1. Array – contiguous memory locations that store the same type of data.
2. Memoization is a technique used to improve the performance of your algorithm by “remembering” previous results.
3. Hashing is a technique used to store and retrieve data efficiently from a hash table using a hashing algorithm.
4. Linear search – Moving from left to right, through each element. O(N) complexity.
5. Binary search – Only possible for sorted arrays. We move to the middle, then go to the left or right half depending on what we’re looking for. O(logn) complexity.
6. The reason we say that a program with complexity O(N) and another with O(N/2) are the same in terms of performance is because when N gets extremely large, both the algorithms on a bar graph would start to resemble the same line. They aren’t the same thing, but they perform similarly as N gets larger and larger.
7. O notation is to calculate the worst case scenario.
8. Omega (Ω) notation is to calculate the best case scenario.
9. So graphically speaking, O would be the upper bound, and Ω would be the lower bound. The average performance of your algorithm would lie between these two.
10. Example: Linear search has a worst case scenario of n steps, and a best case of just 1 step. Therefore, it has O(N) (worst case) and Ω(1) (best case)
11. Certain algorithms have the same best and worst case scenario performance. That is called a Θ performance. (Theta)