ISTE-222 Assignment 3: Algorithm Analysis

# The Count of Monte Carlo Report

**Table 1 – Average Number of Operations for Searches using Various Search Algorithms**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Successful Searches** | **Unsuccessful Searches** | **Theoretical** |
| Linear Search | 500.45 | 520.39 | 500 |
| Binary Search | 8.87 | 9.99 | 9.96 |
| Interpolation Search | 3.45 | 3.03 | 3.32 |

Text

Description automatically generated

As you can see from the results, the average number of searches for each type of search was extremely close to their theoretical average case. It makes sense that for the linear and binary search results for the unsuccessful searches might be a little higher on average, but not to far off at all, and in some cases, you may have the opposite result in the case of linear. Interpolation was the quickest of all search methods, and in every test run I ran, the average operations to determine that a given value was not in the data set was less than successful searches.