

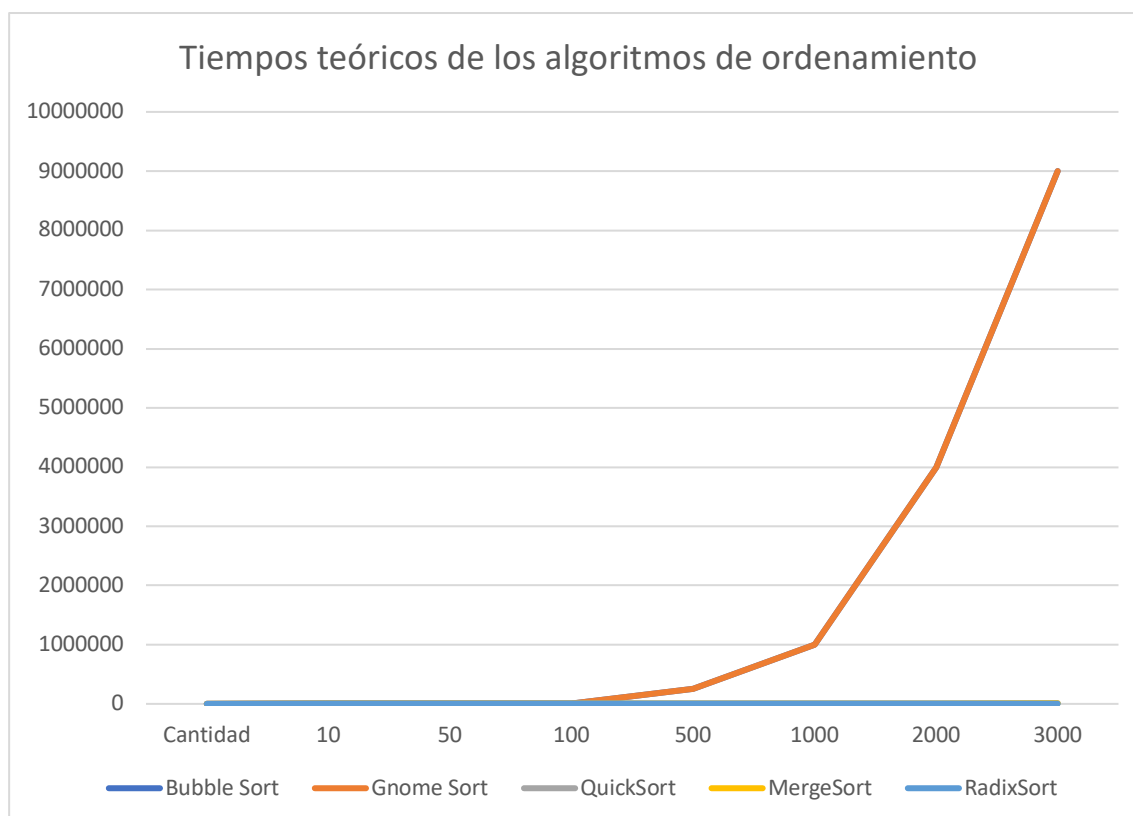
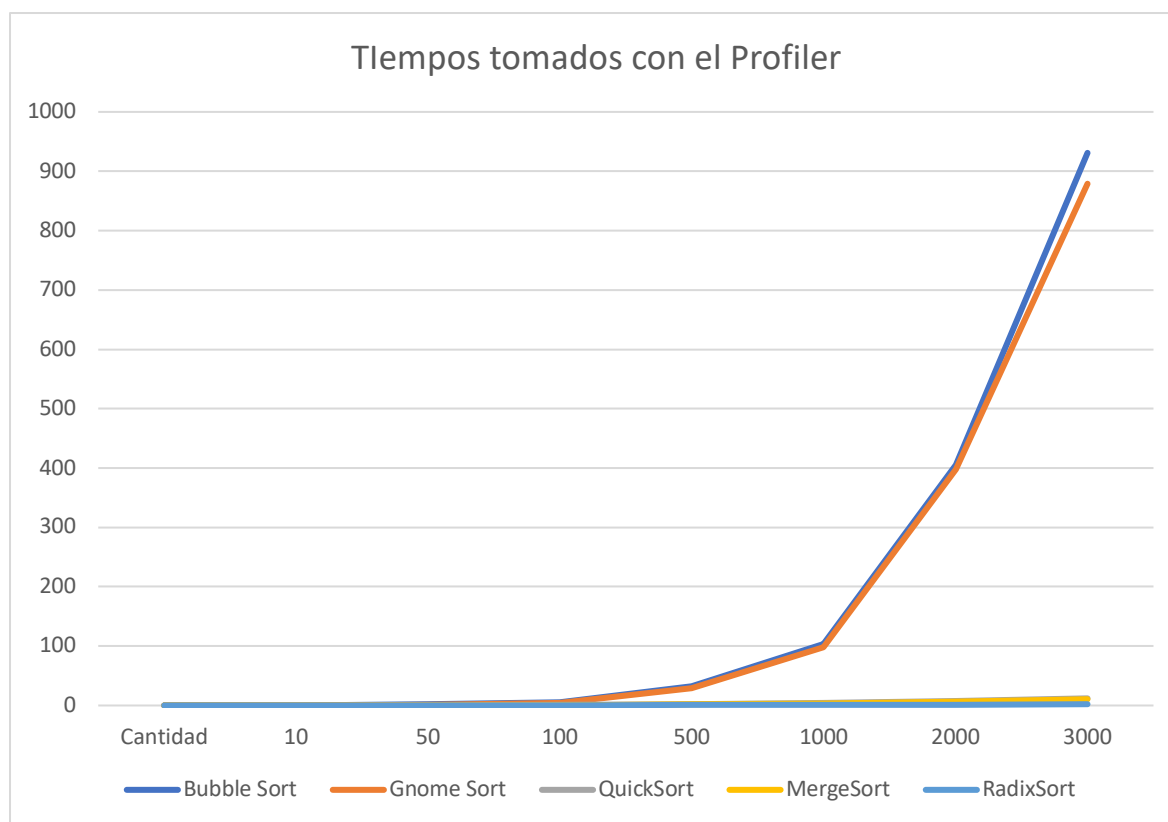
Algoritmos de Ordenamiento

