GENE FOLDING

Batch-9

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INTRODUCTION:

- To obtain the shortest genetic sequence from a given input genetic sequence using genetically optimized organic folding (GOOF) process.
- Our main aim is to find the length of the shortest sequence or length of the string.

APPROACH:

- This code takes a string input and returns the length of the shortest string.
- The function 'GOOF' implements this logic by using two while loops that check the first and second half of the string respectively.
- Finally it returns the length of the shortened string.

LEARNINGS:

- We learned the process of the GOOF.
- The way of solving a problem that involves finding all possible paths.
- The problem involves the recognition of palindromes of all possible even lengths which are substrings of the given string.
- Develop skills in pattern recognition, string manipulation and algorithmic optimization.
- We learned how to give input by using command line argument.

CHALLENGES

- To understand the problem statement clearly.
- To find the folding points.
- Tracing the state of code time to time we used pen and paper to trace the code.
- To create PDF by using latex.

STATISTICS:

- Number of lines in code are 32.
- Number of functions 1.
- We had taken the input string through command line arguments.
- We made use of two while loops including recursion technique.

DEMO/SCREENSHOT:

```
import sys
def goof(string):
    original_string = string
    length = len(string) // 2

    while length != -1:
        if string[:length][::-1] == string[length : length+length]:
            string = string[length:]
            length = -1
        else:
            length -= 1
    string = string[::-1]

    len1 = len(string) // 2
    while len1 != -1:
        if string[:len1][::-1] == string[len1 : len1+len1]:
            string = string[len1:]
            len1 = -1
        else:
            len1 -= 1
    string = string[::-1]

    if string == original_string:
        return len(string)
    return goof(string)

string = sys.argv[1]
print(goof(string))
```

```
C:\Users\JRL\Desktop>python gene_folding.py ATTACC
3

C:\Users\JRL\Desktop>python gene_folding.py AAAAGAATTAA
5
```

Figure 1: Code For Gene Folding

THANK YOU