Sorting Algorithm Performance Analysis (a) 1000 Data Points (b) 10000 Data Points QuickSort Recursive QuickSort Recursive QuickSort Iterative QuickSort Iterative MergeSort OMP MergeSort OMP 45 3.5 40 Execution Time (ms) 2.2 0.8 Execution Time (ms) 25 2.0 20 1.5 02 03 01 02 03 01 00 Ofast 00 Ofast (c) 100000 Data Points (d) Data Size Impact (O2 Optimization) QuickSort Recursive QuickSort Recursive 45 QuickSort Iterative QuickSort Iterative MergeSort OMP → MergeSort OMP 40 30 Execution Time (ms) Execution Time (ms) 25 15 25 10 20 10^{4} 10⁵ 00 01 02 03 Ofast 10^{3} **Optimization Level** Data Size