

1. use divide and conquer. if there exist a character with total occurrence $< k$, we can divide the string according to that character, otherwise the whole string is valid. the recursion depth is at most $|\Sigma|$, because at each time we recurse, we will delete at least one character. $O(n|\Sigma|)$.
2. for each $1 \leq m \leq |\Sigma|$, use two pointers to find maximal substrings with at least k repeating characters and exactly m unique characters. $O(n|\Sigma|)$.

References