Práctica 1

Análisis Empírico e Híbrido de Eficiencia de Algoritmos

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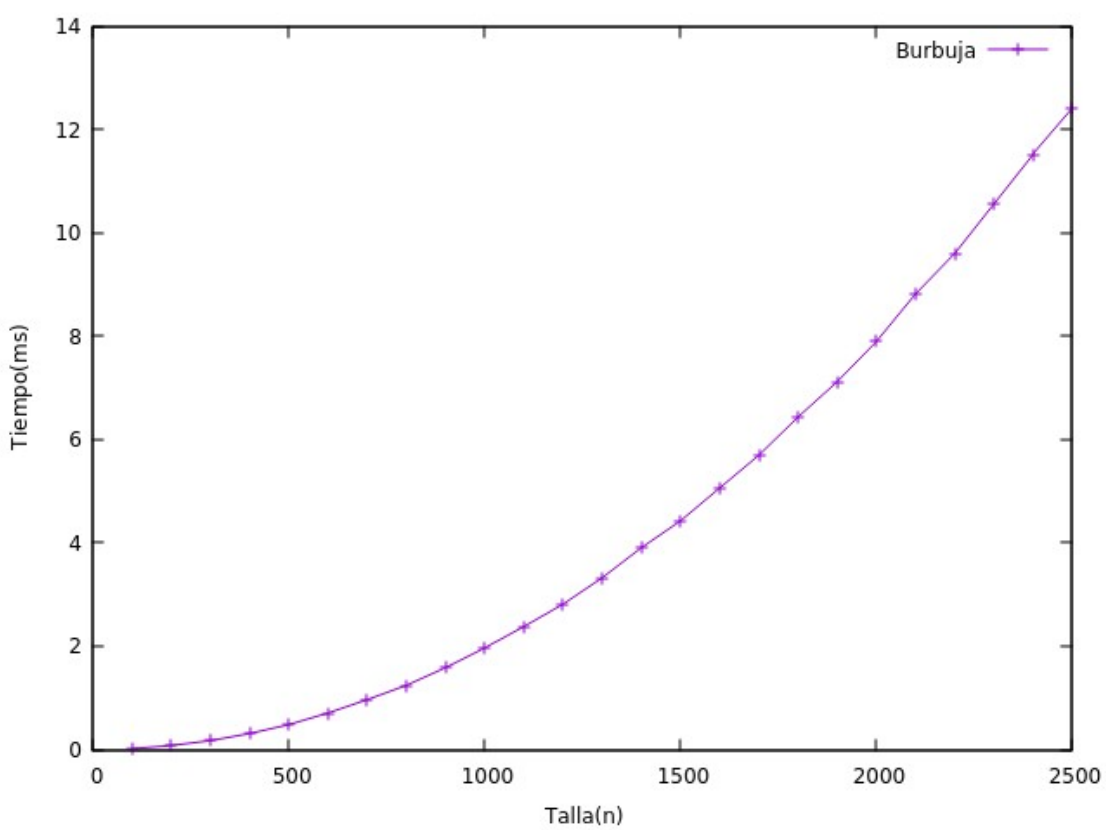
2. Complejidad o(n^2)

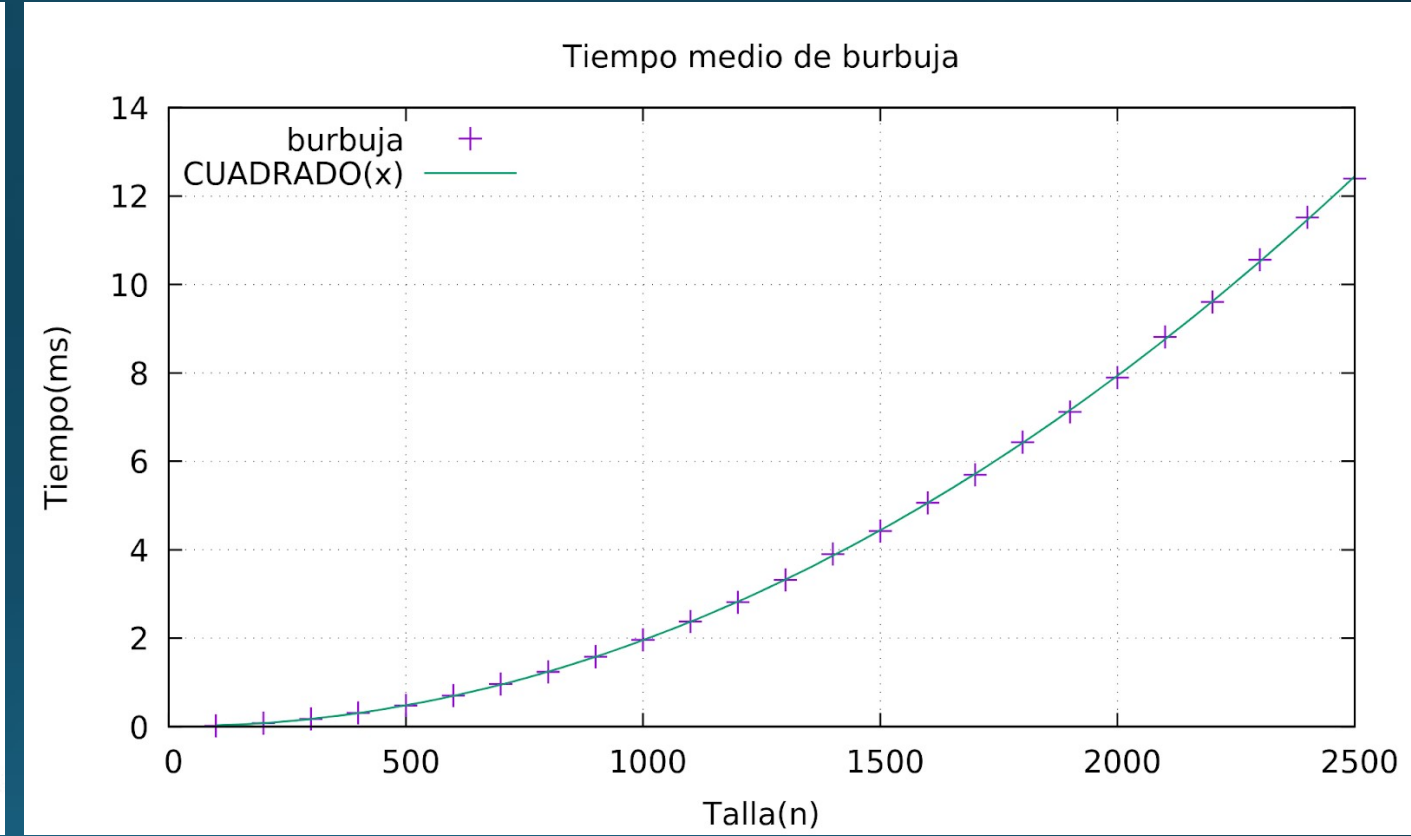
El ajuste se realiza con
$T(n) = a*n^2 + b*n + c$

Vamos a ver los siguientes algoritmos:

