1. This is a “merging overlapping intervals“ problem.

2. Algorithm:

a. sort the intervals by start date

b. group intervals by vessel into a map, while merging intervals using a stack as follows:

for each interval ‘A’, take the on top interval ‘B’ from the stack, if A.end is before B.start, (no overlapping ) then push B into the stack, otherwise (intervals overlap), extend interval A end to B.end

c. merge all vessels intervals lists into one list and return it

3. Time complexity – O(NlogN)

Space complexity – O(N)