Discussion – EnochianHendersonWaters6

Based on our graphs, we can conclude that the separate chaining collision resolution method is the ideal method. It uses the least amount of comparisons (on average). The second most efficient method is quadratic probing, and the least efficient is double hashing. Double hashing is least efficient because it is dependent on the prime number determined for q (when trying to resolve collisions). Altering that value will alter the value of h2 and then that, in turn, will alter the value of the location we are looking at in the bucket array. Quadratic probing is not as efficient as the separate chaining because it runs in O(n2) time, while the separate chaining does not. The separate chaining method seems to be the most efficient because rather than trying to find an empty bucket, the key is simply inserted into the next slot of the list that is pointed to by the bucket. This (in our implementation) runs in O(1) time because we are using push\_back. O(1) is faster than O(n2). Because of all the nested if/else statements and for loops, the double hashing is therefore slower (less efficient) than the other two methods. For the smaller N, there will always be less comparisons than a larger N because there are less keys to be entered in fewer bucket slots than with the larger N.