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1 #pragma once
2 // Insertion sort, heap sort, and quick sort algorithms
3 // From "Algorithms" by Thomas H. Cormen, et. al.
4 // Selection sort, Singleton's sort, and Tree Sort 3
5 // From "Sorting and Sort Systems" by Harold Lorin
6 class Sorting {
7 public:
8     static void InsertionSort(double a[], int n);
9     static void SelectionSort(double a[], int n);
10    static void HeapSort(double a[], int n);
11    static void QuickSort(double a[], int n);
12    static void SingletonsSort(double a[], int n);
13    static void TreeSort3(double a[], int n);
14 private:
15     // five helper methods for Heap Sort
16     static int Parent(int i);
17     static int Left(int i);
18     static int Right(int i);
19     static void BuildHeap(double a[], int n, int& heapSize);
20     static void Heapify(double a[], int i, int n, int& heapSize);
21     // helper methods for Quick Sort
22     static int Partition(double a[], int n, int lo, int hi);
23     static void DoQuickSort(double a[], int n, int p, int r);
24     // helper function for Singleton's sort
25     static void DoSingletonsSort(double a[], int ii, int jj);
26     // helper function for TreeSort3
27     static void SiftUp(double a[], int i, int n);
28 };
```