Data Structures Using Java document shell

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# Background

The data structure is the regarded as the way the data can be used efficiently. It is also embodies the knowledge of data to be organized in the memory. As stated by Leung (2015), java data structure is unique and it comprises of linked list, Queue, searching, programs and graph. For proper understanding and usage of the java programming language, it is important to understand the way data is organized and therefore, understanding hierarchy or the flow of data is fundamental for good programming. This report present the illustration sections of Java such as Queue, linked list, searching, programs, sorting, graphs, heaps and trees, sorting and algorithms, searching and recursion.

# Lists, Stacks, and Queues

List, stacks and Queues are essential when using Java language for development of any software or system. Goodrich (2017) pointed out that these aspects are applied to ensure that the systems are proper programmed to have a good arrangement of data. The stacks are described as the containers of subjects which are inserted and removed in accordance to the last in and last out (LIFO). It is also referred as a limited access to data structure where element can be easily removed and added from the stack. It has the top and the rest is empty. It is also built on top of other data structure and therefore, it is implemented to a developed system with the best functionality. There are neatly arranged on top each other and then pushed to the top one by one. Each stack which is used in the java scripts program usually has its own java method stack. Linked lists are known as set of boxes which are chaired together and stored on top of each other (Mahmud, Rana, Hossin, & Jahan, 2017). The lists are arranged in the order of sequence and therefore, it means that each element has a position within the lists. It ensures that each element can only be accessed in a particular order.

Java code example:

*public static Integer[] reverse(Integer[] a) { ArrayStack S = new ArrayStack(a.length); Integer[] b = new Integer[a.length]; for (int i = 0; i < a.length; i++) S.push(a[i]); for (int i = 0; i < a.length; i++) b[i] = (Integer)(S.pop()); return b;*

# Heaps and Trees

Heaps and trees are known as binary nodes which are used to store values which are greater than the value of its children. In Java language, the heap is regarded as a special Tree-based data structure in which the tree is a complete binary tree (Goodrich, 2017). The heap contains the properties of the heap and therefore, it is used to find the shortest path. The below is an example of heap and trees structure which are used in java:

*// DSutil.java import java.util.\*; // A bunch of utility functions. Public class DSutil { // Swap two objects in an array public static void swap(Object[] array, int p1, int p2) { Object temp = array[p1]; array[p1] = array[p2]; array[p2] = temp;*

# Sorting Algorithms

The sorting algorithms are used to ensure that the arrays and lists are well arranged. It puts element of the list and arrays in a certain order to allow search to be conducted easily. It takes an array as both input and output and therefore, it is important to ensure that the data is properly arranged. However, there are two types of sorting which are used comparison and integer sorts (Dalal, 2014). In java language programming the sorting algorithm is used to put element of a list in a certain order and mostly used order is numeral order.

# Searching

Searching is string for a specific value and therefore, returns to the position match. It is designed to check for element and conducting retrieving of a binary. It is best when the data is less to go through the data. It is used to locate a specific element represented in a given element.

# Recursion

It is the process where the functions call themselves directly. These are attributes which allow elements to call themselves directly. It is implemented to help solve problems that can be encountered during the programming process.

# Conclusion

The data structure is an important part of programming and therefore, linked listed, searches, queue, heaps and tree and other are important part of the process of developing a good program or system.

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