**HOA**

**CENG 2010 Programming Language Concepts, Spring 2021**

**Stooge Sort** is a recursive sorting algorithm that is inefficient and is meant to be humorous. The name comes from the very old American comedy team, “The Three Stooges”.

It is implemented as follows:

1. If the value at the start is larger than the value at the end, swap the two
2. If there are 3 or more elements in the list, then:
   1. Stooge sort the first 2 / 3rd of the list
   2. Stooge sort the final 2 / 3rd of the list, then;
   3. Stooge sort the first 2 / 3rd of the list again.

The following are the function prototypes you are asked to implement:

*// Prints the array with size, size*

void printArray(**const** int arr[], **const** int size);

*// Swaps the values pointed by p and k*

void swap(int\* p, int\* k);

*// Recursive function, low and high are array indices*

void stoogeSort(int arr[], **const** int low, **const** int high);

Inside stoogeSort(...), you should follow the steps below;

1. First check if integer low is larger or equal to integer high, return if true.
2. If the value at **index** low is larger than value at **index** high, swap them.
3. If there are more than 2 elements left in the current function call, then;
   1. Call stoogesort for the first 2 / 3rd of the array
   2. Call stoogesort for the last 2 / 3rdof the array, then finally,
   3. Call stoogesort for the first 2 / 3rd of the array

While computing the 2 / 3rd of the array, floor operation should be used (e.g. rounding up).

**Example Runs:**

Enter the array size: 5

Enter 5 elements: 3 2 1 5 4

Sorted Array:

1 2 3 4 5

Enter the array size: 20

Enter 20 elements: 84 92 44 30 73 5 11 54 4 51 90 77 18 65 83 97 36 89 91 87

Sorted Array:

4 5 11 18 30 36 44 51 54 65 73 77 83 84 87 89 90 91 92 97

Enter the array size: 10

Enter 10 elements: 3 9 19 15 20 8 7 12 1 0

Sorted Array:

0 1 3 7 8 9 12 15 19 20