Name: Arfan basha shaik
UTA ID: 1002260039

Correctness of selection sort:

-) As the selection sort is designed to sort an array by finding minimum element repeatedly from the unsorted portion and swap it to the first of the sorted position.

Initialization:

-) In my code (min_index) variable is intialized where in the each itevation. the algorithm believes that the first unsorted element is the minimum one in the algorithm.

Scan for the minimum element:

-) It scans through unsorted element to find the minimum element.

-) If the minimum element is found then It updates the min_index.

-) It runs the same procedure after each scan.

Process of swapping:

-) After we find the minimum element then It is swapped with the unsorted element where this places the smallest element into correct position

-) As same above It maintains the order of sorting finding the minimum position element and sorting It into the correct position.

-) ~~After the completion of sorting~~

Ending:

-) The algorithm will done this until the entire array is sorted after it completes all the elements will be in correct position.

loops:

-) At the start of each loop pass of the outer loop the element from left to current index ('i') are correctly sorted

-) this maintains to throughout the algorithm.

-) When the outer loop finishes the array is sorted because every element in the array is compared and sorted in the correct position.