1.

Screen shot is attached.

2.

Interpolation search is an algorithm that is used to search for a specific value in a sorted array. It works by estimating the position of the value in the array based on its value and the values of the endpoints of the array.

Interpolation search is generally faster than linear search because it uses an estimation of the position of the value being searched for, rather than checking each element in the array one by one. However, interpolation search requires that the array be sorted and uniformly distributed.

3.

The improvedLinearSearch () takes in sorted array and compares the difference between key and starting and ending values of the array, after which it decides the end from which it will start iteration. Hence performs much better than usual linear search.