**Q. Minor DNAs**

Deoxyribonucleic acid (DNA) is a molecule composed of two chains that coil around each other and carry genetic instructions used in the growth, development, functioning and reproduction of all living organisms. The DNA is composed of simpler units called nucleotides. Each nucleotide is composed of one of four nitrogen-containing nucleobases cytosine [C], guanine [G], adenine [A] or thymine [T]. There are specific rules by which a DNA is formed with these four nucleobases. Example DNAs are:

ccag

actaatagtacccataaacctgcta

Many research is being carried out based on the occurrences of the nucleotides in a DNA.

Here a minor DNA ‘d1’ of length ‘k’ can be obtained from a given DNA ‘d’ of length ‘n’ by deleting ‘n-k’ nucleotides in ‘d’. For example, if the given DNA ‘d’ of length four is ‘ccag’ then all the possible minor DNAs of length three are four minor DNAs:

Remove last letter - cca

Remove third letter - ccg

Remove second letter - cag

Remove first letter – cag

Minor DNAs of length 4 of a DNA ctctac which is of length 6 are:

ctct, ctca, ctta, ccta, ctcc, cttc, cctc, ctac, ccac, ctac, tcta, tctc, tcac, ttac and ctac.

Given a DNA of length ‘n’ and a length ‘k’ of minor DNAs required, write a code to generate all possible minor DNAs of length ‘k’ and print them in ascending order.

Input Format

First line contains the DNA, d

Next line contains the length of the minor DNAs required, k

Output Format

Print all minor DNAs of length ‘k’ in ascending order

Print one minor DNA in one line

**Python Program**

from itertools import combinations  
d = input()  
k = int(input())  
list1 = []  
for counter in combinations(d, k):  
 list1.append(**''**.join(counter))  
list1.sort()  
for counter in range(len(list1)):  
 print(list1[counter])