1-Binary search algorithm neglects half of the list on every iteration. It keeps on splitting the list until it finds the value it is looking for in a given list. It's a quick upgrade to a simple linear search algorithm.

2- Discussing its complicity:

Binary search is O(log n). The best-case time complexity would be O(1) when the target index would directly match the desired value. The worst-case could be the values at the end of the list of values not in the list.

3- Binary search vs Linear search:

Linear search finds an element in the list by searching the element sequentially until the element is found in the list. A binary search is a search that finds the middle element in the list recursively until the middle element is matched with a searched element.

Linear search can be implemented on any linear data structure such as vector, singly linked list, double linked list. The elements for a linear search can be arranged in any order. In binary search, the elements must be arranged in a particular order.

Linear uses an iterative approach to find the element, so it is also known as a sequential approach. Binary search calculates the middle element of the array, so it uses the divide and conquer approach.

Linear search is not suitable for the large data set. If we want to search the element, which is the last element of the array, a linear search will start searching from the first element and goes on till the last element, so the time taken to search the element would be large. Binary search is suitable for a large data set as it takes less time.

Linear search is used on both single and multidimensional arrays. Binary search is implemented only on the one-dimensional array.

Linear search is less efficient considering the large data sets. Binary search is more efficient than linear search in the case of large data sets.

4- When and where to apply Binary search:

On the sorted array or list of large size as it makes it very fast as compared to other sorting algorithms.

And in any case where the elements are compared in a less than or greater than manner. Such as using alphabetical order as our criteria for whether an element is greater than or less than another element.