Week 8

8.1 e)

The worst time complexity for bucket sort depends on two things, the distribution of buckets & the nested sorting algorithm, in this case insertion sort

worst case is when all elements are in one bucket. the bucketing is $O(n)$ but sorting n elements in 1 bucket with insertion sort will be $O(n^2)$ time complexity. If the buckets were more and each bucket had less than n_0 elements, this algorithm would be $O(n + m^2)$ where m is max elem in any bucket

8.2 b

radix sort depends on k (num of digits in elements) & n (number of elements)

for each digit the algorithm performs stable count sort which is $O(n+q)$ per digit this results in a time complexity of $O(k \cdot (n+d))$.