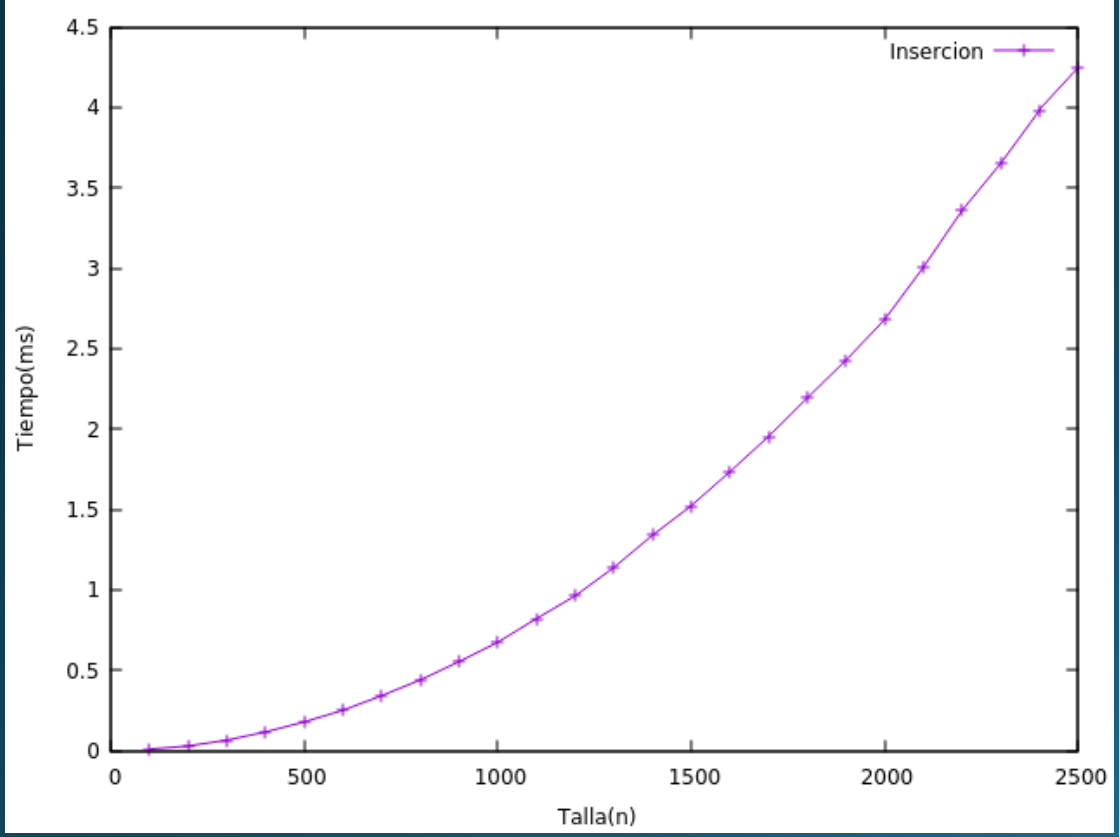
- Burbuja
- Inserción
- Selección

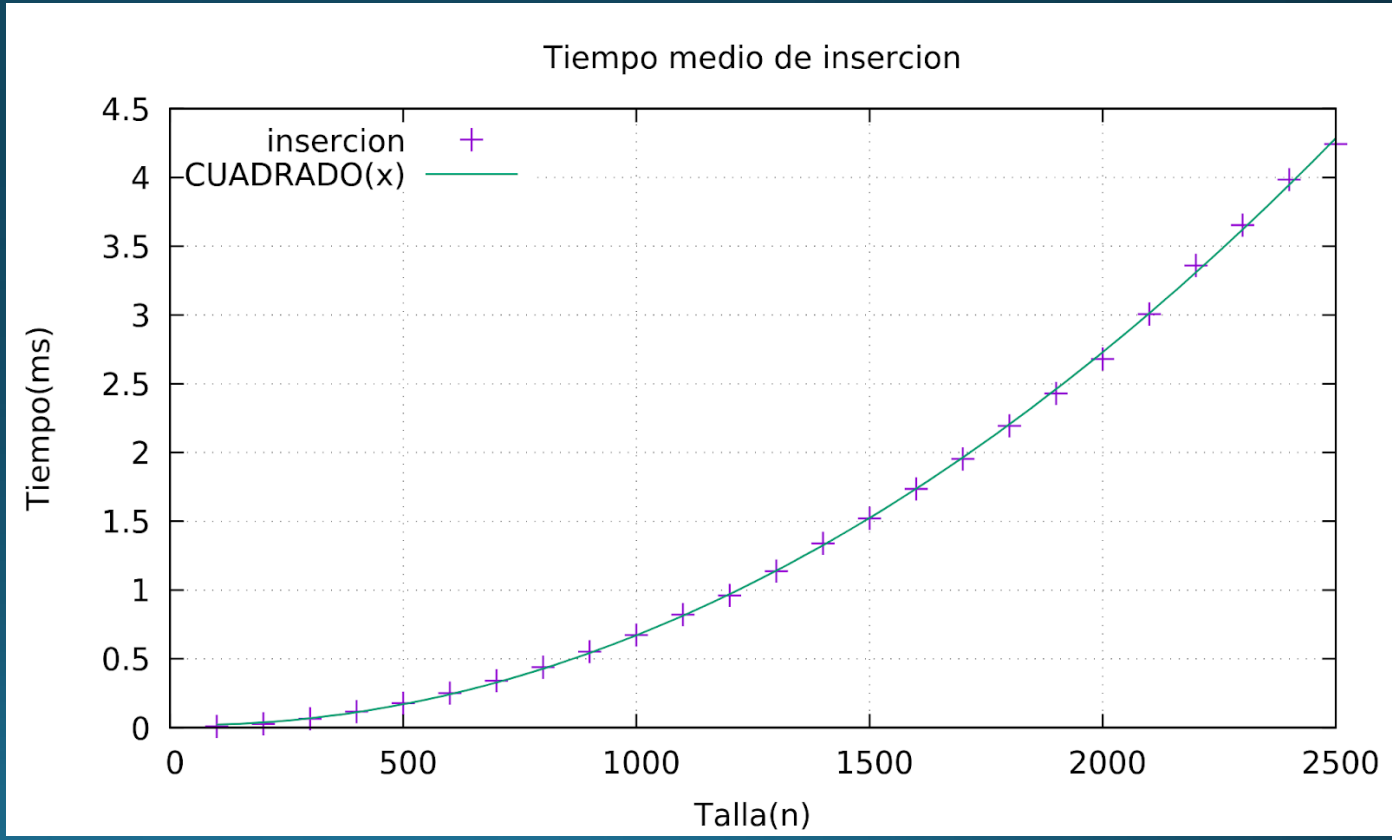
2.1. Burbuja


Burbuja
Tiempo(ms)
Talla(n)
0
2
4
6
8
10
12
14
0
500
1000
1500
2000
2500

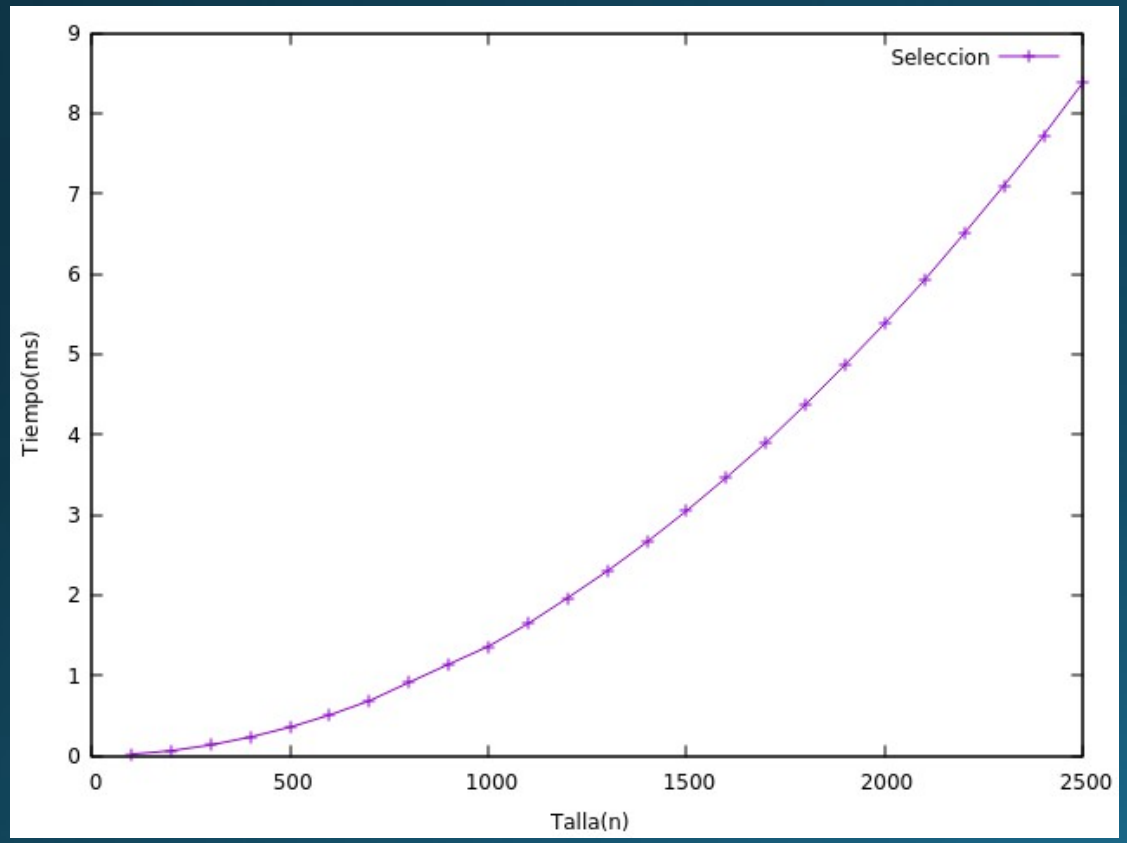

Tiempo medio de burbuja
burbuja
CUADRADO(x)
Tiempo(ms)
Talla(n)
0
2
4
6
8
10
12
14
0
500
1000
1500
2000
2500

