Prateek and Theories - Hackerearth

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The Code:

```
#include <stdio.h>

long long int* swapper;

void merge(int left, int right, long int* array){
   int leftIter, rightIter, swapIter, mid, iter;
   mid = (left + right) / 2;
   leftIter = left;
   rightIter = mid + 1;
   swapIter = 0;

   while(leftIter <= mid && rightIter <= right){
      if(array[leftIter] < array[rightIter]){
         swapper[swapIter++] = array[leftIter++];
      }
      else{
         swapper[swapIter++] = array[rightIter++];
      }
   }

   while(leftIter <= mid){
      swapper[swapIter++] = array[leftIter++];
   }

   while(rightIter <= right){
      swapper[swapIter++] = array[rightIter++];
   }

   swapIter = 0;
   for(iter=left;iter<=right;iter++){
      array[iter] = swapper[swapIter++];
   }
}

void mergeSort(int left, int right, long int* array){
   int mid;
   if(left < right){
      mid = (left + right) / 2;
      mergeSort(left, mid, array);
      mergeSort(mid+1, right, array);
      merge(left, right, array);
   }
}

int main(){
   int testCases, theories, iter, startIter, endIter, endPos, popularity, maxPopularity;
```

```
    long int *start, *end;

    start = (long long int*)calloc(10000, sizeof(long long int));
    end = (long long int*)calloc(10000, sizeof(long long int));
    swapper = (long long int*)calloc(10000, sizeof(long long int));

    scanf("%d", &testCases);

    while(testCases > 0){
        scanf("%d", &theories);

        for(iter=0;iter<theories;iter++){
            scanf("%lld %lld", &start[iter], &end[iter]);
            end[iter] -= 1;
        }

        mergeSort(0, theories-1, start);
        mergeSort(0, theories-1, end);

        popularity = 0; maxPopularity = 0; endPos = 0;
        for(startIter=0;startIter<theories;startIter++){

            popularity++;

            if(((startIter+1) < theories) && (start[startIter] == start[startIter+1])){
                continue;
            }

            for(endIter=endPos;endIter<theories;endIter++){
                if(end[endIter] < start[startIter]){
                    popularity--;
                }
                else{
                    endPos = endIter;
                    break;
                }
            }

            if(popularity > maxPopularity){
                maxPopularity = popularity;
            }
        }

        printf("%d\n", maxPopularity);
        testCases--;
    }
}
```

The Stats:

Time (sec)

0.77107

Memory (KiB)
64

Language
C