minhdang2803 DSA 203 Asm3

1 contributor

71 lines (65 sloc) | 1.62 KB

```
/*
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 * and open the template in the editor.
 */

/*
 * File:   ShellSort.h
 * Author: LTSACH
 *
 * Created on 23 August 2020, 16:45
 */

#ifndef SHELLSORT_H
#define SHELLSORT_H
#include "sorting/ISort.h"

template <class T>
class ShellSort : public ISort<T>
{
private:
    int *num_segment_list;
    int num_phases;

public:
    ShellSort(int *num_segment, int num_phases)
    {
        this->num_phases = num_phases;
        this->num_segment_list = new int[num_phases];
        for (int idx = 0; idx < num_phases; idx++)
            this->num_segment_list[idx] = num_segment[idx];
```

```
32      }
33      ~ShellSort()
34      {
35          delete[] num_segment_list;
36      }
37
38      void sortSegment(T array[], int size,
39                       int segment_idx, int cur_segment_total,
40                       int (*comparator)(T &, T &))
41      {
42          //YOUR CODE HERE
43      }
44      /*
45      shell_sort
46      ----------
47      num_segments:
48           + The first must be 1, for examples: [1,3,7]
49      */
50      void sort(T array[], int size, int (*comparator)(T &, T &))
51      {
52          //YOUR CODE HERE
53          int gap;
54          int i;
55          T temp;
56          for (gap = size / 2; gap > 0; gap /= 2)
57          {
58              for (int j = gap; j < size; j++)
59              {
60                  temp = array[j];
61                  for (i = j; i >= gap && (*comparator)(array[i - gap],temp) == 1 ; i -=
62                  {
63                      array[i] = array[i - gap];
64                  }
65                  array[i] = temp;
66              }
67          }
68      }
69  };
70
71  #endif /* SHELLSORT_H */
```