Pod 9

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CS 312 – Lab 10

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Code Inspection

31 int temp;

32 for (int i = 1; i < arr.length; i++)

The code seen here is taken from an Insertion sort. The primary structure is nested for loop. The outer loop will keep track of where the split between the sorted and unsorted portions of the list is. The inner loop will compare the next value from the unsorted portion of the list to the values in the sorted portion until it finds the correct location for this value. The innermost structure, an if statement, compares the unsorted value to each value in the sorted portion of the list. If the unsorted value is less than the sorted value, they switch positions and the loop continues. These lines take up the bulk of the runtime because there are multiple iterations and comparisons of values. In regard to Complexity, the outer for loop will iterate all through the list at least once, hence giving O(N), but a worse case scenario would be an array sorted in reverse order and a run time of O(n^2).

33 {

34 for(int j = i ; j > 0 ; j--)

35 {

36 if(arr[j] < arr[j-1])

37 {

38 temp = arr[j];

39 arr[j] = arr[j-1];

40 arr[j-1] = temp;

41 }

42 }

43}