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/**
 * Definition for an interval.
 * public class Interval {
 *     int start;
 *     int end;
 *     Interval() { start = 0; end = 0; }
 *     Interval(int s, int e) { start = s; end = e; }
 * }
 */
class Solution {
    public List<Interval> insert(List<Interval> intervals, Interval newInterval) {
        List<Interval> res = new ArrayList<>();
        int index = 0, size = intervals.size();

        //before merge
        while (index < size && newInterval.start > intervals.get(index).end) {
            res.add(intervals.get(index++));
        }

        //during merge
        while (index < size && newInterval.end >= intervals.get(index).start) {
            newInterval = new Interval(
                Math.min(newInterval.start, intervals.get(index).start),
                Math.max(newInterval.end, intervals.get(index).end)
            );
            index++;
        }
        res.add(newInterval);

        //after merge
        while (index < size) {
            res.add(intervals.get(index++));
        }

        return res;
    }
}

```