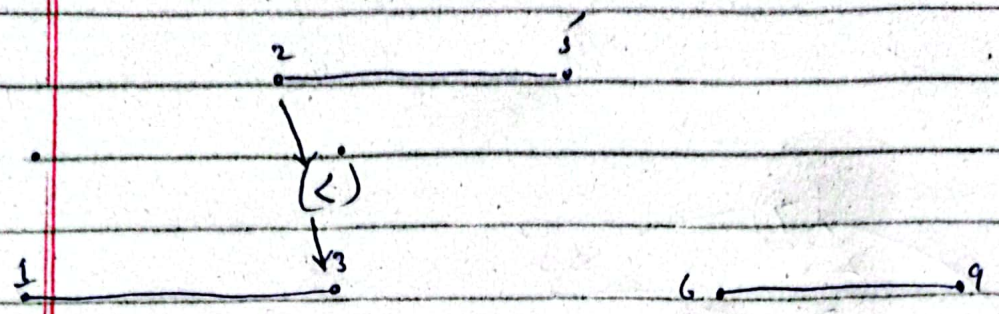
1 case



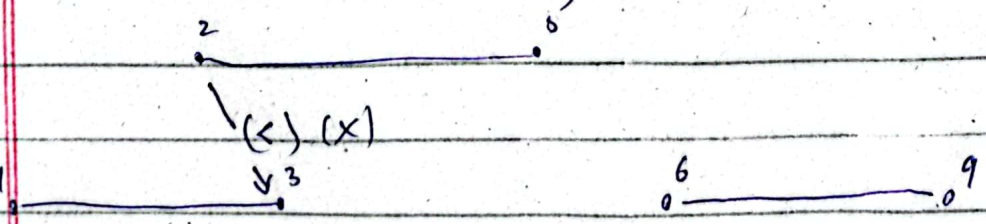
here is a common sense if the new interval start value is less then the current interval last value its mean ~~it is overlaping~~ there are two possible cases left

i) either the new interval will get put before the current interva

2) or it is overlaping

After first case we are sure that new interval ~~will never~~ is not going to add after current interval

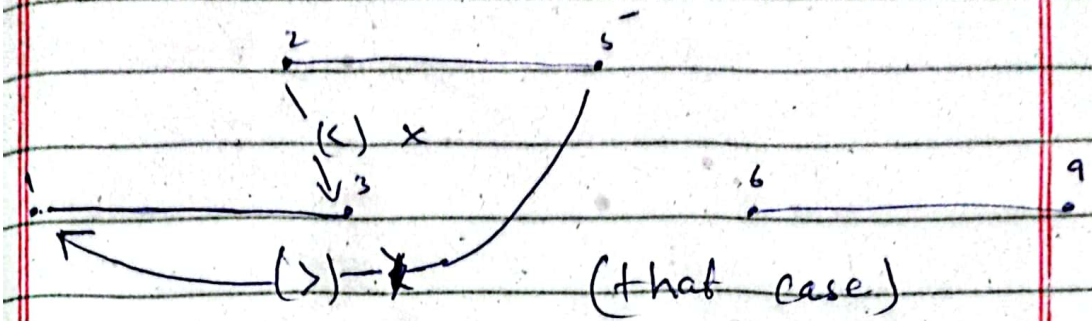
2 case



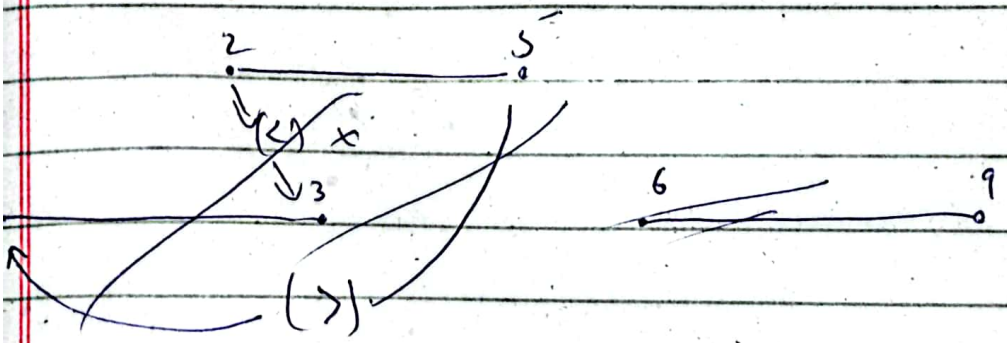
we don't know about the end of new interval so we have to

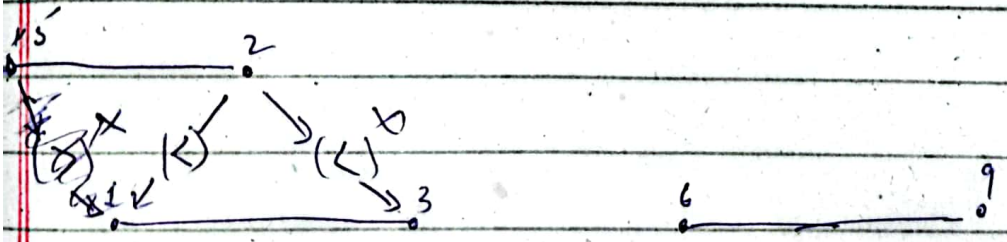
Consider two cases.

1) either the end of new interval is greater then the start of current interval



or end of new interval is less then the start of ~~new~~ current interval.





thats not case

then push ~~to~~ the new interval to the before current interval