The Big Online Book of Linux Ada Programming

18 Data Structures

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Good programmers write good programs. Great programmers write good programs and good data structures. Organizing your data is as important as the program that crunches the data and produces a result.

Unfortunately, my experiences in the corporate world have taught me that that the only data structure used is the single dimensional array. When results are the only goal and more processing power is the cure for bad software design, arrays are easy to implement (they are built into Ada). Even the worst programmer knows how to use an array. And arrays are easy to understand. Try to use a linked list, and a programmer can get into trouble with his boss for using risky, "advanced" technology.

Alternatively, programmers will sometimes rely on the complexity and overhead of databases when a simplier solution using the correct data structure would be faster and easier to implement.

If you are lucky enough to work for a company that uses more than arrays, this chapter will discuss how to use other kinds of data structures in Ada.

18.1 Using the Booch Components

Like Ada, C++ has no advanced data structures built into the language. To provide a standard set of data structures, what is now called the Standard Template Library was developed to provide the tools necessary to organize most types of data.

Perhaps because of an oversight, Ada 95 with all its annexes has no equivalent to the C++ Standard Template Library. (Ada 2005 has a data strucutre library.) There are no standard packages providing common data structures. The Gnat compiler fills part of this void with packages