Profiler utilizado: Visual VM.

Resumen de los resultados

PRÁCTICO	Bubble Sort	Gnome Sort	QuickSort	MergeSort	RadixSort
Cantidad	Tiempo	Tiempo	Tiempo	Tiempo	Tiempo
10	0.261	0.256	0.209	0.153	0.135
50	1.73	0.809	0.235	0.179	0.041
100	5.6	3.9	0.607	0.519	0.17
500	32	28.8	2.4	1.61	0.742
1000	104	97.9	4.24	3.1	0.775
2000	405	398	7.33	6.3	1.36
3000	931	879	12	10.5	2.16

TEÓRICO	Bubble Sort	Gnome Sort	QuickSort	MergeSort	RadixSort
Cantidad	Tiempo	Tiempo	Tiempo	Tiempo	Tiempo
10	100	100	10.0	10.0	10
50	2500	2500	84.9	84.9	50
100	10000	10000	200.0	200.0	100
500	250000	250000	1349.5	1349.5	500
1000	1000000	1000000	3000.0	3000.0	1000
2000	4000000	4000000	6602.1	6602.1	2000
3000	9000000	9000000	10431.4	10431.4	3000
Mejor caso	$O(n)$	$O(n)$	$O(n \log(n))$	$O(n \log(n))$	$O(n)$
promedio	$O(n^2)$	$O(n^2)$	$O(n \log(n))$	$O(n \log(n))$	$O(n)$
peor caso	$O(n^2)$	$O(n^2)$	$O(n^2)$	$O(n \log(n))$	$O(n)$



A continuación se muestran los resultados obtenidos en cada algoritmo de sort, cada vez con más números de entrada.

- **10 números**

Desordenado

Principal2 (pid 15530)

Profiler Snapshot

View: [Icons] Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	1.1 ms (100%)	0.983 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	0.261 ms (25.8%)	0.255 ms (25.9%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.256 ms (25.3%)	0.249 ms (25.3%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	0.209 ms (20.6%)	0.207 ms (21.1%)	1
MergeSort.mergeSort (Object[], int, int)	0.153 ms (15.1%)	0.140 ms (14.2%)	1
RadixEnteros.radixSort (Integer[], int)	0.135 ms (13.3%)	0.132 ms (13.4%)	1

Ordenado

Principal2 (pid 15603)

Profiler Snapshot

View: [Icons] Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	0.873 ms (100%)	0.805 ms (100%)	5
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	0.274 ms (31.4%)	0.272 ms (33.8%)	1
BubbleSort.sort (Object[], java.util.Comparator)	0.223 ms (25.5%)	0.218 ms (27.1%)	1
MergeSort.mergeSort (Object[], int, int)	0.183 ms (21%)	0.137 ms (17%)	1
RadixEnteros.radixSort (Integer[], int)	0.134 ms (15.3%)	0.121 ms (15%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.061 ms (7%)	0.058 ms (7.2%)	1

