Tyler Forrester CS162 Lab H Analysis

Merge Sort Table

Number of Digits	Time Recursive (secs)	Time Iterative (secs)
100	0 (timing algorithm not granular enough)	0 (timing algorithm not granular enough)
1000	0 (timing algorithm not granular enough)	0 (timing algorithm not granular enough)
10,000	.06	.05
1,000,000	4.25	4.16
10,000,000	47.41	44.68
100,000,000	492.52	469.82

At smaller number of digits the speed differential between the two was indistinguishable down to a 1/100 of a second. As the digits grew in size the iterative approach became much more efficient. It was what I expected. The overhead of holding a recursive call in the stack is greater than the overhead of iterating through a list. This small differential in overhead magnified over billions of calls.