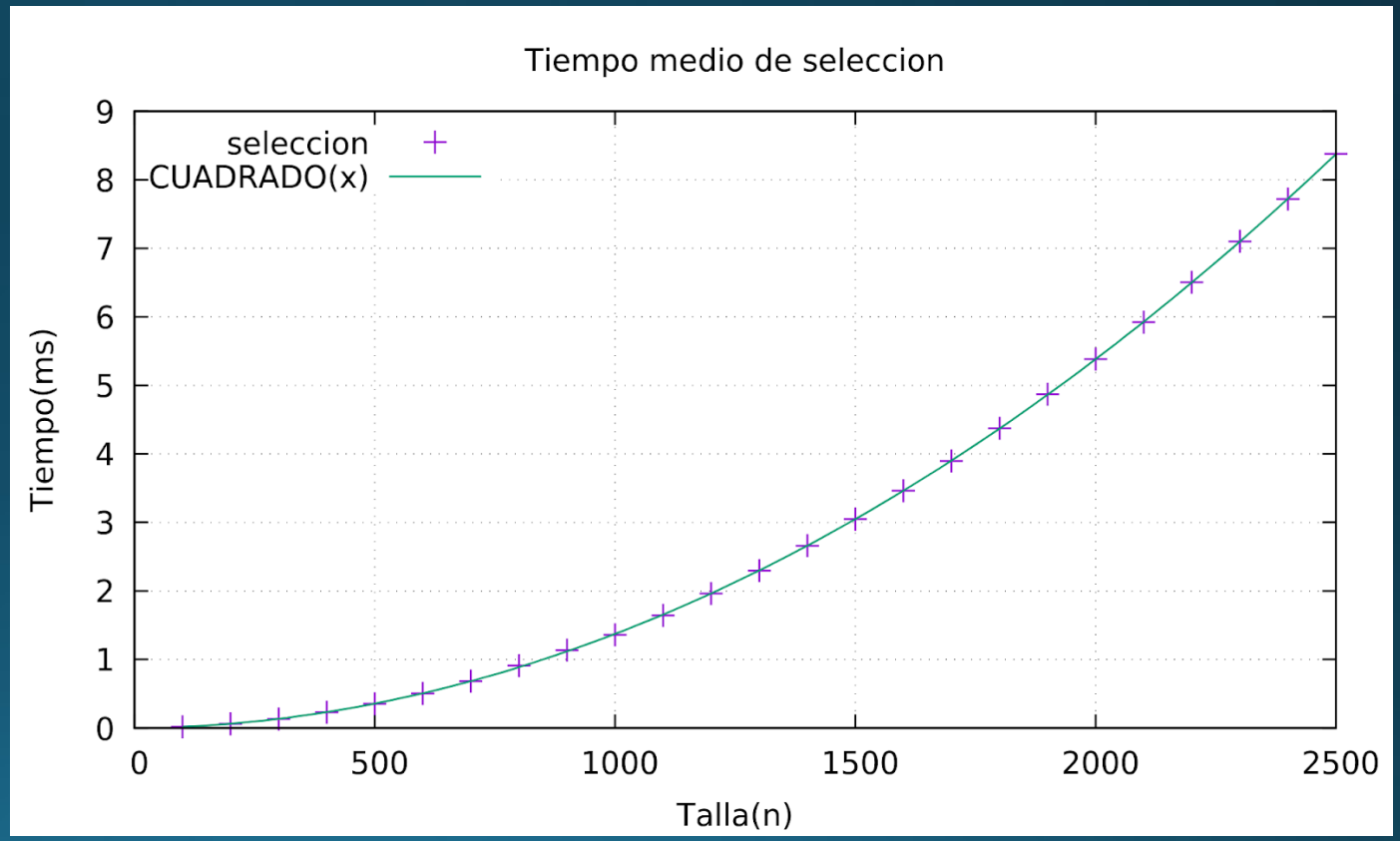
2.2 Inserción





2.3. Selección





3. Complejidad O(nlog(n))

El ajuste se realiza con $T(n) = a*n*\log(n) + b$

Estos algoritmos tienen una mayor complejidad pero son más eficientes

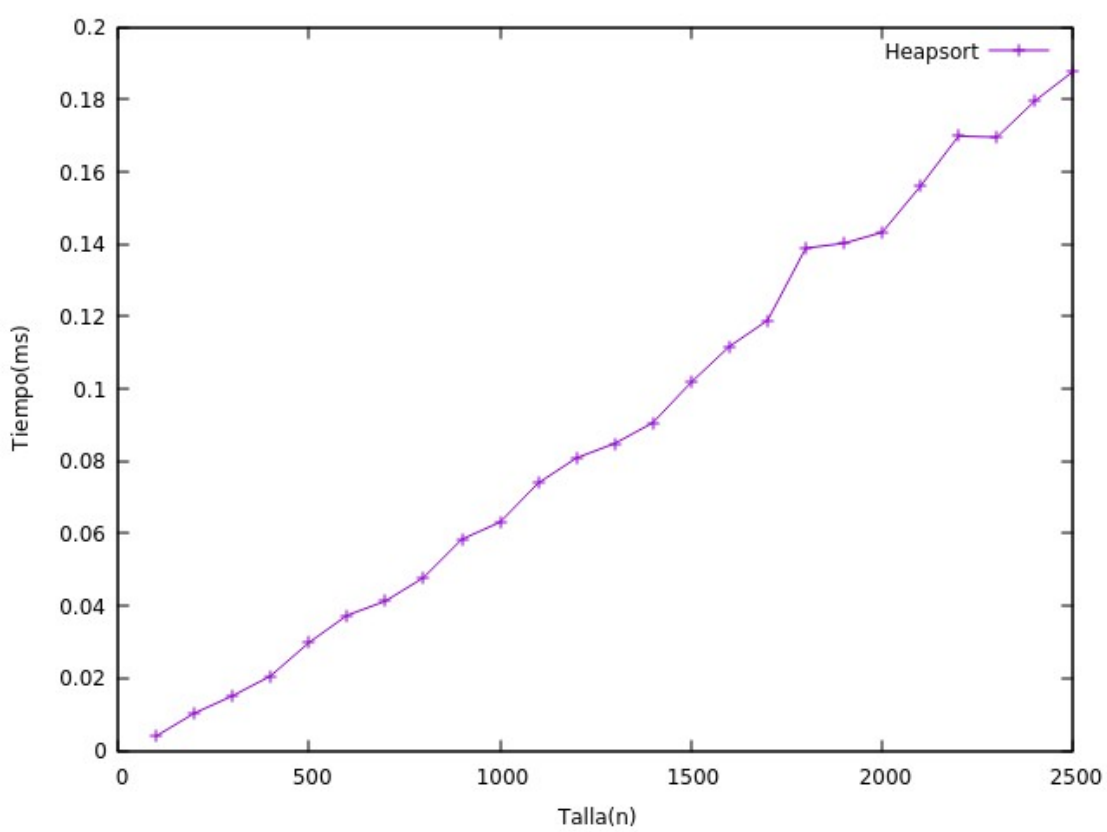
Vamos a ver los siguientes algoritmos:

