CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
22801

Project Title
The Double-Array Sort: A Study of C++ Sorting Methods

Abstract

Objectives/Goals
For my project I developed a new sorting algorithm in c++ programming code. This sorting algorithm used a second array that represented the range of the numbers in the array (sort of like a histogram) to sort the array. My objective was to see if my new sort could sort a large array of numbers faster than any o| the traditional sorting algorithms.

Methods/Materials
To test my new sorting meathod, I used a computer with a c++ compiler installed on it. I wrote a progra| in c++ that would create array that would contain ten thousand randomly generated numbers that ranged from zero to 9999. The program would then have each of the sorts (insertion, selection, bubble, shell, divide and conquer, and my double array sort) sort the array and time how long each took to sort the array.

Results
After conducting the expiriment, I found that my double array sort was in fact the fastest of the six sorts that I tested. The divide and conquer sort was the second fastest, while the insertion sort was the thi| fastest. The selection sort was in the middle, while the bubble and Shell sorts were the two slowest of the sorting meathods.

Conclusions/Discussion
My conclusion was that using a second array that represents the range of the numbers to sort an array of| numbers does greatly increase the speed of a sorting algorithm.

Summary Statement
For my project, I created a new sorting algorithm in c++ and compared it's speed to other c++ sorting algorithms.

Help Received
none