touristant qual c Conclusion: Since the loop invariant hold true throughout the algorithms execution. The algorithm gurantee To:00 more dua sortedail output for anyo trainment grad out, bother Valid i input marray. the value of this stops Industries step: for first i terretion. This implies that the substant array Coil course of smallest elevant. So losp invarint