Gibbs Sampler

Input: Integers *k*, *t*, and *N*, followed by a collection of strings *Dna*.

Output: The strings *BestMotifs* resulting from running *GibbsSampler*(*Dna*, *k*, *t*, *N*) with 20 random starts. Remember to use pseudocounts!

Pseudocode

```
GibbsSampler(Dna, k, t, N):
    Motifs ← empty list
    for each sequence seq in Dna
        add randomly selected k-mer from seq to Motifs
    BestMotifs ← Motifs
    for j ← 1 to N
        i ← Random(t)
        MotifsNoI ← Motifs with the ith motif removed
        Profile ← Profile(MotifsNoI)
        Motifi ← Profile-randomly generated k-mer in the i-th sequence
        if Score (Motifs) < Score (BestMotifs)
            BestMotifs ← Motifs
    return BestMotifs
```

SAMPLE DATASET:

Input:

8 5 100
CGCCCCTCTCGGGGGTGTTCAGTAAACGGCCA
GGGCGAGGTATGTGTAAGTGCCAAGGTGCCAG
TAGTACCGAGACCGAAAGAAGTATACAGGCGT
TAGATCAAGTTTCAGGTGCACGTCGGTGAACC
AATCCACCAGCTCCACGTGCAATGTTGGCCTA

Output:

TCTCGGGG
CCAAGGTG
TACAGGCG
TTCAGGTG
TCCACGTG

The sample dataset is not actually run on your code.