Module 28: Sorted Arrays

Intro to Computer Science 1 - C++

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Sorted Arrays

What if we want to sort the numbers the user has entered?

- An easy solution is to insert each number the user enters ***in order***, rather than always at the end of the array…
- This way, the array will always be in sorted order.

Sorted Arrays

Basic Idea:

1. Write a function that can insert a number (x) into an array at a given index.
2. Each time the user enters a number, determine **where** (what index) the number should be inserted into
3. Call the insertion function to **insert** the number to the list at the correct index.

Removing

For our sorted list, if the user wanted to remove a number, we have two steps:

1. Find the number
2. "Remove" by moving all the elements to the right of the element over to the left one space (overwrite the number to remove)

Programming Exercise 32

- Let the user type up to 20 doubles
- As they enter them, maintain a sorted list

- Once they enter -1 to stop, print out in order.

Lab 10

Write a program that accepts a series of positive integers from the user (no more than 10). The user indicates they are finished by entering a "-1". The program will then display a horizontal bar graph to allow the user to "visualize" the data they entered. Sample input/output is below:

```
Enter a series of number ending with a -1:
Enter a number:  3
Enter a number:  5
Enter a number:  1
Enter a number:  2
Enter a number:  4
Enter a number:  -1
0:  ***
1:  *****
2:  *
3:  **
4:  ****
Goodbye.
```