

## 1 Security System

1. Complex version of the hermoine problem.
2. Problem eventually reduces to "remove intervals such that the maximum interval overlap is less than k".
3. Sort by ending times.
4. Make k boxes, take each interval, see if there is any box in which you can add it.
5. If you see an interval and it can replace an interval (no conflict between start and end times I mean) already in a box then replace it. If it does not then put it another box.
6. If we find an interval which cannot replace any of the intervals in the box and all k boxes are full, discard it, raise counter.
7. Return the value of the counter.
8. Submission id 249527739.

## 2 Motorcade

1. Dynamic problem
2. Assume we have the ideal solution till cars at index i-1.
3. We are at index i, we loop back till index  $j=i$  such that the weight limit is not crossed.
4. At each index  $j=k$  the cost is the min speed from k to i and the optimal of  $dp[k-1]$
5. The minimum of all such costs will be the final value of  $dp[i]$ .
6. We do this from from  $i=1$  to n
7. Submission id is 249866570