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Disclaimer:

This pathfinder contains suggested materials on Data Structures that are available at the College of Engineering Library II. However, some references were not included.

We welcome suggestions for new pathfinder topics.

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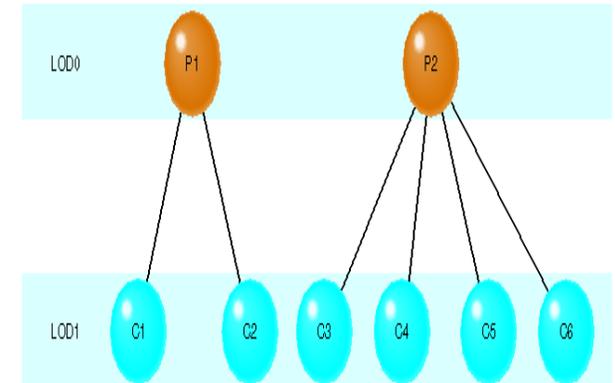


Figure 17-8. Data Structures

(Image URL: http://techpubs.sgi.com/library/dynaweb_docs/0620/SGI_Developer/books/Perf_PG/sgi_html/figures/data.structures.gif)

DATA STRUCTURES

PATHFINDER



What is Data Structures?

- is a way of storing information in a computer so that it can be used efficiently.
- efficiency in this context refers to the ability to find and manipulate data quickly and with the minimum consumption of computer and network resources, mainly CPU (central processing unit) time, memory space and bandwidth.
- Numerous types of data structures have been developed; some are very general and widely used, while others are highly specialized for certain types of tasks. Careful selection of data structures can allow the use of the most efficient algorithms for particular tasks and thereby optimize the performance of programs. An algorithm is a precise, unambiguous sets of rules that specify how to solve some problem or perform some task.

Source : http://www.linfo.org/data_structure.html

The basic types of data structures include:

Files - A collection of data or information that has a name, called the filename. Almost all information stored in a computer must be in a file. There are many different types of files: data files, text files, program files, directory files, and so on. Different types of files store different types of information. For example, program files store programs, whereas text files store text.

List - can be divided into arrays, linked lists and V lists.

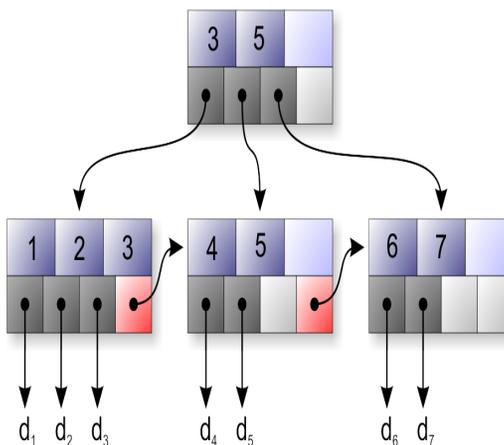
Arrays- In programming, a series of objects all of which are the same size and type. Each object in an array is called an array element. For example, you could have an array of integers or an array of characters or an array

Records - a combination of other data objects. For example, a record might contain three integers, a floating-point number, and a character string.

Trees - a type of data structure in which each element is attached to one or more elements directly beneath it. The connections between elements are called branches. Trees are often called inverted trees because they are normally drawn with the root at the top. Each node can have any number of child nodes, which are below it in the tree diagram

Table - refers to data arranged in rows and columns. A spreadsheet, for example, is a table.

Source: http://webopedia.com/TERM/D/data_structure.html



B+ tree data structure diagram

<http://z.about.com/d/cplus/1/0/0/6/-/-/btrees.gif>

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