Quicksort and Mergesort Analysis

Quicksort(n=1000)

Pivot_type	Random	Sorted	Almost sorted
First element	0.033	0.083	0.093
Random pivot	0.033	0.077	0.077
Median of first,middle and last	0.024	0.074	0.076
Median of n/4th,middle and3n/4th	0.024	0.076	0.032

Quicksort(n=10000)

Pivot_type	Random	Sorted	Almost sorted
First element	0.249	0.881	0.891
Random pivot	0.489	0.734	0.82
Median of first,middle and last	0.248	0.902	0.902
Median of n/4th,middle and3n/4th	0.247	0.918	0.945

Quicksort(n=100000)

Pivot_type	Random	Sorted	Almost sorted
First element	2.489	9.29	8.641
Random pivot	2.308	5.101	5.488
Median of first,middle and last	2.547	6.614	8.851
Median of n/4th,middle and3n/4th	2.314	9.063	9.162

Mergesort

Input_range	Random	Sorted	Almost sorted
n=1000	0.024	0.087	0.025
n=10000	0.252	0.831	0.769

n=100000	2.453	4.664	4.472

Mergesort is quite faster as it divides the array into 2,4,8,... till we have only one element left as a subarray. It doesnot have the overhead of getting the pivot and hence faster in computation.