**Offline 7**

**Machine Configuration:**

Processor: Intel® Core™ i3-7100 CPU @2.40 GHz

RAM: 12 GB

Operating System: Windows 10 64 bit

**Data and Complexity Analysis:**

**Merge Sort:**

Time Complexity: O(nlogn) for average , best and worst case

**Quick Sort:**

Time Complexity: O(nlogn) for average , 0(n2) for best and worst case

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **n** | **10** | **100** | **500** | **1000** | **2000** | **5000** |
| **Case** | **Sort** |
| **Ascending** | merge | 0.05 | 12.398 | 197 | 339 | 746 | 5196 |
| quick | 0.02 | 110.695 | 2755 | 11885 | 48910 | 293055 |
| **Descending** | merge | 0.007 | 13.085 | 150 | 345 | 850 | 4234 |
| quick | 0.008 | 61.812 | 2529 | 9289 | 35266 | 223734 |
| **Average** | merge | 0.01 | 14.385 | 229 | 450 | 804 | 3296 |
| quick | 0.018 | 10.209 | 278 | 503 | 1024 | 2548 |

**(TIME IN MICROSECONDS)**