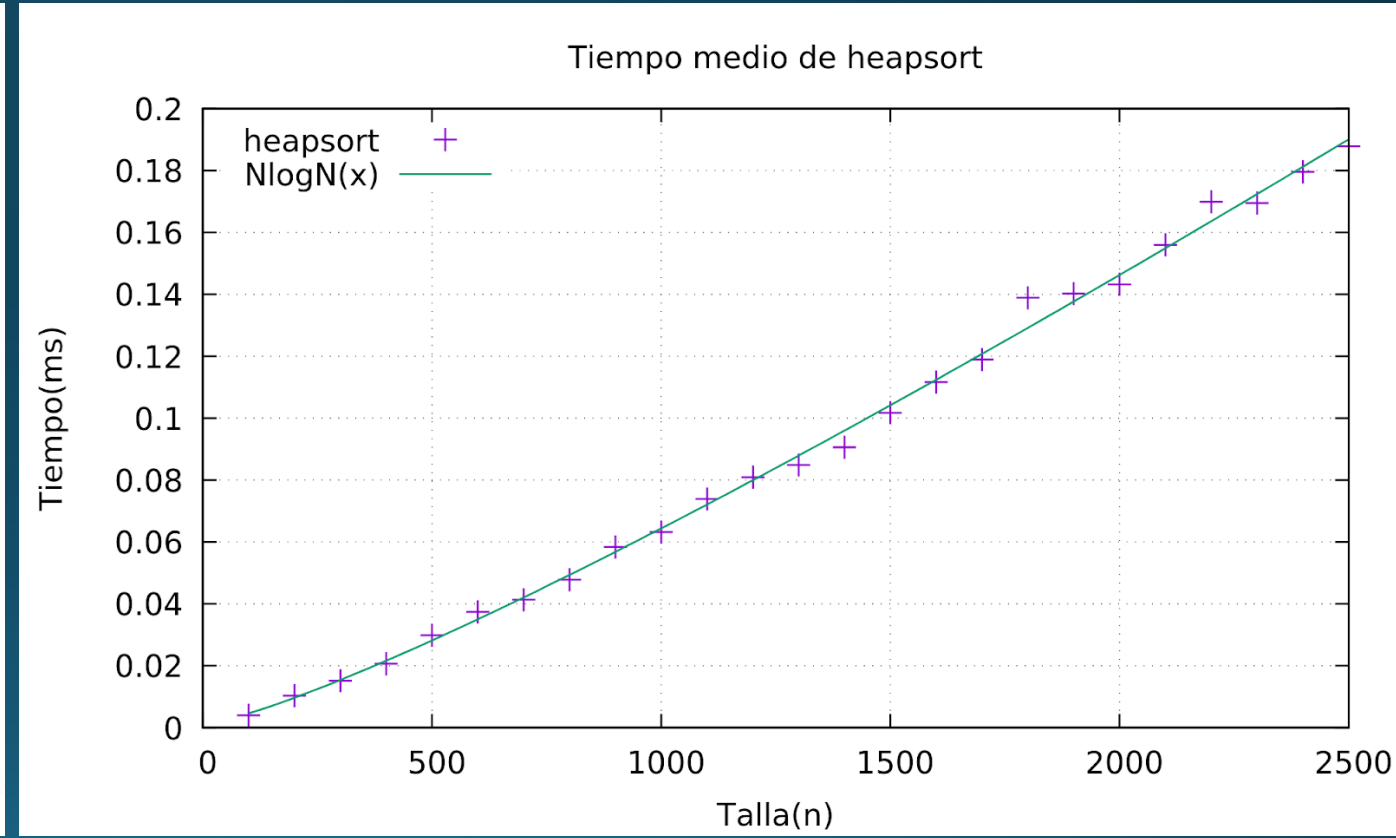
-Heapsort

-Mergesort

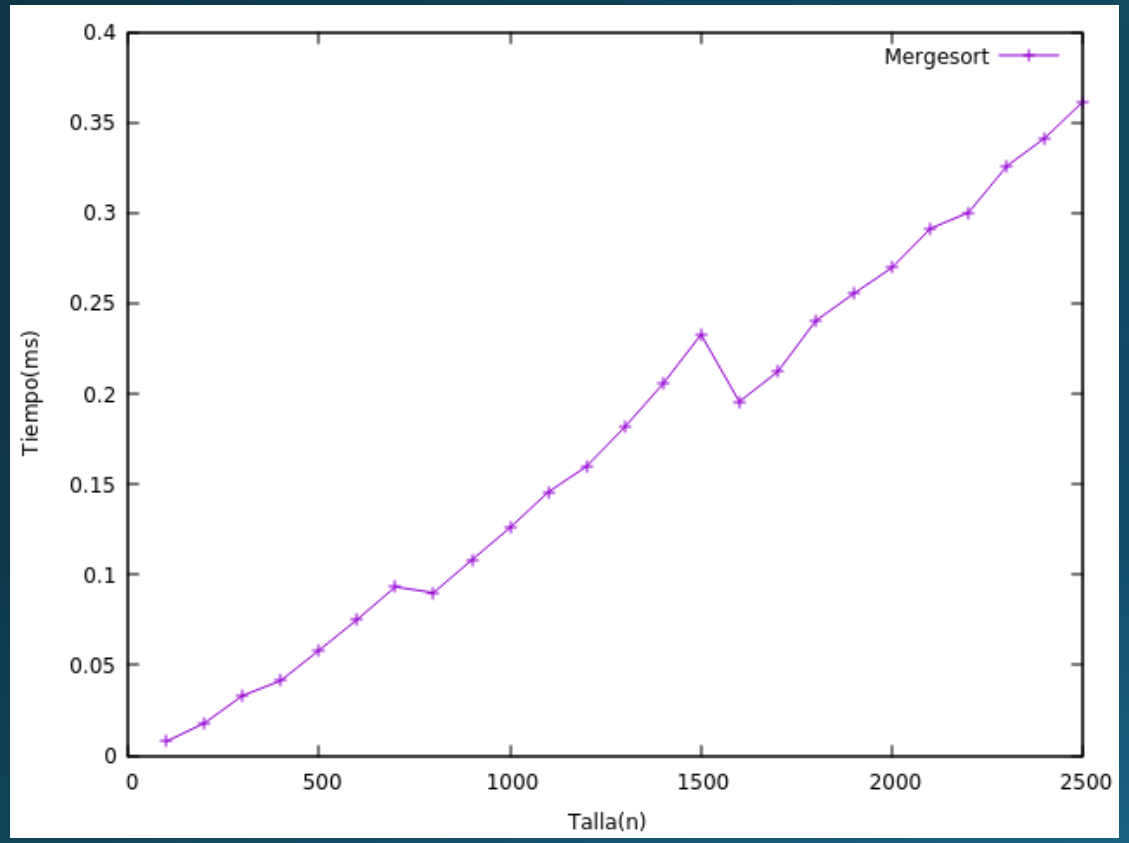
-Quicksort

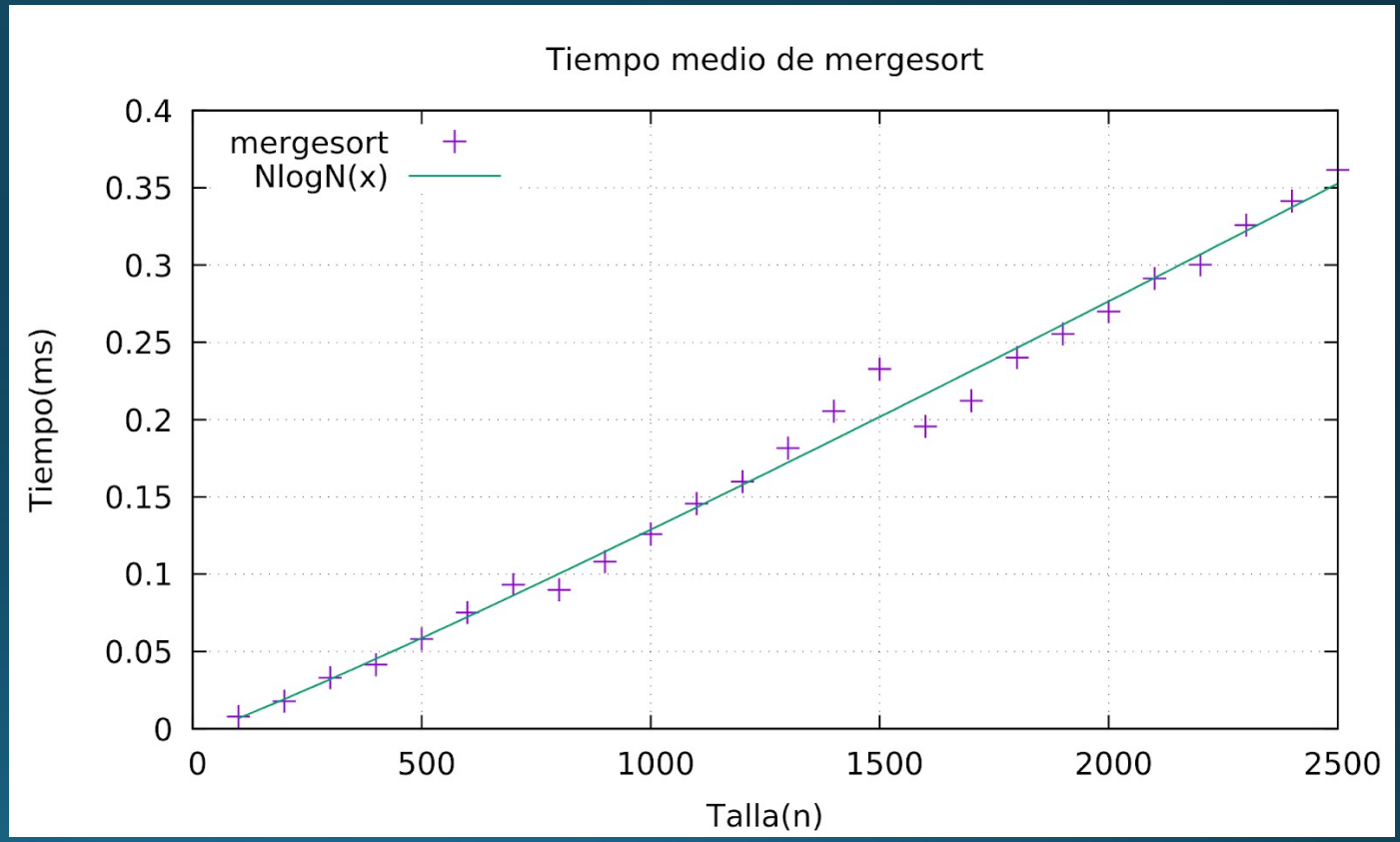
3.1. Heapsort


Heapsort
Tiempo(ms)
Talla(n)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0
500
1000
1500
2000
2500

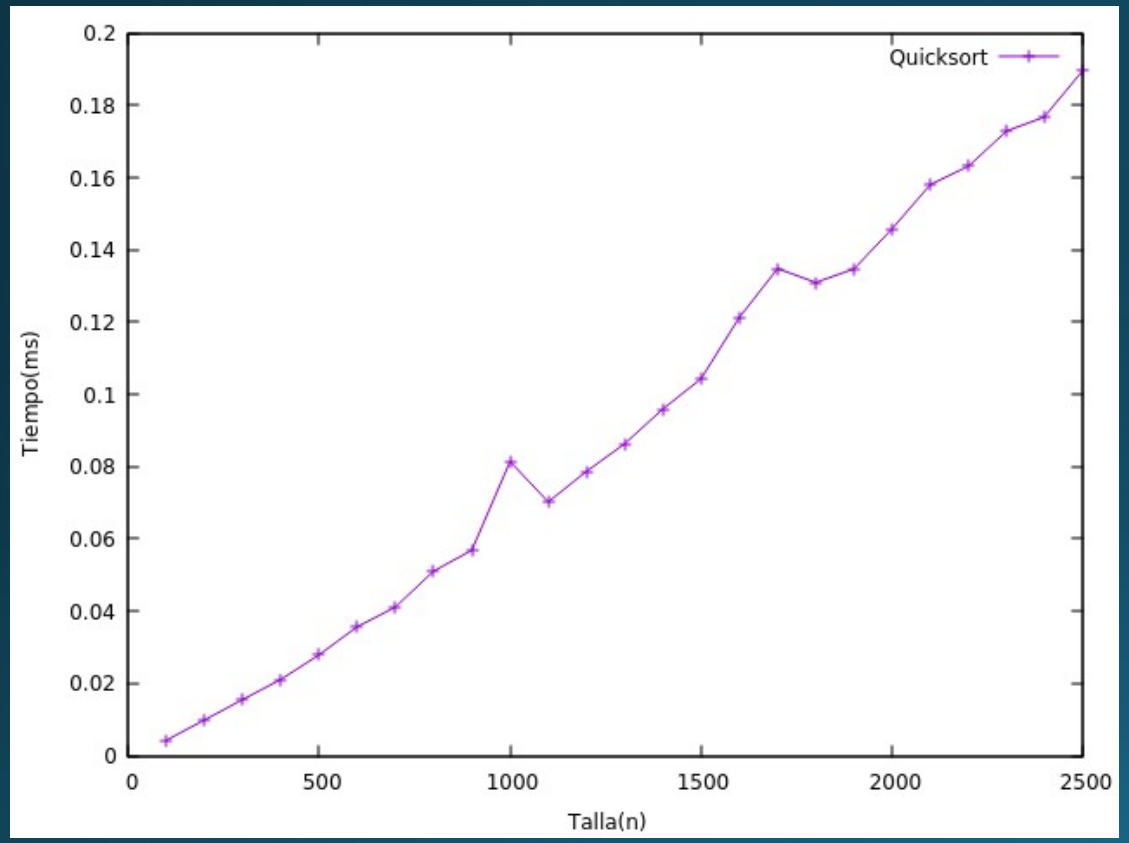

Tiempo medio de heapsort
heapsort
NlogN(x)
Tiempo(ms)
Talla(n)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0
500
1000
1500
2000
2500

