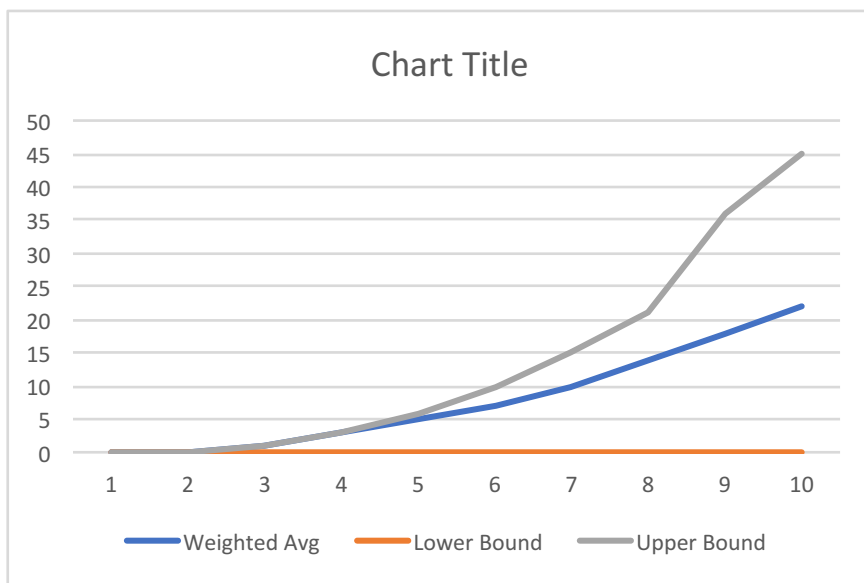


Q1d.

n	Weighted Avg	Lower Bound	Upper Bound
1	0	0	0
2	0	0	0
3	1	0	1
4	3	0	3
5	5	0	6
6	7	0	10
7	10	0	15
8	14	0	21
9	18	0	36
10	22	0	45



It's growing asymptotically because it is within upper and lower bound.

Q1e. The best, average, and worst case for weighted average function is  $O(N^2)$ .  
This is the same as the Selection sort algorithm.

Q1f.

N	Range	
	Lower Bound	Upper Bound
0	0	0
1	0	0
2	0	1
3	0	3
4	0	6
5	0	10
6	0	15
7	0	21
8	0	28
9	0	36

b = upper bound

general formula:

$$B_n = B_{n-1} + (n-1)$$

**Current upper bound = previous upper bound + previous N**

10	0	45
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Q3a.  $O(n^2)$

Q3b. Faster. Because  $2^n$  is larger than  $n^2$ , for example when  $n = 9$ :  $2^9 = 512$ ;  $9^2 = 81$



$$2; 9^2 = 81$$