Flutter In Action: How to master Algorithms

Posted by Khushboo Uchat May 10, 2021

This blog is again a part of my CE badge evidence 'Algorithms' but I am sharing with wider audience through blog. Other people who have earned the badge already mentioned about different algorithms as part of their learning so I would like to take one step forward and help you understand this interesting (but very complex... I really had dreams of problems while completing the algorithm learning journeys) subject in easiest and practical way.

When you want to master algorithms and really want to make sure that you invest your time fruitfully (rather than banging head with wall) then before starting to learn algorithms especially these coursera courses, Do some groundwork which will save you lots of time.

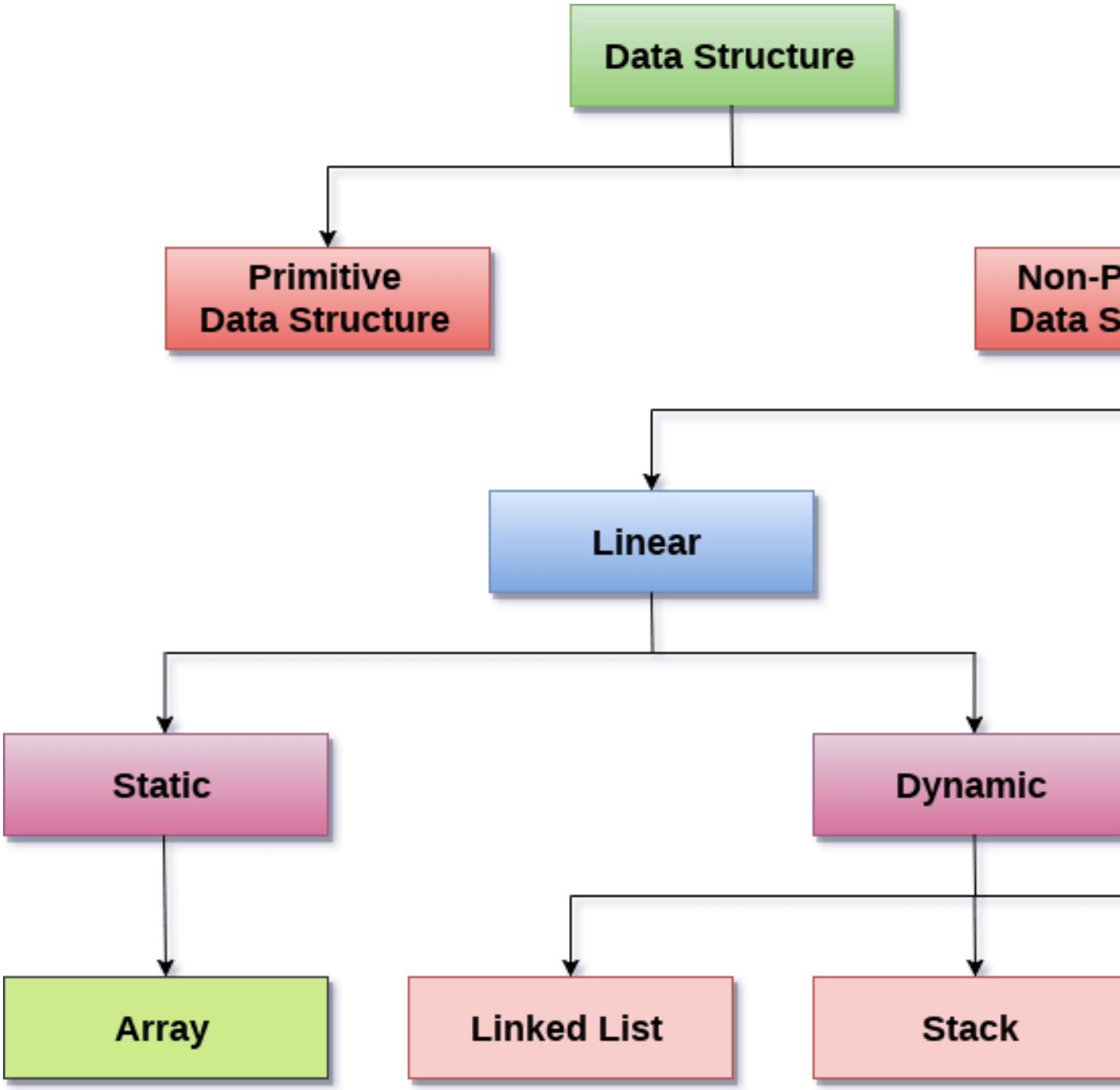
1. First thing first - Programming Basics

If it has been a while you had those old school basics recalled then this is the time. Brush up your knowledge about programming concepts such as variables, functions, classes and especially, Object-Oriented Programming (OOP) concepts. These concepts act as a foundation to understand more advanced concepts in computer science.

2. Algorithm Basics

The second step will be to move towards algorithm basics so that you will be able to understand the problem clearly. It will save lots of time which we spend in reading the problem multiple times and thinking where to start. Some important basics are

- **Time and space complexity analysis**
- **Big O notation**
- **Recursion**
- **Basic data structures such as arrays, matrices, linked lists, stacks, queues, trees, etc.**



3. Understand Depth vs. Breadth and start with depth first approach.

When you are working on algorithm issues, you will have lots of conditions to fulfill in your solution and it will make you jump here and there in your code and you will lose focus. **Depth vs Breadth means focus on the depth your solution needs to achieve** and **once done move to other condition**. Here you will gain lots of

confidence when your solution starts working for one condition. Also it will make you work in chunks which you can integrate later for complete solution.

4. Basic Searching and Sorting Algorithms before jumping to complex ones.

Searching and sorting is very important even in our day to day programming. Before I learnt about different algorithms, I was aware about few sorting techniques and searching mechanisms due to my architectural experience in my career. It helped me a lot to solve the complex problems in easiest way.

So I recommend to have a look at below techniques for sorting

- Insertion Sort - Insertion sort is a simple sorting algorithm where The array is virtually split into a sorted and an unsorted part. Values from the unsorted part are picked and placed at the correct position in the sorted part.
- Bubble Sort - Bubble Sort is the simplest sorting algorithm that works by repeatedly swapping the adjacent elements if they are in wrong order.
- Selection Sort - The selection sort algorithm sorts an array by repeatedly finding the minimum element (considering ascending order) from unsorted part and putting it at the beginning.

Searching techniques

- Sequential searching techniques - In this, the list or array is traversed sequentially and every element is checked
- Interval searching techniques - These algorithms are specifically designed for searching in sorted data-structures

So what are you waiting for ? You can also master algorithms like I did. I hope this blog will help you prepare for the exciting journey of Algorithms
25 Views Tags: ce, #technology

 Ana Rey de Castro
May 13, 2021 10:53 AM
Very good article Khushboo Uchat! Thanks for sharing! What app did you use to make the tree diagram?

Also, have you thought about posting this externally? Not necessarily the part about CEs but definitely the info about algorithms you've included here :) It would make a very useful read in Linkedin for example!