Life on Mars

Operations

Operation 1.
Load a DNA sequence from a file

Operation 2.
Load a DNA sequence from a string

Operation 3.
Generate random DNA sequence of a BLOB

Operation 4.
Check DNA gene structure

Operation 5.
Check DNA of BLOB organism

Operation 6.
Produce complement of a DNA sequence

Operation 7.
Determine amino acids

Operation 8.
Delete codons (delete n codons, starting from mth codon)

Operation 9.
Insert codons (insert a codon sequence, starting from mth codon)

Operation 10.
Find codons (find a codon sequence, starting from mth codon)

Operation 11.
Reverse codons (reverse n codons, starting from mth codon)

Operation 12.
Find the number of genes in a DNA strand (BLOB or not)

Operation 13.
Find the shortest gene in a DNA strand

Operation 14.
Find the longest gene in a DNA strand

Operation 15.
Find the most repeated n-nucleotide sequence in a DNA strand (STR - Short Tandem Repeat)

Operation 16.
Hydrogen bond statistics for a DNA strand

Operation 17.
Simulate BLOB generations using DNA strand 1 and 2 (DNA strand 3 is for the newborn)

```
? BLOB OPERATION MENU ON MARS ?

/* ****************************** */


1- Operation1
2- Operation2
3- Operation3
4- Operation4
5- Operation5
6- Operation6
7- Operation7
8- Operation8
9- Operation9
10- Operation10
11- Operation11
12- Operation12
13- Operation13
14- Operation14
15- Operation15
16- Operation16
17- Operation17
Enter 0 to exit from program.

Please enter your Operation number:
```

```
Please enter your Operation number: 2

? DNA Strands ?

1- Main Strand
2- Auxiliary Strand-2
3- Auxiliary Strand-3

Please choose a DNA Strand to Load: 1

Please enter your DNA sequence: ATGTTTAAATGAATGCCCGCGACTCTATAA
```

```
Please enter your Operation number: 5


DNA Strand: ATG TTT AAA TGA ATG CCC GCG ACT CTA TAA
BLOB is OK.
```

```
Please enter your Operation number: 8


DNA Strand (Stage 1): ATG TTT AAA TGA ATG CCC GCG ACT CTA TAA
Number of the codons to delete: 3
Starting from: 6
Delete 3 codons, starting from 6
Dna strand (stage 2) : ATG TTT AAA TGA ATG CTA TAA
Your Codon sequence has been deleted successfully!
```

HOW IT WORKS?

Firstly, user must enter a DNA sequence for main strand or auxiliary strands. After that, user can manipulate or control the DNA sequence according to operations. Additionally user can produce generations based on some conditions.

Yasemin Valishariatpanahi
Merih Hatay
Alperen Dönmez
Jabbar Jabbarlı