1531: String Compression II

Run length encoding : "aaabb" → "a3b2"

"aaabcc" → "a3bc2"

Given a string s and integer K delete at most K characters from s such that the run length encoding is minimized.

Return minimized length.

Input: s = "aaabcccd" K=2
Output: 4

Encoded Str: "a3bc3d"

Since a3, we can remove 2 a's and reduce size by 1
"a3bc3d"
This is not minimal

We have two characters alone. b and d. Remove those
"a3c3" length is 4. This is minimal.

Input: s="aabbaa" K=2

Encoded: "a2b2a2" $\overset{K=2}{}$, remove any character, then any other character grouping

"a2b2a2" K=2

"ab2a2" K=1

"b2a2" K=0

We still took the "smallest" value and reduced it's size to 0.

aabcc   a2bc2   K=   1. remove b 1) remove c a2c

Approach:

X

- Remove characters with minimal # groupings.

- Probably want to use a priority queue.

DNW
!!

"aaaa bbb cc"

struct Grouping
   char c
   int n
   to String ()

   operator < (...)

Create a pq < Grouping > in which
smallest values at top.

pop each one and subtract
against

a : 3   k = 4
unto tmp = k
k -= top.n   3
top.n = 0
if k < 0 => top.n += -k ; pq. push (top);

a a a   k = 2   top = a, 3

a3 → a   k = k - 3

                       k = -1

                       top.n = 1

==highlight==if they are all unique
groups this approach works==

/

a a bb aa

a2 b2 a2   k = 2   a4

a2 b2 a   k = 2

==highlight==This would work if
we didn't have to
worry about two groups being
combined.==

a2 b2 a2   K=2   →   a4   result=2   a3 b4 a3   k=4
                                          a2 b4

a a b b a a   K=2   a6

Should have started w/ DP.

dp (start, k)
       ↑   ↖ K left to remove
    start index

a a a b b c

Given a range [start, j] Find the minimum items to remove
                              from range.

start   j⌢⌢⌢
  ↓   · · · · ·
  a a b b a a   a: 4   hi = 4
                               b: 2   len = 1 + to_string (hi)
  a a   a a b   ↓
  a2 + dp(j+1, k-rem)   if hi > 1

  j is initially start +1   newk = k - start + 1 - hi

I was close but had to seek help.
Could not do again... :"