PROBLEM 4

Bubblesort can be considered similar to a type of mergesort because it sorts by dividing into groups and swapping which can be seen here:

```
void swap(int *x, int *y)
{
  int temp = *x;
   *x = *y;
   *y = temp;
}
```

Due to this, we can say the complexity can be summed up as NlogN similar to the mergesort's complexity. Overall,the efficiency in such a sort is good. In order for a linear time solution to be possible you must first find the largest or smallest number in the array and use that as a basis to sort local maxima or local minima around that chosen integer. Thus a mergesort can be used to accomplish this with O(N) complexity.