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import java.util.List;
import java.util.ArrayList;

public abstract class DivideAndConquerSortingMachine {

    public final List<Integer> solve(List<Integer> problem) {
        List<List<Integer>> subProblems;
        if (isSimple(problem)) {
            return simplySolve(problem);
        } else {
            subProblems = decompose(problem);
        }
        List<List<Integer>> subSolutions = new ArrayList<List<Integer>>();
        for (int i = 0; i < subProblems.size(); i++) {
            subSolutions.add(i, solve(subProblems.get(i)));
        }
        return combine(problem, subSolutions);
    }

    protected abstract boolean isSimple(List<Integer> problem);

    protected abstract List<Integer> simplySolve(List<Integer> problem);

    protected abstract List<List<Integer>> decompose(List<Integer> problem);

    protected abstract List<Integer> combine(List<Integer> problem,
        List<List<Integer>> subSolutions);
}
```