Part one

I implement Naïve algorithm with twice loop to compare every points by every points.

I implement DC algorithm with the dividing and combining of the problem.

I find an interesting thing that the function of DC algorithm returns nothing because of the void type, so that it is not exactly the same as what we told in the class or in the textbook. To deal with this, I use global variable to store the value which will be used by each recursion.

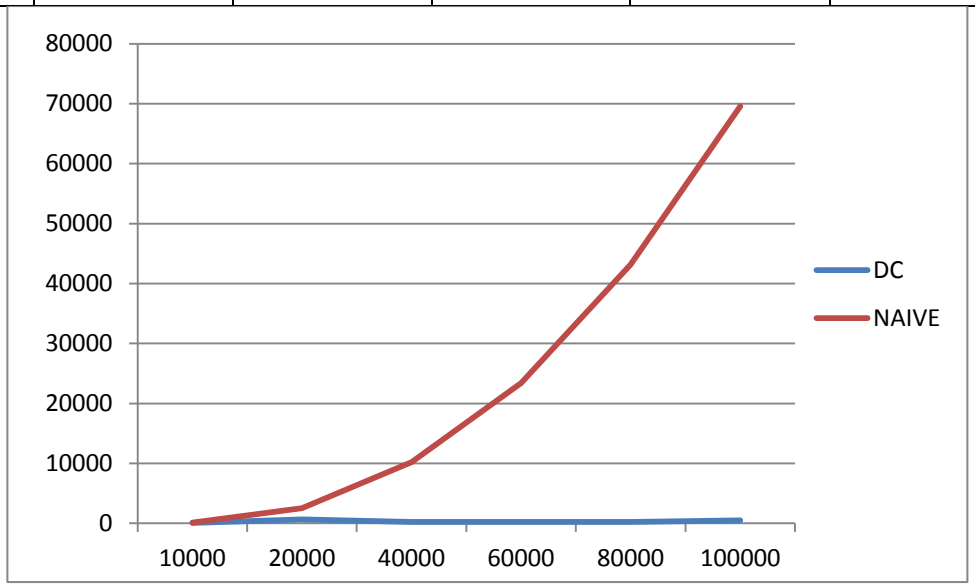
Part two

a.

Running time of different input size

(milliseconds)

	10000	20000	40000	60000	80000	100000
DC	62	658	234	250	250	482
NAIVE	110	2547	10221	23397	43169	69563



The running time of naïve algorithm increases much faster than DC algorithm along with the increase of input size.

b.

	mean	max	min	variation
Random inputs	50	234	31	10.41
Same inputs	47	219	31	11.21

There is only a little differences between this tow kind of inputs.

Part three

input	**2000**	**1500**	**1000**	**900**	**800**	**750**	**700**	**650**	**600**	**550**	**500**
DC	21	14	12	12	12	11	12	11	14	10	12
Naive	39	27	18	14	16	12	14	11	11	7	8

I tested the 1000 times loop of each inputs above. The average running time of these inputs shows that the crossover point should be about 650.