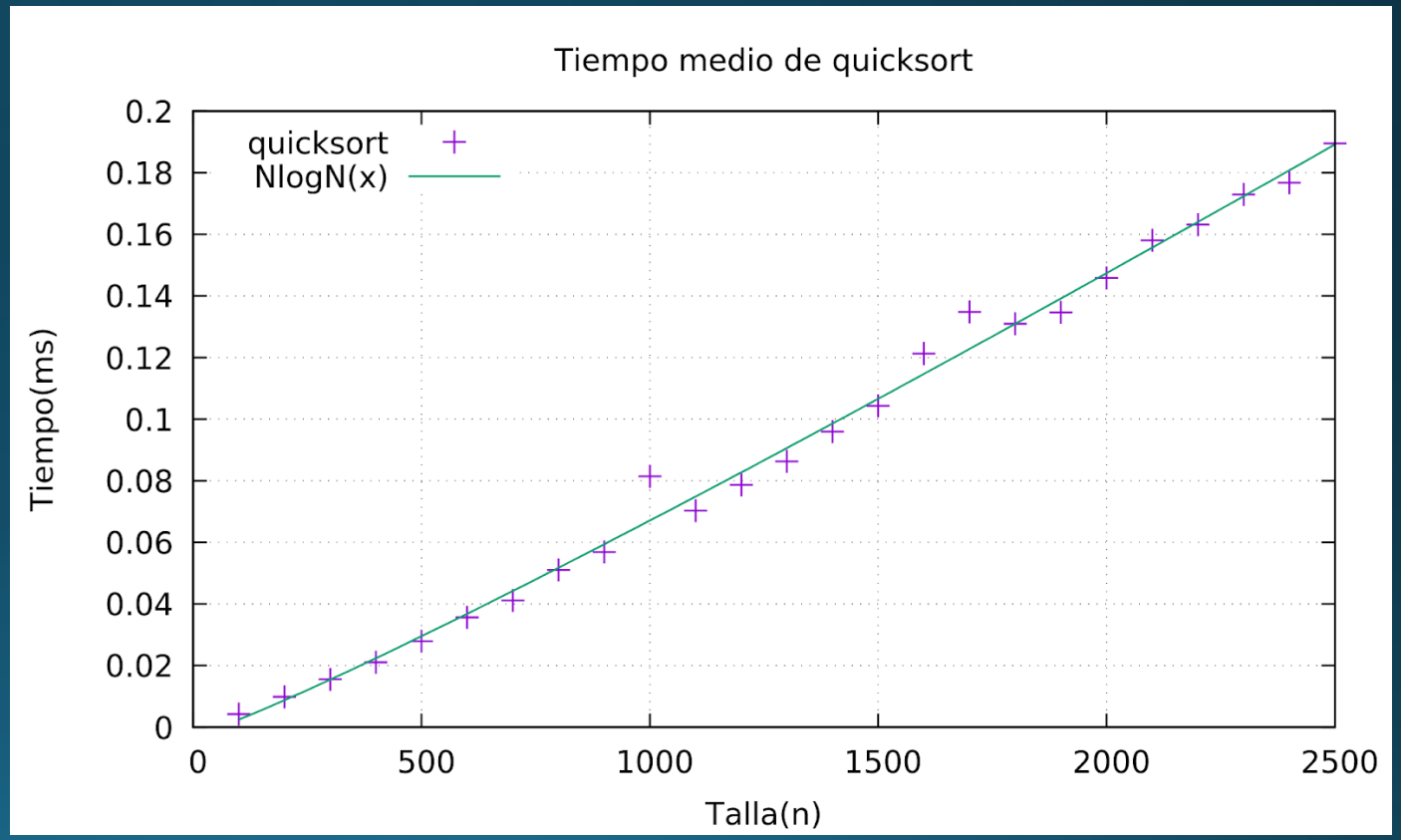
3.2. Mergesort





3.3. Quicksort

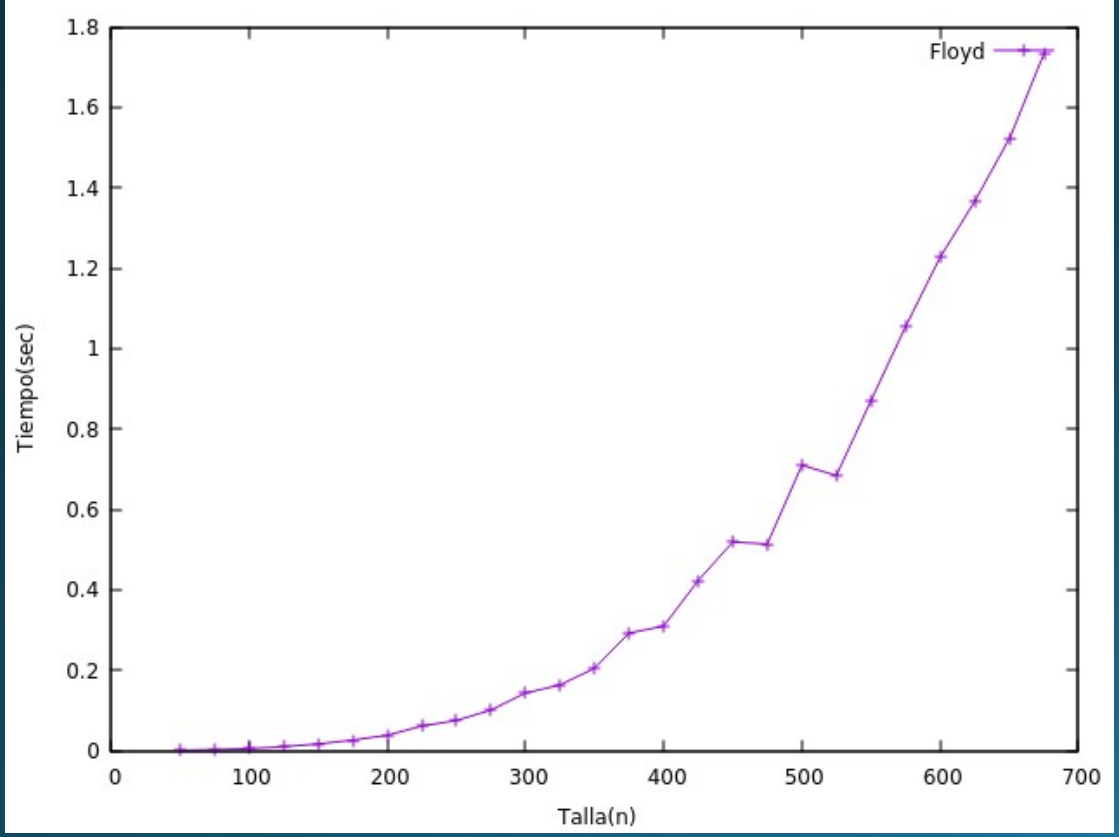


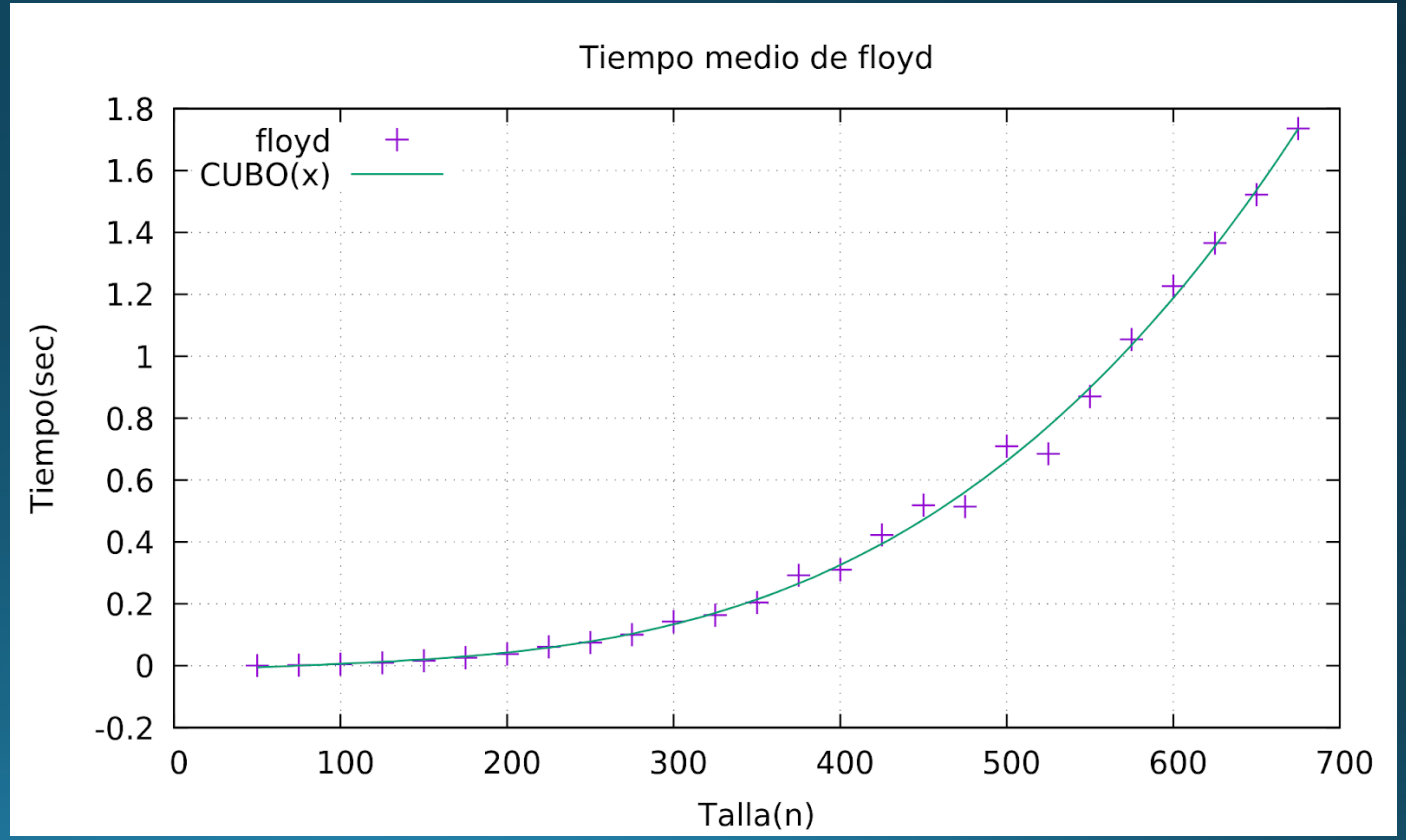


4. Floyd

El ajuste se realiza con

$T(n) = a*n^3 + b*n^2 + c*n + d$

