Quiz 3

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M

Quiz Questions

The quicksort algorithm for sorting arrays proceeds recursively *   2 points

○ such that it reorders the element greater than pivot.

⦿ such that reoders element based on (<= Pivot or > Pivot)

○ such that reorders element == Pivot

int smaller = 0, equal = 0, larger = A.size(); // Keep iterating as long as there is an   2 points
unclassified element. while (equal < larger) { if (A . get (equal).() < pivot)) {Collect ions
. swap (A , ___,_____);} else if (A . get (equal) == pivot){ ++equal ;} else {A . get (equal)
> pivot. Collect ions . swap (A , _____,_____);}}

- ⦿ Collect ions . swap (A , smaller++, equal++); Collect ions . swap (A , equal, --larger);

- ○ Collect ions . swap (A , equal++,smaller++); Collect ions . swap (A , equal, --larger);

- ○ Collect ions . swap (A , smaller++, equal++); Collect ions . swap (A , --larger,equal);

For example, if the array is (1, 2, 9), we would derive the integer 129,add one to get   2 points
130, then extract its digits to form (1,3,0). int n = A.size() - 1;

- ○ A.set(3, A.get(3) + 1);

- ○ A.set(2, A.get(2) + 1);

- ⦿ A.set(2, 0);

- ○ Other: _____

List<Integer > result= new ArrayList <>(Collections . nCopies (numl . size () +   2 points
num2.size(), 9));for (int i = numl.size() - 1 ; i >= ®; --i) {for (int j = num2.size() - 1; j >= ® ; -
-j) { _____} Write the three statements to multiply num1 and num2 .

result.set((i+j+1), result.get(i+j+1)+num1.get(i)*num2.get(j));
result.set((i+j),result.get(i+j)+result.get(i+j+1)/10);
result.set((i+j+1),result.get(i+j+1)%10);

There are m partial products, each with at most n + 1 digits. We perform O(1)operations on each digit in each partial product, so the time complexity is _____.

2 points

○ O(n*n)

○ O(n+m)

◉ O(n*m)

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