**Bubble Sort in C**

Bubble Sort is a simple sorting algorithm that repeatedly iterates through a list, compares adjacent elements, and swaps them if they are in the wrong order. This process continues until the list is fully sorted.

**Algorithm:**

1. **Iterate through the list:**
   * Compare the first two elements.
   * If the first element is greater than the second, swap them.
2. **Repeat the process:**
   * Move to the next pair of adjacent elements.
   * Compare and swap if necessary.
3. **Continue until the end of the list.**
4. **Repeat steps 1-3 until no swaps are needed.**

**C Implementation:**

**void bubbleSort(int arr[], int n) {**

**for (int i = 0; i < n - 1; i++) {**

**for (int j = 0; j < n - 1 - i; j++) {**

**if (arr[j] > arr[j + 1]) {**

**int temp = arr[j];**

**arr[j] = arr[j + 1];**

**arr[j + 1] = temp;**

**}**

**}**

**}**

**}**

**Time Complexity:**

* **Best Case:** O(n) (when the array is already sorted)
* **Average Case:** O(n^2)
* **Worst Case:** O(n^2)

**Space Complexity:** O(1)

**Algorithm Type:** Comaprison

**Key Points:**

* Bubble Sort is a simple but inefficient sorting algorithm for large datasets.
* It's often used for educational purposes or for small datasets.
* More efficient sorting algorithms like Merge Sort, Quick Sort, and Heap Sort are preferred for larger datasets.