Test Log

Known bugs: After a lot of calls there is a function call error in merge;

Program received signal SIGSEGV, Segmentation fault.

0x0000000000401f50 in trte\_compare (

record\_a=<error reading variable: Cannot access memory at address 0x7fffff7feff8>,

record\_b=<error reading variable: Cannot access memory at address 0x7fffff7feff0>) at trte\_support.c:56

56 {

From what I can tell it works fine, just after too many calls there is some weird corruption of the inputs. If I manually input the compare function into the merge() function then I can get a bit farther into the list but still run into the same problem.

Insertion Sort

|  |  |  |  |
| --- | --- | --- | --- |
| Entries | Random | Ascending | Descending |
| 1000 | 0 | 0 | 0 |
| 4000 | 40 | 50 | 0 |
| 8000 | 180 | 210 | 0 |
| 12000 | 530 | 640 | 0 |
| 16000 | 830 | 840 | 0 |
| 20000 | 1620 | 1630 | 10 |

Recursive Sort

|  |  |  |  |
| --- | --- | --- | --- |
| Entries | Random | Ascending | Descending |
| 1000 | 0 | 0 | 10 |
| 4000 | 150 | 150 | 160 |
| 8000 | 630 | 630 | 670 |
| 12000 | 1430 | 1360 | 1610 |
| 16000 | 3000 | 2410 | 2760 |

Iterative Selection

|  |  |  |  |
| --- | --- | --- | --- |
| Entries | Random | Ascending | Descending |
| 1000 | 0 | 0 | 0 |
| 4000 | 60 | 50 | 60 |
| 8000 | 240 | 200 | 270 |
| 12000 | 580 | 450 | 620 |
| 16000 | 980 | 820 | 1100 |

Merge

|  |  |  |  |
| --- | --- | --- | --- |
| Entries | Random | Ascending | Descending |
| 1600 | 10 | 0 | 10 |
| 40000 | 20 | 10 | 10 |
| 100000 | 70 | 30 | 30 |
| 150000 |  | 30 | 30 |
| 180000 |  | 40 | 40 |

a) There seems to be no real difference when sorting the random list when it comes to iterative and recursive sort. There’s really no big difference between the iterative and recursive among any of my lists. MergeSort is so much faster than all the others because it splits the list into smaller pieces that it searches through instead of having to go all the way back to the front of 10,000 input list and search through it repeatedly.

b) If the list is already sorted the insertion sort flies through the list much faster than the other sorts besides mergeSort. This is because since the list is already sorted the insertion sort is essentially just replicating the list.