- **50 números**

Desordenado

Principal2 (pid 15672)

Profiler Snapshot

View: [Icons] Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	3.0 ms (100%)	2.95 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	1.73 ms (57.9%)	1.71 ms (58.1%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	0.809 ms (27%)	0.796 ms (27%)	1
MergeSort.mergeSort (Object[], int, int)	0.235 ms (7.8%)	0.233 ms (7.9%)	1
RadixEnteros.radixSort (Integer[], int)	0.179 ms (6%)	0.166 ms (5.6%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.041 ms (1.4%)	0.041 ms (1.4%)	1

Ordenado

Overview Monitor Threads Sampler Polyglot Sampler Profiler [snapshot] 10:26:41 PM x

Principal2 (pid 15719)

Profiler Snapshot

View: Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	3.65 ms (100%)	3.62 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	2.32 ms (63.7%)	2.30 ms (63.6%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	0.798 ms (21.8%)	0.798 ms (22%)	1
MergeSort.mergeSort (Object[], int, int)	0.321 ms (8.8%)	0.318 ms (8.8%)	1
RadixEnteros.radixSort (Integer[], int)	0.163 ms (4.5%)	0.159 ms (4.4%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.046 ms (1.3%)	0.045 ms (1.2%)	1

- 100 números

Desordenado

Overview Monitor Threads Sampler Polyglot Sampler Profiler [snapshot] 10:28:18 PM x

Principal2 (pid 15788)

Profiler Snapshot

View: Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	9.45 ms (100%)	9.43 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	5.6 ms (53.6%)	5.5 ms (53.6%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	3.9 ms (32.7%)	3.9 ms (32.8%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	0.607 ms (6.4%)	0.606 ms (6.4%)	1
MergeSort.mergeSort (Object[], int, int)	0.519 ms (5.5%)	0.509 ms (5.4%)	1
RadixEnteros.radixSort (Integer[], int)	0.170 ms (1.8%)	0.167 ms (1.8%)	1

Ordenado

Overview Monitor Threads Sampler Polyglot Sampler Profiler [snapshot] 10:29:07 PM x

Principal2 (pid 15838)

Profiler Snapshot

View: Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	10.3 ms (100%)	10.2 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	5.44 ms (52.8%)	5.42 ms (53%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	3.84 ms (37.3%)	3.83 ms (37.4%)	1
MergeSort.mergeSort (Object[], int, int)	0.631 ms (6.1%)	0.611 ms (6%)	1
RadixEnteros.radixSort (Integer[], int)	0.261 ms (2.5%)	0.243 ms (2.4%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.133 ms (1.3%)	0.128 ms (1.2%)	1

500 números

Desordenado

Overview Monitor Threads Sampler Polyglot Sampler Profiler [snapshot] 10:30:09 PM x

Principal2 (pid 15877)

Profiler Snapshot

View: Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	65.7 ms (100%)	64.9 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	32.0 ms (48.9%)	31.8 ms (49.1%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	28.8 ms (43.9%)	28.7 ms (44.3%)	1
MergeSort.mergeSort (Object[], int, int)	2.40 ms (3.7%)	2.10 ms (3.2%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	1.61 ms (2.5%)	1.59 ms (2.5%)	1
RadixEnteros.radixSort (Integer[], int)	0.742 ms (1.1%)	0.610 ms (0.9%)	1

Ordenado

Principal2 (pid 15925)

Profiler Snapshot

View: [Icons] Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	56.3 ms (100%)	55.7 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	31.1 ms (55.2%)	30.7 ms (55.2%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	23.1 ms (41.1%)	22.9 ms (41.2%)	1
MergeSort.mergeSort (Object[], int, int)	1.34 ms (2.4%)	1.24 ms (2.2%)	1
RadixEnteros.radixSort (Integer[], int)	0.522 ms (0.9%)	0.502 ms (0.9%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.245 ms (0.4%)	0.234 ms (0.4%)	1

1000 números

Desordenado

Principal2 (pid 15973)

Profiler Snapshot

View: [Icons] Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	210 ms (100%)	207 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	104 ms (49.5%)	103 ms (49.8%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	97.9 ms (46.6%)	96.3 ms (46.4%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	4.24 ms (2%)	4.21 ms (2%)	1
MergeSort.mergeSort (Object[], int, int)	3.1 ms (1.4%)	2.98 ms (1.4%)	1
RadixEnteros.radixSort (Integer[], int)	0.775 ms (0.4%)	0.773 ms (0.4%)	1

