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Lab Section: 2000-03

Lecture Section: 2003-02

Date: 3/31/19

Assignment: Project 3

Project 3 Report

T-Values:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Size: 100 | |  |  |  |  |  |
| T-Values | SS | BS | IS | MS | QS | RS |
| SS | X | 1.189 | 0.729 | 1.023 | 1.68 | 1.557 |
| BS | X | X | 16.201 | 11.329 | 14.535 | 0.288 |
| IS | X | X | X | 1.047 | 6.913 | 1.204 |
| MS | X | X | X | X | 5.502 | 1.346 |
| QS | X | X | X | X | X | 1.644 |
| RS | X | X | X | X | X | X |
|  |  |  |  |  |  |  |
| Size: 1000 | |  |  |  |  |  |
| T-Values | SS | BS | IS | MS | QS | RS |
| SS | X | 2.457 | 2.304 | 7.167 | 4.837 | 3.116 |
| BS | X | X | 0.752 | 1.134 | 2.84 | 2.652 |
| IS | X | X | X | 0.667 | 2.848 | 2.508 |
| MS | X | X | X | X | 8.83 | 7.505 |
| QS | X | X | X | X | X | 3.0186 |
| RS | X | X | X | X | X | X |
|  |  |  |  |  |  |  |
| Size: 10000 | |  |  |  |  |  |
| T-Values | SS | BS | IS | MS | QS | RS |
| SS | X | 53.385 | 11.252 | 1.342 | 58.406 | 60.756 |
| BS | X | X | 131.483 | 16.704 | 64.342 | 63.176 |
| IS | X | X | X | 1.04 | 18.798 | 17.937 |
| MS | X | X | X | X | 5.876 | 5.903 |
| QS | X | X | X | X | X | 0.23 |
| RS | X | X | X | X | X | X |

Average Time Graph:

Standard Deviation Graph:

Written Report:

The t-value represents how good each sorting algorithm is to one another: the higher the t-value, the worse the first sorting algorithm (left column) is compared to the other (top row). What surprised me was how good radix sort was compared to everything else; at higher numbers it beat out all but Quicksort. I had expected Mergesort to be the second best, due to its O(nlog(n)) complexity, but I was very wrong.