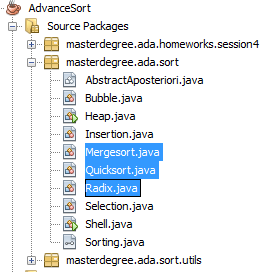
**qwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmrtyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmrtyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmrtyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmrtyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmrtyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmrtyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmrtyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnmqwertyuiopasdfghjklzxcvbnm**

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| Análisis y Diseño de Algoritmos  Ordenamientos Avanzados- MS705167  9/23/2015  Angel de Jesus Bañuelos Sahagun |

# Introducción

En el presente trabajo se implementaron los algoritmos de ordenamiento que clasificados como avanzados, también conocidos como algoritmos cuasi-lineales.

A continuación se enlistan dichos algoritmos:

1. Radix Sort
2. Quick Sort
3. Merge Sort

# Tablas comparativas.

## Arreglos Desordenados

|  |  |  |
| --- | --- | --- |
| **N** | **Mergesort** | **Quicksort** |
| 1000 | 0.32 | 0.62 |
| 1100 | 0 | 0 |
| 1200 | 0.3 | 0.32 |
| 1300 | 0 | 0 |
| 1400 | 0.32 | 0 |
| 1500 | 0 | 0 |
| 1600 | 0.32 | 0.3 |
| 1700 | 0.3 | 0 |
| 1800 | 0.32 | 0 |
| 1900 | 0.3 | 0.32 |
| 2000 | 0.32 | 0 |
| 2100 | 0.32 | 0.3 |
| 2200 | 0.3 | 0 |
| 2300 | 0.32 | 0.32 |
| 2400 | 0 | 0 |
| 2500 | 0.32 | 0.32 |
| 2600 | 0.32 | 0.3 |
| 2700 | 0 | 0.32 |
| 2800 | 0 | 0 |
| 2900 | 0.62 | 0 |
| 3000 | 0.32 | 0.32 |
| 3100 | 0.32 | 0 |
| 3200 | 0.32 | 0.32 |
| 3300 | 0.62 | 0.3 |
| 3400 | 0.32 | 0.32 |
| 3500 | 0.3 | 0.3 |
| 3600 | 0.62 | 0.32 |
| 3700 | 0.64 | 0.32 |
| 3800 | 0.3 | 0.3 |
| 3900 | 0.62 | 0.32 |
| 4000 | 0.32 | 0.3 |
| 4100 | 0.3 | 0 |
| 4200 | 0.62 | 0.3 |
| 4300 | 0.64 | 0.32 |
| 4400 | 0.3 | 0 |
| 4500 | 0.62 | 0.64 |
| 4600 | 0.64 | 0 |
| 4700 | 0.62 | 0.3 |
| 4800 | 0.62 | 0.32 |
| 4900 | 0.3 | 0.62 |
| 5000 | 0.3 | 0.3 |
| 5100 | 0.32 | 0 |
| 5200 | 0.62 | 0.32 |
| 5300 | 0.94 | 0.62 |
| 5400 | 0.32 | 0.32 |
| 5500 | 0.62 | 0.62 |
| 5600 | 0.62 | 0.32 |
| 5700 | 0.94 | 0.62 |
| 5800 | 0.3 | 0.62 |
| 5900 | 0.94 | 0.32 |
| 6000 | 0.62 | 0.62 |
| 6100 | 0.32 | 0.32 |
| 6200 | 0.94 | 0.62 |
| 6300 | 0.94 | 0.62 |
| 6400 | 0.3 | 0.32 |
| 6500 | 0.3 | 0.62 |
| 6600 | 0.94 | 0.62 |
| 6700 | 0.32 | 0.3 |
| 6800 | 0.94 | 0.32 |
| 6900 | 0.94 | 0.3 |
| 7000 | 0.92 | 0 |
| 7100 | 0.94 | 0.62 |
| 7200 | 0.32 | 0.64 |
| 7300 | 0.62 | 0.62 |
| 7400 | 0.94 | 0.62 |
| 7500 | 1.24 | 0.32 |
| 7600 | 0.62 | 0.3 |
| 7700 | 0.94 | 0.64 |
| 7800 | 0.94 | 0.32 |
| 7900 | 0.32 | 0.3 |
| 8000 | 0.92 | 0.62 |
| 8100 | 0.96 | 0.62 |
| 8200 | 0.94 | 0.64 |
| 8300 | 0.92 | 0.92 |
| 8400 | 1.26 | 0.32 |
| 8500 | 0.62 | 0.62 |
| 8600 | 0.92 | 0.62 |
| 8700 | 1.26 | 0.94 |
| 8800 | 0.94 | 0 |
| 8900 | 1.24 | 0.62 |
| 9000 | 1.24 | 0.62 |
| 9100 | 1.26 | 0.62 |
| 9200 | 0.94 | 0.62 |
| 9300 | 1.24 | 0.64 |
| 9400 | 1.24 | 0.62 |
| 9500 | 1.26 | 0.94 |
| 9600 | 1.24 | 0.62 |
| 9700 | 0.94 | 0.64 |
| 9800 | 1.24 | 0.62 |
| 9900 | 0.94 | 0.32 |

