Homework #3

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Question 1

1.1 The worst case run time of reverse1(lst) is O(n^2) because the insert function is being called multiple times within a while loop and a while loop is running at O(n). When being called once, insert function has a run time of O(n) but on multiple calls its worst run time is O(n^2).

1.2 The worst case run time of reverse2(lst) is O(n) because multiple calls to append have a run time of O(n) and the while loop has a run time of O(n). So the worst run time is O(n)

3.B The worst case run time of find_duplicates(lst) is O(n) because it uses a for loop at O(n) and sort at O(n) with multiple uses of append running at O(n), the overall worst case stands at O(n).

4.A The worst case run time of remove_all(lst, value) is O(n^2) because within the while loop, .remove() is called multiple times. On multiple calls the .remove() function runs at O(n^2)

4.C The worst run time of my implementation of remove_all in (b) is O(nlogn) because each value of lst is checked for whether or not it matches the value and then sliced back into the original list.