I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or that I contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code I will not participate in any form of cheating/sharing the questions/solutions

CSE 5311 - PROJECT 1

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CSE5311-08-P2-1002078999-1002050571

List any sites/sources referred

- programiz - To Learn File Operation in python
- Codebasics - Some YouTube Videos

The time complexity of the algorithms:

- Worst case time complexity: **O(n*m)**
- Average case time complexity: **O(n*m)**
- Best case time complexity: **O(n*m)**
- Space complexity: **O(n*m)**

List the results:

1.

==========

('Diagonal', 'Dragon')

==========

X = "Diagonal" Y = 'Dragon'

```
    |     1   2   3   4   5   6
    |   Y   D   r   a   g   o   n
----------
   X |   0   0   0   0   0   0   0
1   D |   0 \ 1 < 1 < 1 < 1 < 1 < 1
2   i |   0 ^ 1 ^ 1 ^ 1 ^ 1 ^ 1 ^ 1
3   a |   0 ^ 1 ^ 1 \ 2 < 2 < 2 < 2
4   g |   0 ^ 1 ^ 1 ^ 2 \ 3 < 3 < 3
5   o |   0 ^ 1 ^ 1 ^ 2 ^ 3 \ 4 < 4
6   n |   0 ^ 1 ^ 1 ^ 2 ^ 3 ^ 4 \ 5
7   a |   0 ^ 1 ^ 1 \ 2 ^ 3 ^ 4 ^ 5
8   l |   0 ^ 1 ^ 1 ^ 2 ^ 3 ^ 4 ^ 5
----------
```

Length of the Longest Common Subsequence is : 5

Longest Common Subsequence of "Diagonal" and "Dragon" is "Dagon"

==========

2.

==========

('NOAH', 'BOAT')

==========

X = "NOAH" Y = 'BOAT'

| 1 2 3 4

| Y B O A T

X | 0 0 0 0 0

1 N | 0 ^ 0 ^ 0 ^ 0 ^ 0

2 O | 0 ^ 0 \ 1 < 1 < 1

3 A | 0 ^ 0 ^ 1 \ 2 < 2

4 H | 0 ^ 0 ^ 1 ^ 2 ^ 2

Length of the Longest Common Subsequence is : 2

Longest Common Subsequence of "NOAH" and "BOAT" is "OA"

==========

3.

==========

('FARAH', 'FaaaRAh')

==========

X = "FARAH" Y = 'FaaaRAh'

| 1 2 3 4 5 6 7

| Y F a a a R A h

X | 0 0 0 0 0 0 0 0

1 F | 0 \ 1 < 1 < 1 < 1 < 1 < 1 < 1

2 A | 0 ^ 1 ^ 1 ^ 1 ^ 1 ^ 1 \ 2 < 2

3 R | 0 ^ 1 ^ 1 ^ 1 ^ 1 \ 2 ^ 2 ^ 2

4 A | 0 ^ 1 ^ 1 ^ 1 ^ 1 ^ 2 \ 3 < 3

5 H | 0 ^ 1 ^ 1 ^ 1 ^ 1 ^ 2 ^ 3 ^ 3

Length of the Longest Common Subsequence is : 3

Longest Common Subsequence of "FARAH" and "FaaaRAh" is "FRA"

==========

4.

==========

('PARAMETER', 'MeTeR')

==========

X = "PARAMETER" Y = 'MeTeR'

| 1 2 3 4 5

| Y M e T e R

X | 0 0 0 0 0 0

1 P | 0 ^ 0 ^ 0 ^ 0 ^ 0 ^ 0

2 A | 0 ^ 0 ^ 0 ^ 0 ^ 0 ^ 0

3 R | 0 ^ 0 ^ 0 ^ 0 ^ 0 \ 1

4 A | 0 ^ 0 ^ 0 ^ 0 ^ 0 ^ 1

5 M | 0 \ 1 < 1 < 1 < 1 ^ 1

6 E | 0 ^ 1 ^ 1 ^ 1 ^ 1 ^ 1

7 T | 0 ^ 1 ^ 1 \ 2 < 2 < 2

8 E | 0 ^ 1 ^ 1 ^ 2 ^ 2 ^ 2

9 R | 0 ^ 1 ^ 1 ^ 2 ^ 2 \ 3

Length of the Longest Common Subsequence is : 3

Longest Common Subsequence of "PARAMETER" and "MeTeR" is "MTR"

==========

HONOR CODE:

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Mayank Vekuriy.
10/08/2022
mayank.

Tirth Shukla.
10/08/2022