## Arreglos Casi-Ordenados

|  |  |  |
| --- | --- | --- |
| **N** | **Mergesort** | **Quicksort** |
| 1000 | 0 | 0.3 |
| 1100 | 0.32 | 0 |
| 1200 | 0 | 0.3 |
| 1300 | 0 | 0.32 |
| 1400 | 0 | 0.62 |
| 1500 | 0.3 | 0.62 |
| 1600 | 0 | 0.32 |
| 1700 | 0 | 0.62 |
| 1800 | 0 | 0.62 |
| 1900 | 0.32 | 0.62 |
| 2000 | 0 | 0.62 |
| 2100 | 0 | 0.94 |
| 2200 | 0.32 | 0.94 |
| 2300 | 0 | 1.24 |
| 2400 | 0 | 1.24 |
| 2500 | 0 | 1.26 |
| 2600 | 0.32 | 1.24 |
| 2700 | 0.3 | 1.56 |
| 2800 | 0.32 | 0.94 |
| 2900 | 0 | 1.56 |
| 3000 | 0.32 | 1.56 |
| 3100 | 0.3 | 1.56 |
| 3200 | 0 | 2.18 |
| 3300 | 0.32 | 2.18 |
| 3400 | 0.3 | 1.86 |
| 3500 | 0.32 | 2.18 |
| 3600 | 0 | 2.2 |
| 3700 | 0.32 | 2.48 |
| 3800 | 0.32 | 2.5 |
| 3900 | 0 | 2.28 |
| 4000 | 0 | 2.2 |
| 4100 | 0.32 | 2.48 |
| 4200 | 0.32 | 2.2 |
| 4300 | 0.3 | 2.8 |
| 4400 | 0.32 | 2.5 |
| 4500 | 0.3 | 2.8 |
| 4600 | 0.32 | 3.12 |
| 4700 | 0.32 | 2.82 |
| 4800 | 0.3 | 3.12 |
| 4900 | 0.32 | 3.42 |
| 5000 | 0.62 | 3.44 |
| 5100 | 0.32 | 3.42 |
| 5200 | 0.3 | 3.76 |
| 5300 | 0.32 | 3.74 |
| 5400 | 0.3 | 4.06 |
| 5500 | 0.32 | 4.04 |
| 5600 | 0.32 | 4.38 |
| 5700 | 0.62 | 4.68 |
| 5800 | 0 | 4.36 |
| 5900 | 0 | 5 |
| 6000 | 0.32 | 4.68 |
| 6100 | 0.62 | 4.98 |
| 6200 | 0.3 | 5.32 |
| 6300 | 0.32 | 5.3 |
| 6400 | 0.62 | 5.62 |
| 6500 | 0.32 | 5.6 |
| 6600 | 0.3 | 5.94 |
| 6700 | 0.32 | 6.24 |
| 6800 | 0.62 | 6.24 |
| 6900 | 0.3 | 6.24 |
| 7000 | 0.32 | 6.54 |
| 7100 | 0.3 | 6.88 |
| 7200 | 0.32 | 6.86 |
| 7300 | 0.32 | 7.18 |
| 7400 | 0.62 | 7.48 |
| 7500 | 0.62 | 7.48 |
| 7600 | 0.32 | 7.8 |
| 7700 | 0.62 | 8.12 |
| 7800 | 0.62 | 8.12 |
| 7900 | 0 | 8.42 |
| 8000 | 0.62 | 8.42 |
| 8100 | 0.32 | 9.04 |
| 8200 | 0.64 | 8.74 |
| 8300 | 0.62 | 9.36 |
| 8400 | 0.62 | 9.36 |
| 8500 | 0.62 | 9.68 |
| 8600 | 0.32 | 9.98 |
| 8700 | 0.62 | 9.66 |
| 8800 | 0.62 | 10.3 |
| 8900 | 0.62 | 10.6 |
| 9000 | 0.32 | 10.92 |
| 9100 | 0.92 | 11.24 |
| 9200 | 0.64 | 11.24 |
| 9300 | 0.62 | 11.54 |
| 9400 | 0.62 | 11.56 |
| 9500 | 0.62 | 11.52 |
| 9600 | 0.62 | 12.18 |
| 9700 | 0.62 | 12.78 |
| 9800 | 0.62 | 12.8 |
| 9900 | 0.64 | 12.8 |

