

OS Assignment-4

Mergesort Comparison Report

After running the two codes (one using simple mergesort, and the other using forking in merge sort), the following performance chart was obtained.

Sr. No.	Normal Mergesort	Mergesort using fork
1	0.006	0.270
2	0.009	0.187
3	0.010	0.236
4	0.005	0.182
5	0.007	0.218
6	0.012	0.319
7	0.011	0.198

Thus, as is obvious from the chart, simple merge sort is much faster than the one using forking.

Reason:

When the left child accesses the left array, the array is loaded into the cache of the processor. Now when the right array is accessed (because of concurrent accesses), there is a cache miss since the cache is filled with left segment and the right segment is copied to the cache memory, thus overwriting the left segment. This process goes on and on and eventually it increases the time so much that the normal merge sort performs much better. Though cache misses can be reduced by controlling the workflow of the code, they cannot be avoided completely!