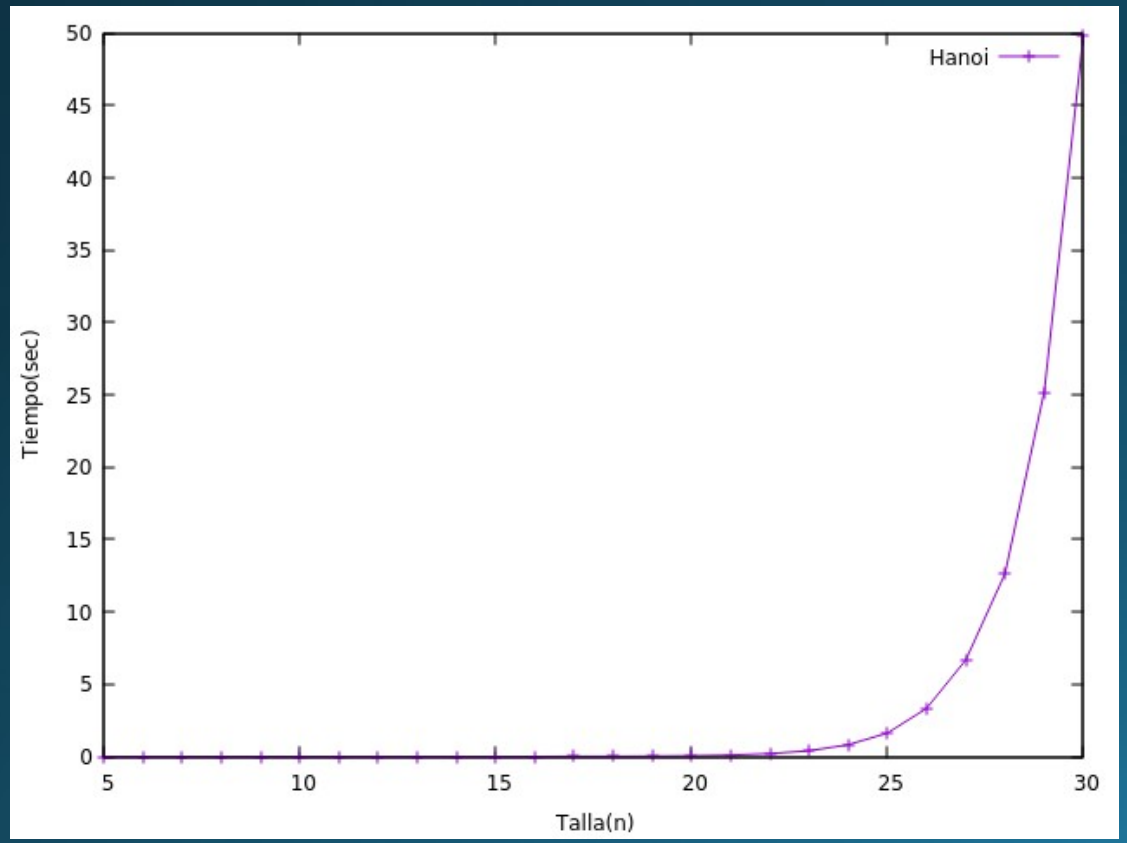


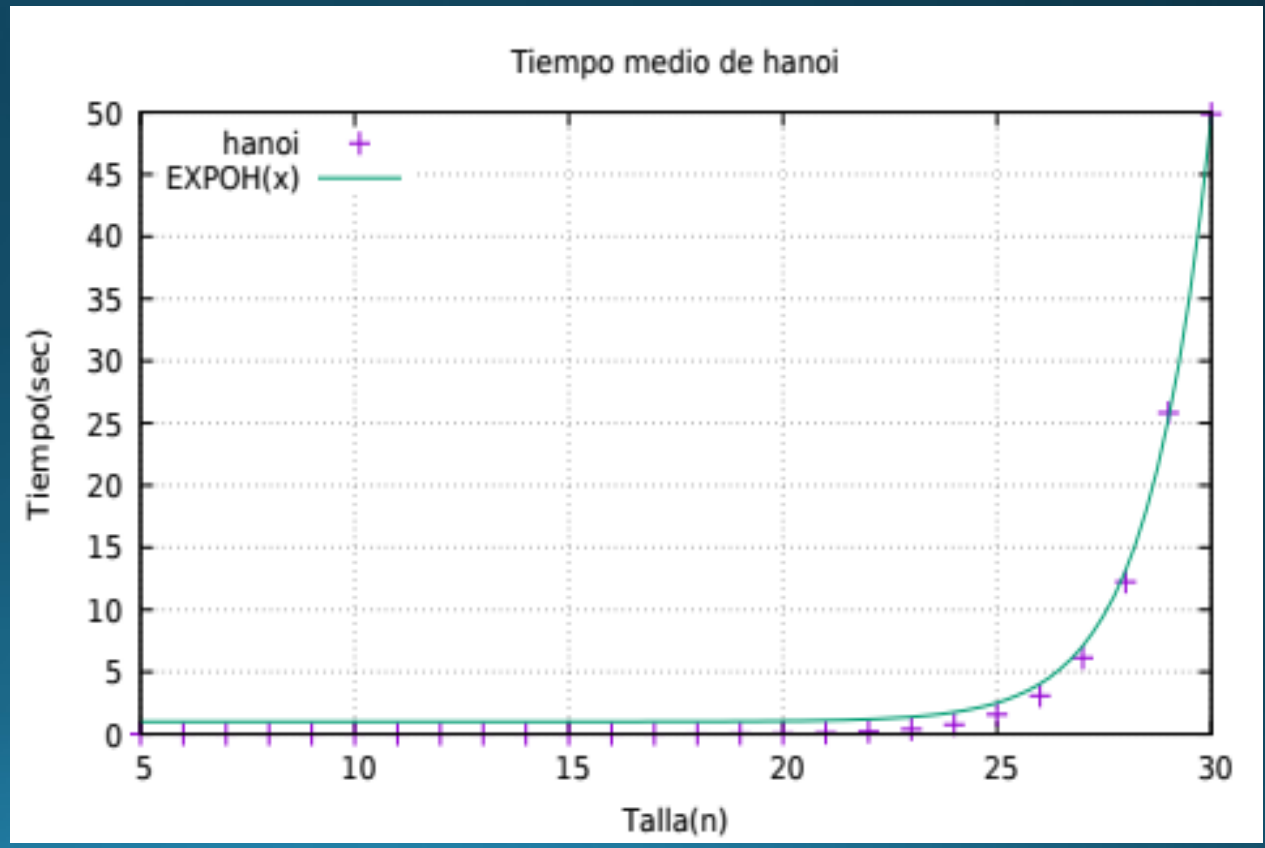


5. Hanoi

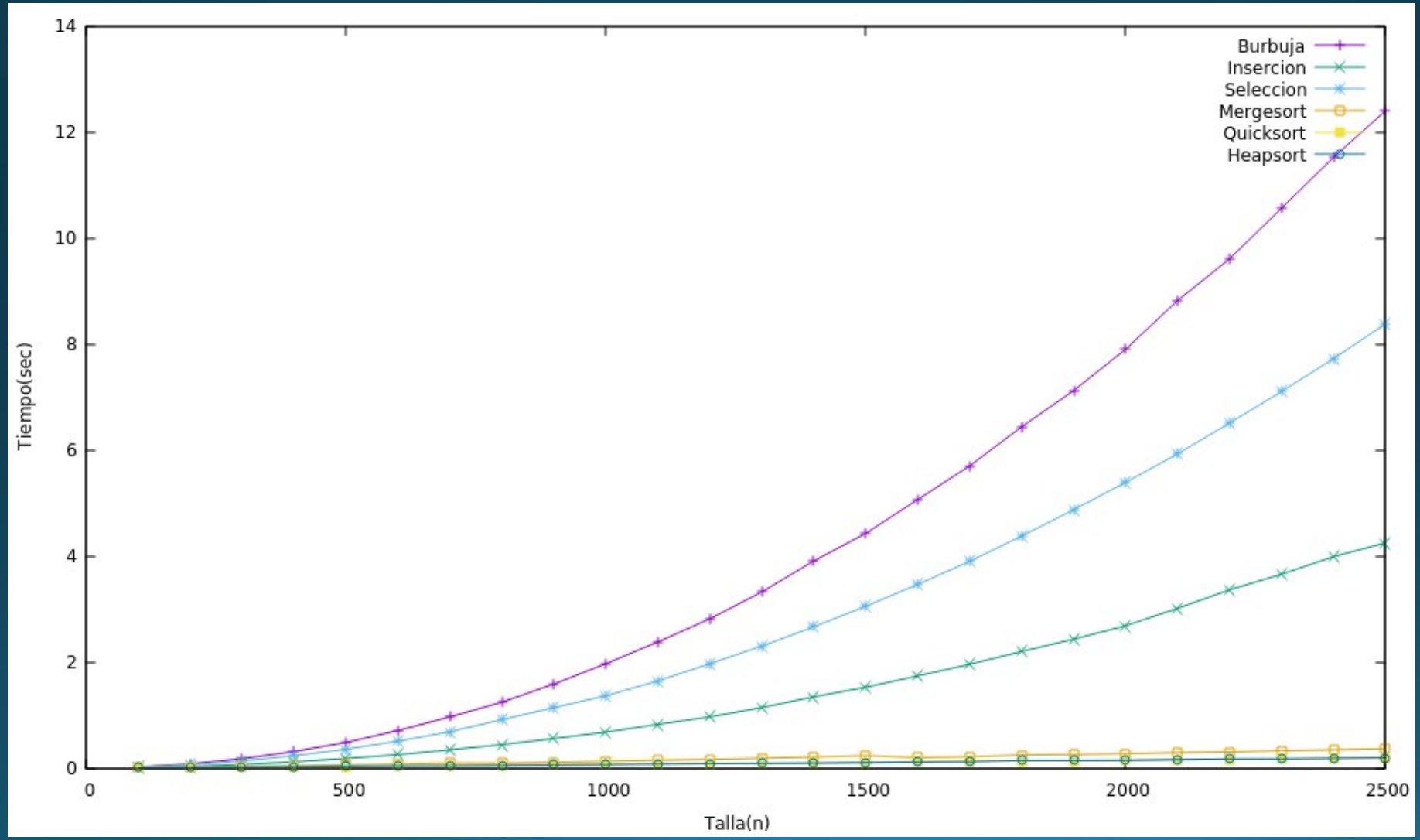
El ajuste se realiza con

$T(n) = a * (2^n) + b$

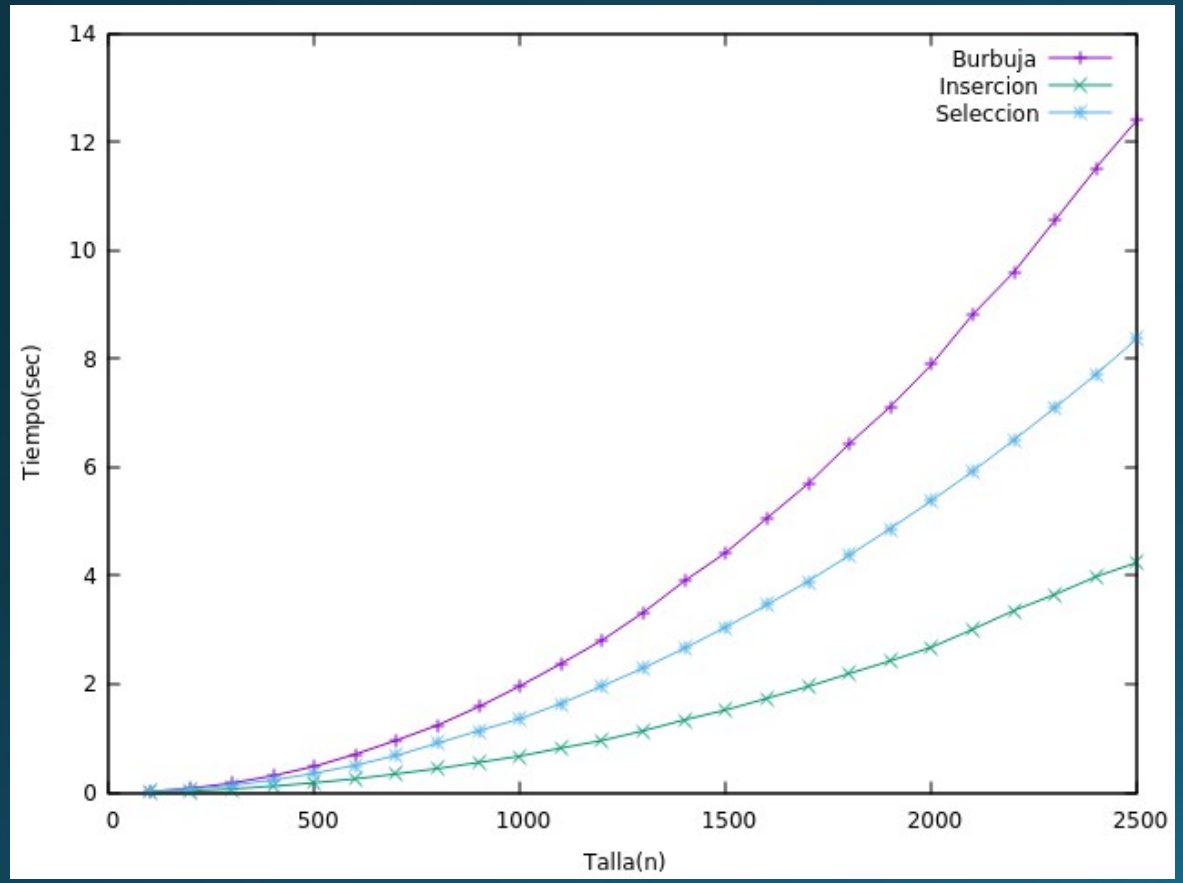