Ordenado

Principal2 (pid 16009)

Profiler Snapshot

View: [Icons] Aggregation: Methods

Name	Total Time	Total Time (CPU)	Invocations
main	188 ms (100%)	187 ms (100%)	5
BubbleSort.sort (Object[], java.util.Comparator)	99.8 ms (52.9%)	99.3 ms (53%)	1
QuickSort.quickSort (Object[], int, int, java.util.Comparator)	85.0 ms (45%)	84.1 ms (44.9%)	1
MergeSort.mergeSort (Object[], int, int)	2.74 ms (1.5%)	2.73 ms (1.5%)	1
RadixEnteros.radixSort (Integer[], int)	0.825 ms (0.4%)	0.822 ms (0.4%)	1
GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.373 ms (0.2%)	0.373 ms (0.2%)	1

- 2000 números

Desordenado

Principal2 (pid 16053)				
Profiler Snapshot				
View: [Icons] Aggregation: Methods				
Name	Total Time	Total Time (CPU)	Invocations	
main	819 ms (100%)	810 ms (100%)	5	
> GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	405 ms (49.5%)	400 ms (49.4%)	1	
> BubbleSort.sort (Object[], java.util.Comparator)	398 ms (48.6%)	395 ms (48.8%)	1	
> QuickSort.quickSort (Object[], int, int, java.util.Comparator)	7.33 ms (0.9%)	7.8 ms (0.9%)	1	
> MergeSort.mergeSort (Object[], int, int)	6.30 ms (0.8%)	6.29 ms (0.8%)	1	
> RadixEnteros.radixSort (Integer[], int)	1.36 ms (0.2%)	1.36 ms (0.2%)	1	

Ordenado

Principal2 (pid 16092)				
Profiler Snapshot				
View: [Icons] Aggregation: Methods				
Name	Total Time	Total Time (CPU)	Invocations	
main	657 ms (100%)	646 ms (100%)	5	
> BubbleSort.sort (Object[], java.util.Comparator)	387 ms (58.9%)	383 ms (59.3%)	1	
> QuickSort.quickSort (Object[], int, int, java.util.Comparator)	261 ms (39.8%)	255 ms (39.4%)	1	
> MergeSort.mergeSort (Object[], int, int)	6.19 ms (0.9%)	6.6 ms (0.9%)	1	
> RadixEnteros.radixSort (Integer[], int)	1.45 ms (0.2%)	1.45 ms (0.2%)	1	
> GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	0.866 ms (0.1%)	0.829 ms (0.1%)	1	

3000 números

Desordenado

Principal2 (pid 16300)				
Profiler Snapshot				
View: [Icons] Aggregation: Methods				
Name	Total Time	Total Time (CPU)	Invocations	
main	1,835 ms (100%)	1,821 ms (100%)	5	
> BubbleSort.sort (Object[], java.util.Comparator)	931 ms (50.7%)	923 ms (50.7%)	1	
> GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	879 ms (47.9%)	873 ms (47.9%)	1	
> QuickSort.quickSort (Object[], int, int, java.util.Comparator)	12.0 ms (0.7%)	11.8 ms (0.7%)	1	
> MergeSort.mergeSort (Object[], int, int)	10.5 ms (0.6%)	10.5 ms (0.6%)	1	
> RadixEnteros.radixSort (Integer[], int)	2.16 ms (0.1%)	2.12 ms (0.1%)	1	

Ordenado

Principal2 (pid 16346)				
Profiler Snapshot				
View: [Icons] Aggregation: Methods				
Name	Total Time	Total Time (CPU)	Invocations	
main	1,415 ms (100%)	1,405 ms (100%)	5	
> BubbleSort.sort (Object[], java.util.Comparator)	872 ms (61.6%)	865 ms (61.6%)	1	
> QuickSort.quickSort (Object[], int, int, java.util.Comparator)	530 ms (37.5%)	528 ms (37.6%)	1	
> MergeSort.mergeSort (Object[], int, int)	9.6 ms (0.6%)	8.78 ms (0.6%)	1	
> RadixEnteros.radixSort (Integer[], int)	2.9 ms (0.1%)	2.9 ms (0.1%)	1	
> GnomeSort.gnomeSort (Object[], java.util.Comparator, int)	1.21 ms (0.1%)	1.19 ms (0.1%)	1	