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Data structure with Sorting Distinguishing

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Abstract: Sorting is a basic technique which is used in data structure. Most efficiency issue is occur when to sort the large amount of data. There are many algorithm and techniques are available to sort efficiently such type of data. For example, quicksort is very well performed in most practical situation, moreover the other sorting algorithm have better in worst case behavior. Lastly I present the comparison of different sorting algorithm with efficiency and the knowledge which I gained from the study.

Keywords: Adjacent, Divide and conquer, Sort, Swap, efficiently

I.INTRODUCTION

Data structure is a special way of organizing, processing, retrieving and storing data in a computer so that it can be used efficiently. In the short, data structure is a collection of values and relationship between them. In the computer programming, According to the purpose of work the data structure are designed with the help of various algorithm. For example: store the information of student having full detail like First name, Last name, Sex, Mobile number, Address, Course intake etc. for this storing/retrieving this type of data, the school data structure must be designed.

II. LITERATURE WORK

The data structure further divided two types: Primitive data structure and non Primitive data structure where the primitive data structure further categories into different section like: Integer, Real, Character and Boolean where Non primitive data structure is further divided into two parts linear and non linear data structure where the linear data structure means that the data is organized in linear order in which elements are linked with each other in linear fashion. example of linear data structure are: Array , linked list, Queue, Stack. Whereas non linear data structure means that the data is linked with each other in non-linear form such as tree and graph.

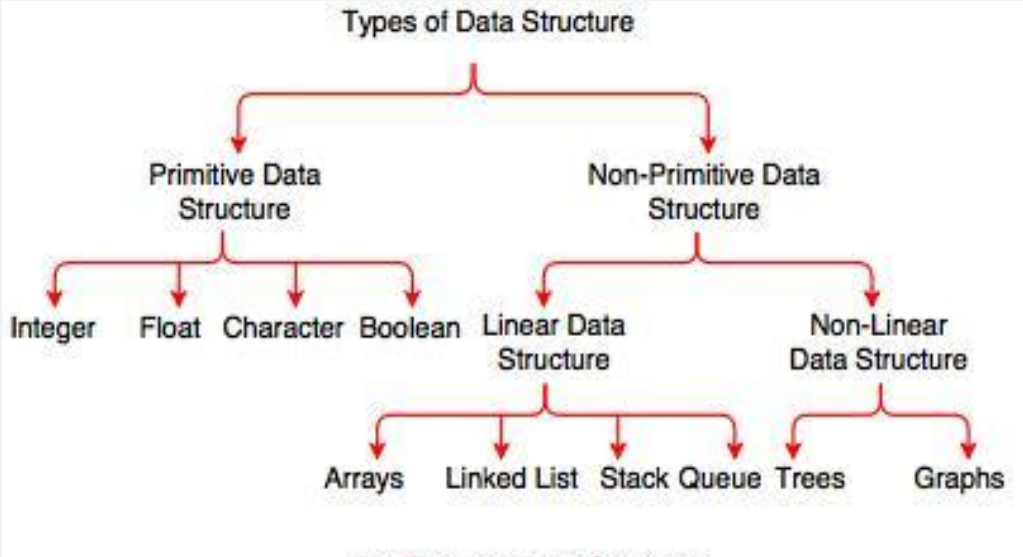

Fig. Types of Data Structure

III. SEARCHING AND SORTING

Searching and sorting technique are used in the data structure both techniques have different works whereas searching is used to search an element from the given array with the help of different searching algorithm like linear search and binary search. Sorting is process of arranging data in a particular format. Sorting is a

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way to arrange data in particular order i.e in ascending and descending order. For example telephone directory, dictionary where telephone directory is used to store the telephone numbers sorted by their names. Dictionary stores the words in alphabetical orders. So that the searching became easy.

Distinguishing between Merge Sort, Bubble sort, Selection sort, Quick sort, Insertion sort

Merge Sort	**Bubble Sort**	**Selection Sort**	**Quick Sort**	**Insertion Sort**
Merge sort is based on divide and conquer strategy	In Bubble sort adjacent element is compared and swapped	Largest element is selected and swapped with last element	Quick sort is based on divide and conquer strategy	Insertion sort is a simple comparison based sorting algorithm
Worst case complexity is O(nlogn)	Best case time complexity is O(n)	Best case time complexity is $O(n^2)$	Worst case complexity is O(n2)	Best case complexity is O(N)
The partition of array of elements is in any ratio, not necessarily divided into half	Exchanging method is used in bubble sort.	Selection method is used in selection sort.	The divided of an array of elements is in any ratio but not necessarily divided into half.	It insert every array element into proper position. In ith iteration, previous (i-1)elements are already sorted, and the ith element is inserted into its proper place in previous sorted sub array
It is preferred for linked list	It is used in polygon filling algorithm.	It is used in linked structure that make add and remove efficient such as linked list	It is preferred for array	Insertion sort is used in array.

IV. CONCLUSION

Finally conclude that the selecting efficient technique depends on the type of problem also conclude that each algorithm has its own advantages and disadvantages

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