Experiment 1A

Shashiwal Shah
60004220126
TYBTech Comps B

Aim: Amortized Analysis (Aggregate Method).

Theory: Amortized Analysis: This analysis is used when the occasional operation is very slow, but most of the operations which are executing very frequently are faster. Data structure we need amortized analysis for hash tables disjoint sets, etc.
In hash table, the most of the time, searching time complexity is O(1) but sometimes it executes O(n) operates.

Amortized analysis is useful for designing efficient algorithms for data structures such as dynamic arrays, priority queues etc., There are commonly three methods used for amortized analysis.

(1) Aggregate Method
(2) Accounting method
(3) Potential method

Aggregate method - This method calculates the average time complexity over a sequence of operations and then divides it by the number of operations. It provides an overall average cost but may not reflect the cost of individual operations.

Cost (n operations) = Cost (normal operations) + Cost (Expensive operations).

Conclusion : In summary, the Amortized Analysis is using the aggregate method is a sophisticated yet efficient technique for assessing and comparing the efficiency of data structures, facilitating more informed decision making in algorithm design and optimization