Algorithm Lab

Week 3: Binary Search

Picture of ALG02A

A picture containing text

Description automatically generated

2.0 Algorithm Analysis

2.1 Space Complexity

The space complexity for this program is O(N) since it depends on the number of pies to be shared among the friends.

2.2 Time Complexity in best case

The best-case time complexity for this program is O(N). The O(N) is time complexity of the *check*() function called by the binary search algorithm. The best case time complexity of the binary search algorithm is O(1).

2.3 Time Complexity in worst case

The worst-case time complexity for this program is N\*log (Sum). This is because the worst case time complexity of the function *check()* is O(N) and the worst case time complexity of the binary search function is O(log(Sum)). Sum is the total summation of the volumes of each of the N pies.