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Introduction to Data Structures & Algorithms

Course Introduction
This course is designed for placement preparation and will mainly cover data structures and algorithms using C and C++. Even if you do not know C++, you will still be able to follow along easily. The notes will be made available as a PDF in the description below.

Data Structures and Algorithms
Data structures are used to arrange data in main memory for efficient usage while algorithms are a sequence of steps to solve a given problem. In this course, we will cover arrays, linked lists, and graphs as examples of data structures and dive into solving problems using different algorithms

Programming Languages
C and C++ will be the primary languages used in this course but Java can also be used to implement the algorithms. I do not recommend Python or JavaScript for beginners but rather suggest learning C to get a solid foundation in programming.

Conclusion
Learning data structures and algorithms is a responsibility and I will teach this course in a way that is easy to understand for beginners. Don't worry if you make mistakes or have trouble at first, just follow along step by step and everything will become clear.

Data Structures & Algorithms for Placements
This course is primarily for those preparing for placements or job interviews.

Time is limited when preparing for placements, so this course is structured to value your time. A 15-hour video on C with notes is available on the channel, which will be covered first. If you're an advanced Java user or can program algorithms in Python, then it's possible to do so. However, it's recommended to learn C and C++ first.

Data structure is an arrangement of data in main memory, which refers to RAM (Random Access Memory) of 2, 4, 8, 16, or 32 GB. The sequence of RAM usage is important when loading a program like "chrome.exe" for Windows. Fiddling with data occurs in main memory, which must be arranged optimally using data structures to minimize RAM usage.

The theory of databases is not covered in this course, but you should know their basic concepts. When opening a new tab, a large amount of data is stored in a database that must be retrieved and updated regularly. Data warehouses store data permanently for faster retrieval and updation for analysis purposes. Legacy data needs to be stored separately from the main system.

Sorting Algorithms
The example used here is sorting arrays in ascending or descending order. An algorithm is a series of steps to create a process. When sorting an array, steps must be taken to sort in ascending or descending order. The steps taken to sort an algorithm into an array define the algorithm.

Data Warehousing and Big Data