## Arreglos Invertidos

|  |  |  |
| --- | --- | --- |
| **N** | **Mergesort** | **Quicksort** |
| 1000 | 0.32 | 0.62 |
| 1100 | 0 | 0.62 |
| 1200 | 0 | 0.32 |
| 1300 | 0.32 | 0.94 |
| 1400 | 0 | 0.92 |
| 1500 | 0 | 0.94 |
| 1600 | 0 | 1.26 |
| 1700 | 0.3 | 0.94 |
| 1800 | 0 | 1.56 |
| 1900 | 0 | 1.56 |
| 2000 | 0 | 1.56 |
| 2100 | 0.32 | 1.88 |
| 2200 | 0 | 1.88 |
| 2300 | 0.3 | 2.18 |
| 2400 | 0 | 2.5 |
| 2500 | 0 | 2.18 |
| 2600 | 0.32 | 2.5 |
| 2700 | 0 | 3.74 |
| 2800 | 0.32 | 2.82 |
| 2900 | 0 | 3.12 |
| 3000 | 0.3 | 3.12 |
| 3100 | 0 | 3.12 |
| 3200 | 0.32 | 3.74 |
| 3300 | 0 | 3.74 |
| 3400 | 0.3 | 4.36 |
| 3500 | 0 | 4.06 |
| 3600 | 0.32 | 4.36 |
| 3700 | 0 | 4.38 |
| 3800 | 0.32 | 4.98 |
| 3900 | 0.3 | 5 |
| 4000 | 0 | 5.3 |
| 4100 | 0.3 | 5.62 |
| 4200 | 0.32 | 5.92 |
| 4300 | 0 | 6.24 |
| 4400 | 0.32 | 6.24 |
| 4500 | 0.3 | 6.56 |
| 4600 | 0.32 | 7.16 |
| 4700 | 0.3 | 7.18 |
| 4800 | 0.32 | 7.8 |
| 4900 | 0.62 | 7.5 |
| 5000 | 0 | 8.42 |
| 5100 | 0.62 | 8.44 |
| 5200 | 0.32 | 9.04 |
| 5300 | 0.32 | 9.36 |
| 5400 | 0.3 | 9.98 |
| 5500 | 0 | 9.98 |
| 5600 | 0.3 | 10.3 |
| 5700 | 0.32 | 10.62 |
| 5800 | 0.32 | 11.84 |
| 5900 | 0.3 | 11.24 |
| 6000 | 0.32 | 11.86 |
| 6100 | 0.3 | 12.16 |
| 6200 | 0.64 | 12.8 |
| 6300 | 0.3 | 12.78 |
| 6400 | 0.32 | 13.12 |
| 6500 | 0.62 | 14.04 |
| 6600 | 0.32 | 14.04 |
| 6700 | 0.62 | 14.66 |
| 6800 | 0.3 | 15.3 |
| 6900 | 0.32 | 15.6 |
| 7000 | 0.32 | 15.9 |
| 7100 | 0.32 | 16.22 |
| 7200 | 0.3 | 16.84 |
| 7300 | 0.32 | 17.48 |
| 7400 | 0.62 | 17.78 |
| 7500 | 0.62 | 18.4 |
| 7600 | 0.32 | 18.72 |
| 7700 | 0.32 | 19.34 |
| 7800 | 0.62 | 19.98 |
| 7900 | 0.3 | 20.58 |
| 8000 | 0.62 | 20.9 |
| 8100 | 0.32 | 20.92 |
| 8200 | 0.62 | 21.82 |
| 8300 | 0.3 | 22.56 |
| 8400 | 0.32 | 23.08 |
| 8500 | 0.62 | 23.4 |
| 8600 | 0.62 | 23.72 |
| 8700 | 0.32 | 24.96 |
| 8800 | 0.62 | 25.58 |
| 8900 | 0.62 | 25.9 |
| 9000 | 0.32 | 26.52 |
| 9100 | 0.62 | 27.14 |
| 9200 | 0.62 | 27.14 |
| 9300 | 0.32 | 28.38 |
| 9400 | 0.62 | 28.72 |
| 9500 | 0.62 | 29.64 |
| 9600 | 0.62 | 33.38 |
| 9700 | 0.64 | 30.58 |
| 9800 | 0.3 | 31.2 |
| 9900 | 0.3 | 31.8 |

## Graficas Comparativas.

## Arreglos Aleatorios

# Arreglos Casi-Ordenados

## Arreglos Invertidos