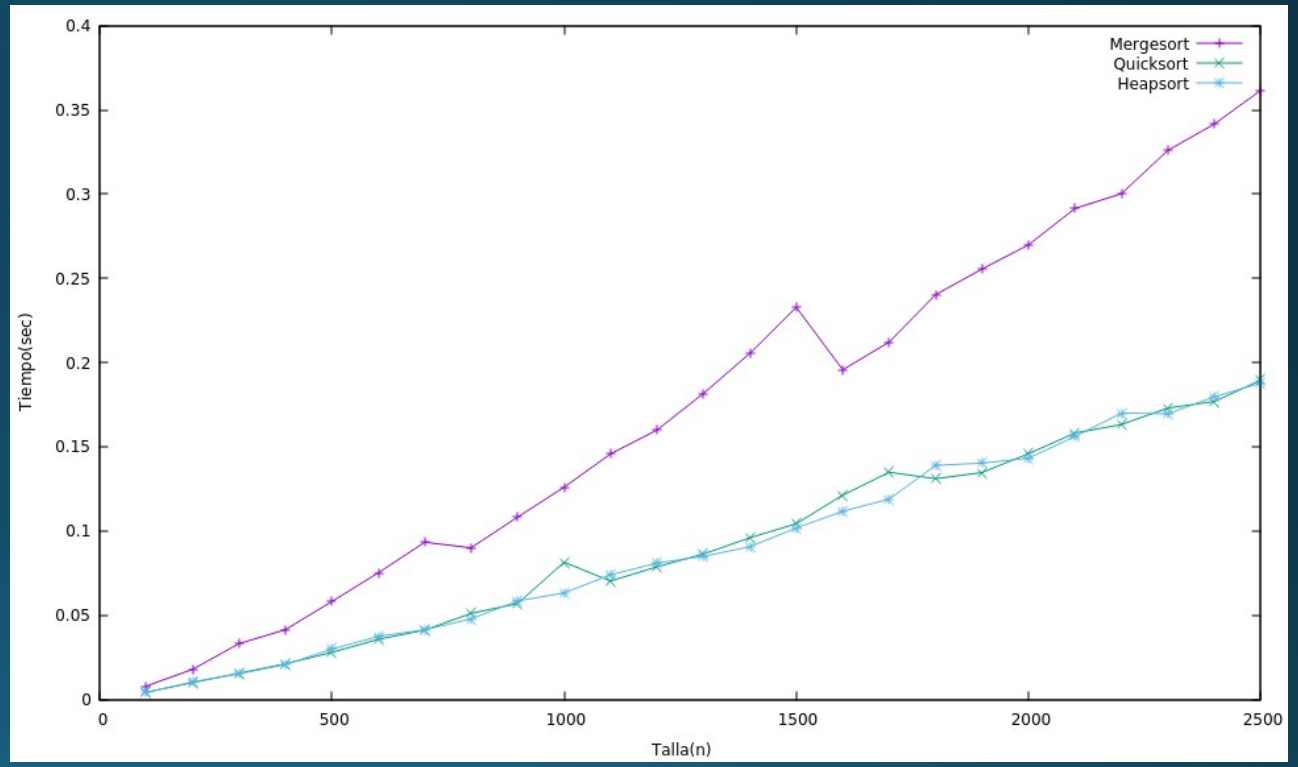


6. Comparativa

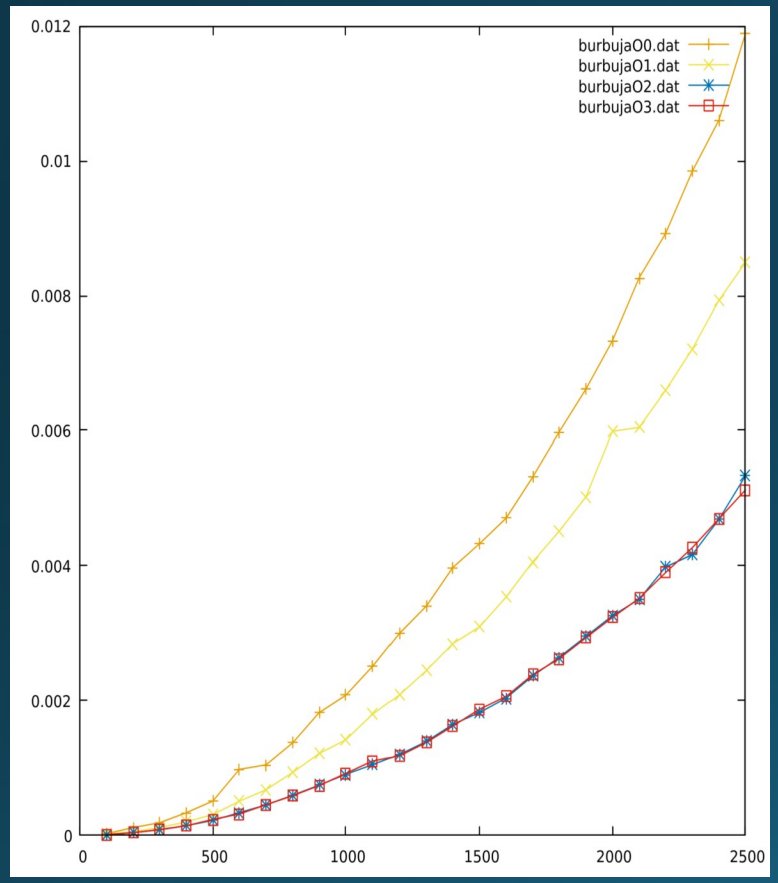


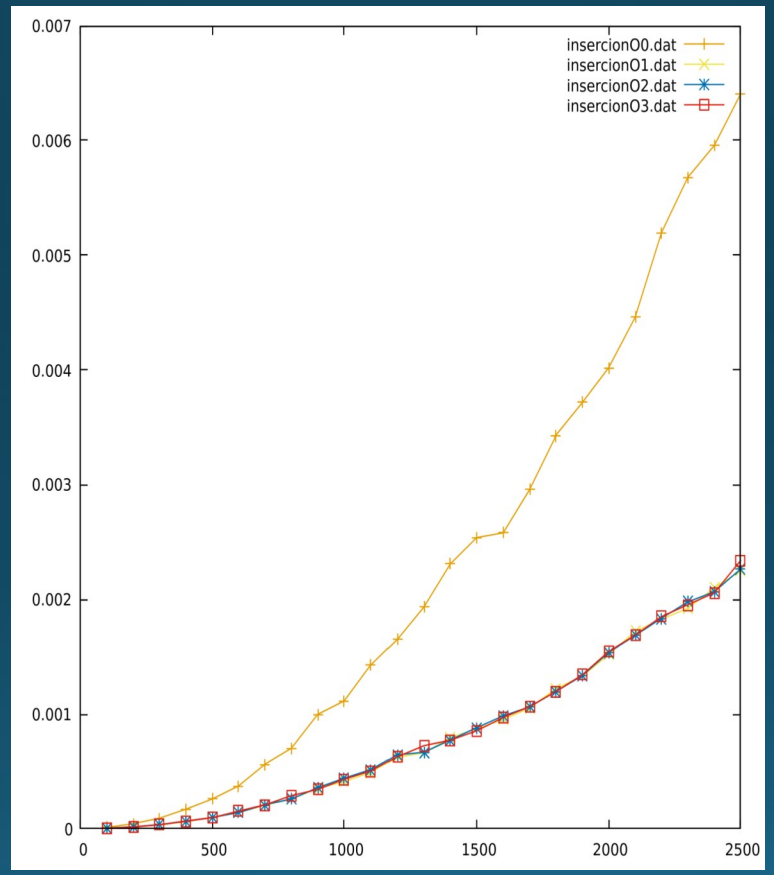
6. Comparativa

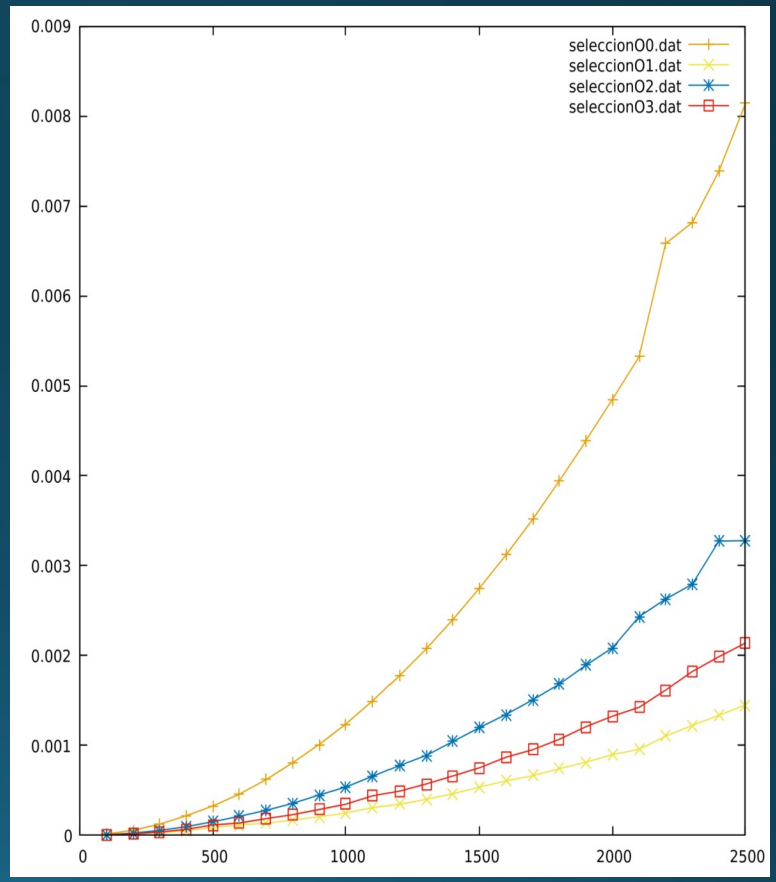




