# Project 9 Implementation Notes

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* I added an attribute to LinkedBinaryNode called ‘count’. This attribute keeps track of the insertion order.
* I created a copy of LinkedHeap called LinkedLIFOHeap.
* LinkedLIFOHeap keeps a counter and sets the count attribute on each node.
* The heapify methods of LinkedFIFOHeap use the count of each node to drive the sorting.
* I had to make sure the heapify methods kept the count attribute of each node intact.
* HeapStack implements the StackADT interface using a LinkedFIFOHeap.

## push()

**public** **void** push(T element) {

heap.addElement(element);

}

## **pop**()

**public** T pop() {

**return** heap.removeMin();

}

## heapSort()

**public** **static** <T> **void** heapSort(T data[]) {

LinkedHeap<T> heap = **new** LinkedHeap<T>();

**for** (T i : data) {

heap.addElement(i);

}

**for** (**int** i=0; i<data.length; i++) {

data[i] = heap.removeMin();

}

}

## Driver

**import** csc205.Sorting;

**import** jsjf.HeapStack;

**import** jsjf.LinkedHeap;

**public** **class** HeapDriver {

**public** **static** **void** main(String[] args) {

HeapStack hs = **new** HeapStack();

LinkedHeap mh = **new** LinkedHeap();

String[] arr = **new** String[7];

arr[0] = "This";

arr[1] = "is";

arr[2] = "my";

arr[3] = "heaps";

arr[4] = "project";

arr[5] = "for";

arr[6] = "CSC205";

**for** (**int** i=0; i<arr.length; i++) {

hs.push(arr[i]);

mh.addElement(arr[i]);

}

Sorting.*heapSort*(arr);

System.***out***.println("\nRemoving from the Min Heap: \n");

**while** (mh.size()>0) {

System.***out***.println("\t" + mh.removeMin());

}

System.***out***.println("\nRemoving from the HeapStack: \n");

**while** (hs.size()>0) {

System.***out***.println("\t" + hs.pop());

}

System.***out***.println("\nReading from the array: \n");

**for** (String s : arr) {

System.***out***.println("\t" + s);

}

}

}

## Sample Output

Removing from the Min Heap:

CSC205

This

for

heaps

is

my

project

Removing from the HeapStack:

CSC205

for

project

heaps

my

is

This

Reading from the array:

CSC205

This

for

heaps

is

my

project