1. **RANDOM NUMBERS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXECUTION TIME** | **INPUT SIZE** | | | | | | **RANKING (1-10)** | | | | | |
| **ALGORITHM** | 10 | 100 | 1K | 10K | 100K | 1M (Sec) | 10 | 100 | 1K | 10K | 100K | 1M |
| Bubble Sort | **0.034** | **0.581** | **14.92** | **718.56** | **67774.27** | **-** |  |  |  |  |  |  |
| Insertion Sort | **0.020** | **0.183** | **6.39** | **182.47** | **85058.65** | **-** |  |  |  |  |  |  |
| Selection Sort | **0.021** | **0.267** | **9.79** | **367.40** | **93840.43** | **-** |  |  |  |  |  |  |
| Shell Sort | **0.020** | **0.083** | **1.13** | **12.68** | **126.59** | **1856.14** |  |  |  |  |  |  |
| Merge Sort | **0.013** | **0.074** | **1.15** | **7.48** | **43.17** | **514.67** |  |  |  |  |  |  |
| Quick Sort | **0.022** | **0.069** | **1.06** | **3.98** | **99.32** | **517.23** |  |  |  |  |  |  |
| Heap Sort | **0.042** | **0.351** | **1.44** | **10.59** | **71.91** | **1613.97** |  |  |  |  |  |  |
| Radix Sort | **0.154** | **1.447** | **2.22** | **11.63** | **87.48** | **741.33** |  |  |  |  |  |  |
| Bucket Sort | **0.616** | **0.693** | **1.75** | **11.68** | **97.58** | **803.45** |  |  |  |  |  |  |
| Array Sort | **0.095** | **0.157** | **0.75** | **15.15** | **187.82** | **988.02** |  |  |  |  |  |  |

1. **NEARLY SORTED**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXECUTION TIME** | **INPUT SIZE** | | | | | | **RANKING (1-10)** | | | | | |
| **ALGORITHM** | 10 | 100 | 1K | 10K | 100K | 1M (Sec) | 10 | 100 | 1K | 10K | 100K | 1M |
| Bubble Sort | **0.011** | **0.341** | **30.26** | **655.01** | **52707.84** | **-** |  |  |  |  |  |  |
| Insertion Sort | **0.005** | **0.052** | **4.76** | **48.05** | **13155.91** | **-** |  |  |  |  |  |  |
| Selection Sort | **0.006** | **0.287** | **19.18** | **286.93** | **90813.79** | **-** |  |  |  |  |  |  |
| Shell Sort | **0.003** | **0.050** | **1.20** | **22.00** | **39.98** | **965.34** |  |  |  |  |  |  |
| Merge Sort | **0.012** | **0.035** | **1.67** | **2.78** | **45.06** | **368.78** |  |  |  |  |  |  |
| Quick Sort | **0.005** | **0.033** | **0.27** | **5.90** | **57.98** | **198.62** |  |  |  |  |  |  |
| Heap Sort | **0.015** | **0.077** | **2.91** | **2.22** | **49.52** | **669.48** |  |  |  |  |  |  |
| Radix Sort | **0.050** | **0.135** | **1.21** | **8.53** | **74.76** | **404.87** |  |  |  |  |  |  |
| Bucket Sort | **0.026** | **0.115** | **1.07** | **5.25** | **90.24** | **377.06** |  |  |  |  |  |  |
| Array Sort | **0.010** | **0.082** | **0.72** | **6.49** | **66.25** | **265.87** |  |  |  |  |  |  |

1. **SORTED IN REVERSE**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXECUTION TIME** | **INPUT SIZE** | | | | | | **RANKING (1-10)** | | | | | |
| **ALGORITHM** | 10 | 100 | 1K | 10K | 100K | 1M (Sec) | 10 | 100 | 1K | 10K | 100K | 1M |
| Bubble Sort | **0.008** | **0.559** | **4.69** | **381.45** | **62173.04** | **-** |  |  |  |  |  |  |
| Insertion Sort | **0.019** | **0.300** | **41.23** | **264.85** | **17510.19** | **-** |  |  |  |  |  |  |
| Selection Sort | **0.006** | **0.265** | **27.58** | **263.37** | **89161.64** | **-** |  |  |  |  |  |  |
| Shell Sort | **0.005** | **0.026** | **0.88** | **1.31** | **62.34** | **313.96** |  |  |  |  |  |  |
| Merge Sort | **0.013** | **0.030** | **1.47** | **2.35** | **17.32** | **262.91** |  |  |  |  |  |  |
| Quick Sort | **0.006** | **0.036** | **0.22** | **5.76** | **7.01** | **127.83** |  |  |  |  |  |  |
| Heap Sort | **0.014** | **0.045** | **1.20** | **4.33** | **40.16** | **610.62** |  |  |  |  |  |  |
| Radix Sort | **0.045** | **0.075** | **0.97** | **4.56** | **63.86** | **345.23** |  |  |  |  |  |  |
| Bucket Sort | **0.051** | **0.101** | **0.64** | **5.58** | **42.50** | **93.10** |  |  |  |  |  |  |
| Array Sort | **0.010** | **0.075** | **0.22** | **6.22** | **10.08** | **74.45** |  |  |  |  |  |  |

1. **NUMBERS BETWEEN 0-1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXECUTION TIME** | **INPUT SIZE** | | | | | | **RANKING (1-10)** | | | | | |
| **ALGORITHM** | 10 | 100 | 1K | 10K | 100K | 1M (Sec) | 10 | 100 | 1K | 10K | 100K | 1M |
| Bubble Sort | **0.024** | **1.173** | **20.89** | **561.00** | **89038.17** | **-** |  |  |  |  |  |  |
| Insertion Sort | **0.005** | **0.987** | **29.47** | **256.52** | **65828.60** | **-** |  |  |  |  |  |  |
| Selection Sort | **0.012** | **0.259** | **20.60** | **272.94** | **67444.56** | **-** |  |  |  |  |  |  |
| Shell Sort | **0.014** | **0.050** | **1.51** | **9.11** | **116.59** | **2585.39** |  |  |  |  |  |  |
| Merge Sort | **0.017** | **0.065** | **1.90** | **24.94** | **117.63** | **771.54** |  |  |  |  |  |  |
| Quick Sort | **0.023** | **0.288** | **1.21** | **15.04** | **169.74** | **690.61** |  |  |  |  |  |  |
| Heap Sort | **0.037** | **0.337** | **2.20** | **15.25** | **101.59** | **1751.90** |  |  |  |  |  |  |
| Radix Sort | **-** | **-** | **-** | **-** | **-** | **-** |  |  |  |  |  |  |
| Bucket Sort | **0.051** | **0.170** | **1.64** | **6.77** | **133.03** | **701.40** |  |  |  |  |  |  |
| Array Sort | **0.009** | **0.115** | **0.86** | **11.01** | **54.17** | **628.29** |  |  |  |  |  |  |