3) Running Time

|  |  |  |  |
| --- | --- | --- | --- |
| **Divide and Conquer** |  |  |  |
| DNA Sequence 1 | DNA Sequence 2 | Sequence Length | Basic Operations |
| A | T | 1 | 4 |
| CC | CA | 2 | 19 |
| CTG | ATC | 3 | 94 |
| GATG | CTCT | 4 | 481 |
| CTACA | CCATG | 5 | 2524 |
| CCCAAA | GAAGTG | 6 | 13483 |
| GCACCCA | ACGCTCC | 7 | 72958 |
| GTACCTGC | CCTCATGA | 8 | 398593 |
| TCGAGACGA | CCTACGCCG | 9 | 2193844 |
| ACTCTTGGTA | AACGATACGG | 10 | 12146179 |
|  |  |  |  |
|  |  |  |  |
| **Dynamic** |  |  |  |
| DNA Sequence 1 | DNA Sequence 2 | Sequence Length | Basic Operations |
| G | G | 1 | 3 |
| CG | AT | 2 | 8 |
| CTA | TCG | 3 | 15 |
| TGCA | GATT | 4 | 24 |
| GAGTT | GTCAC | 5 | 35 |
| GTGCGG | GAAGGG | 6 | 48 |
| GTGAGGT | TTCCATT | 7 | 63 |
| CACTAAAT | TCGGTTAA | 8 | 80 |
| TGAATTCCC | CTCGGTACC | 9 | 99 |
| CTATATTGTA | CAAGATCTTC | 10 | 120 |

(all times using sequences that have equal length)

4)

Dynamic

(m + 1)(n + 1) – 1

if row/col already populated: mn - 1