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Data Structures Lab

Data structure are generally based on the ability of a computer to fetch and store data at any place in its memory, specified by a pointer-a bit string, representing a memory address, that can be itself stored in memory and manipulated by the program. Thus, the array and record data structures are based on computing the addresses of data items with arithmetic operations. While the linked data structures are based on storing addresses of data items within the structure itself. Many data structures use both principles, sometimes combined in non-trivial ways.

The implementation of a data structure usually requires writing a set of procedures that create and manipulate instances of that structure. Databases and internet indexing services. The efficiency of a data structure cannot be analyzed separately from those operations. This observation motivates the theoretical concept of an abstract data type, a data structure that is defined indirectly by the operations that may be performed on it, and the mathematical properties of those operations.

SCOPE OF DATA STRUCTURES

- Data structures are used in almost every program or software system.

- Specific data structures are essential ingredients of many efficient algorithms, and make possible the management of huge amounts of data, such as large integrated collection of databases.

- Some programming languages emphasize data structures, rather than algorithms, as the key organizing factor in software design.