8. Optimización







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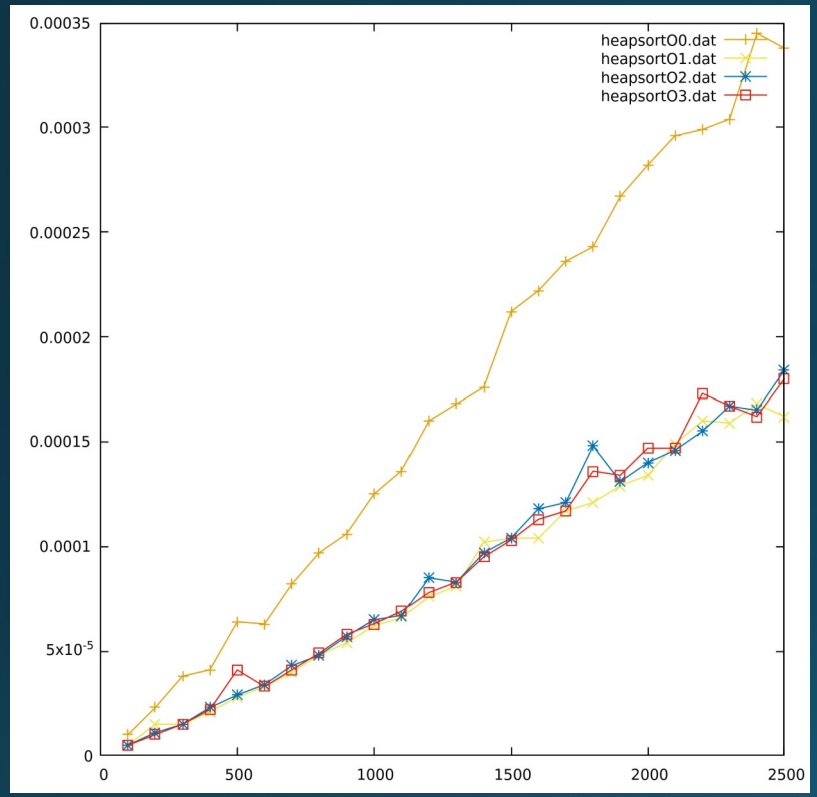

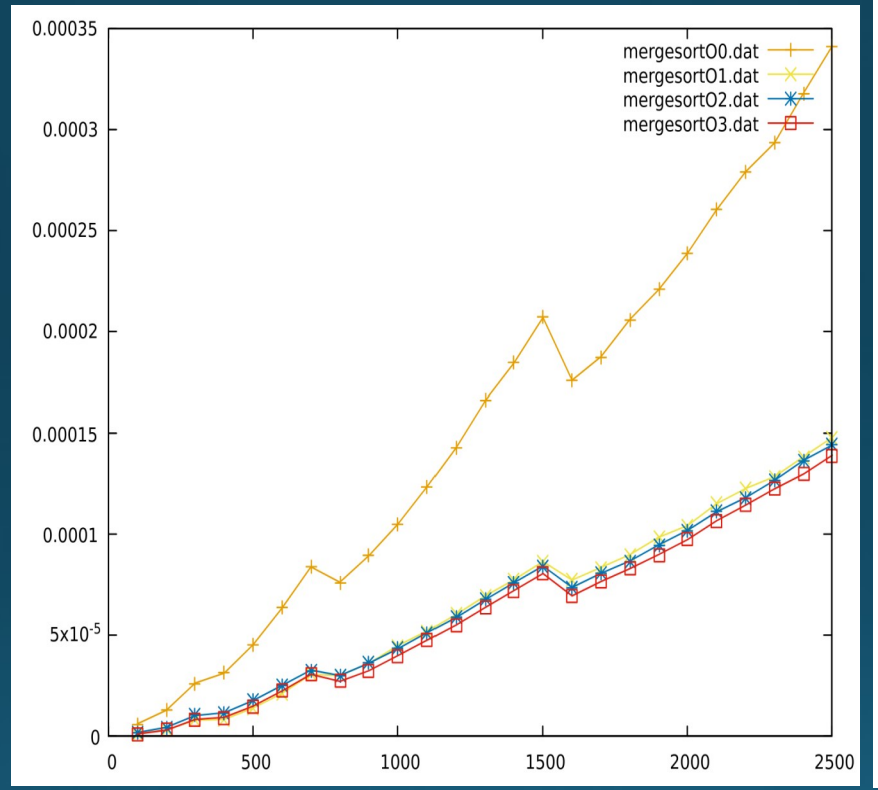

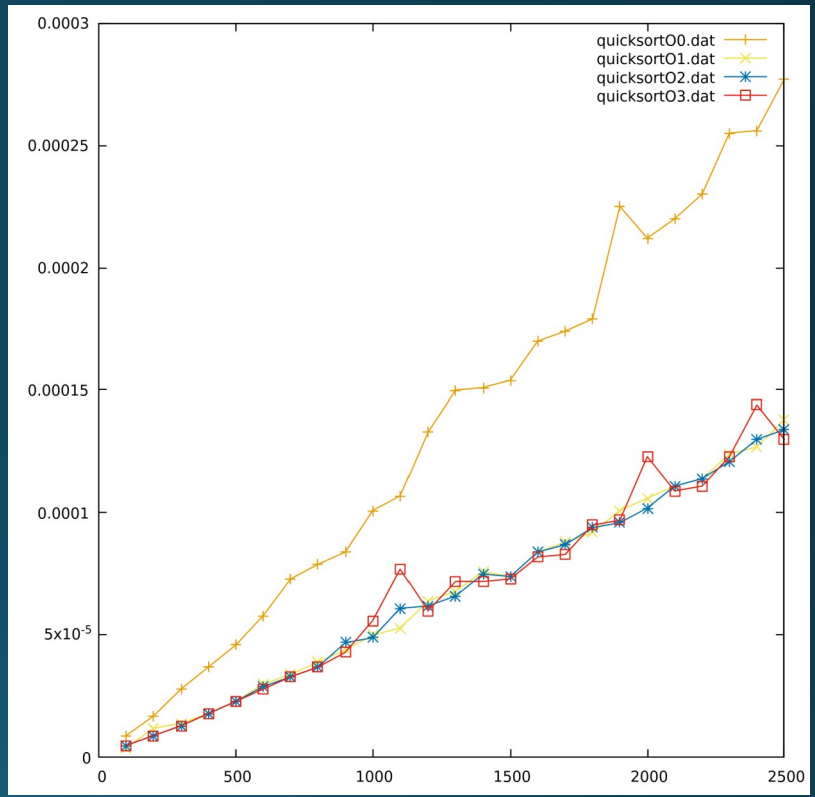

8. Optimización