Read Me

How to Run

Open The LCSDNA.exe file in the Standalone Application folder to simply run the app.

The program can run from any location given that the .exe and .ico file are in the same directory

To run the code and modify it, Python 3 is required.

The code is available inside the Code Files Folder. Open it and run the LCSGUI.py file using any terminal or Python 3 IDE

Warning – Do not delete the (LCS.ico) file as it is required by Windows to assign the application an icon.

How to Execute

After running the app if Windows might prompt this as an untrusted app. Ignore the message as this is a safe to run application.

When the application is running, you'll see two places to input DNA Sequence1, DNA sequence 2 to calculate DNA Alignment. Input and calculate. Only input "A", "T", "G", "C" characters as they represent the proteins of the DNA Sequence

The Program Offers 4 buttons for calculative purposes.

LCS DNA Sequence Match Calculation using the **Match Score** button

LCS Aligned DNA print using **DNA Sequence** button

View Steps button to view the steps of how the LCS DNA String was found

DNA Matrix button to display the LCS Matrix.

The Program has a Menu Bar on top consisting of File and Help.

File – When you click on it, it has 3 options

New – Resets the input field

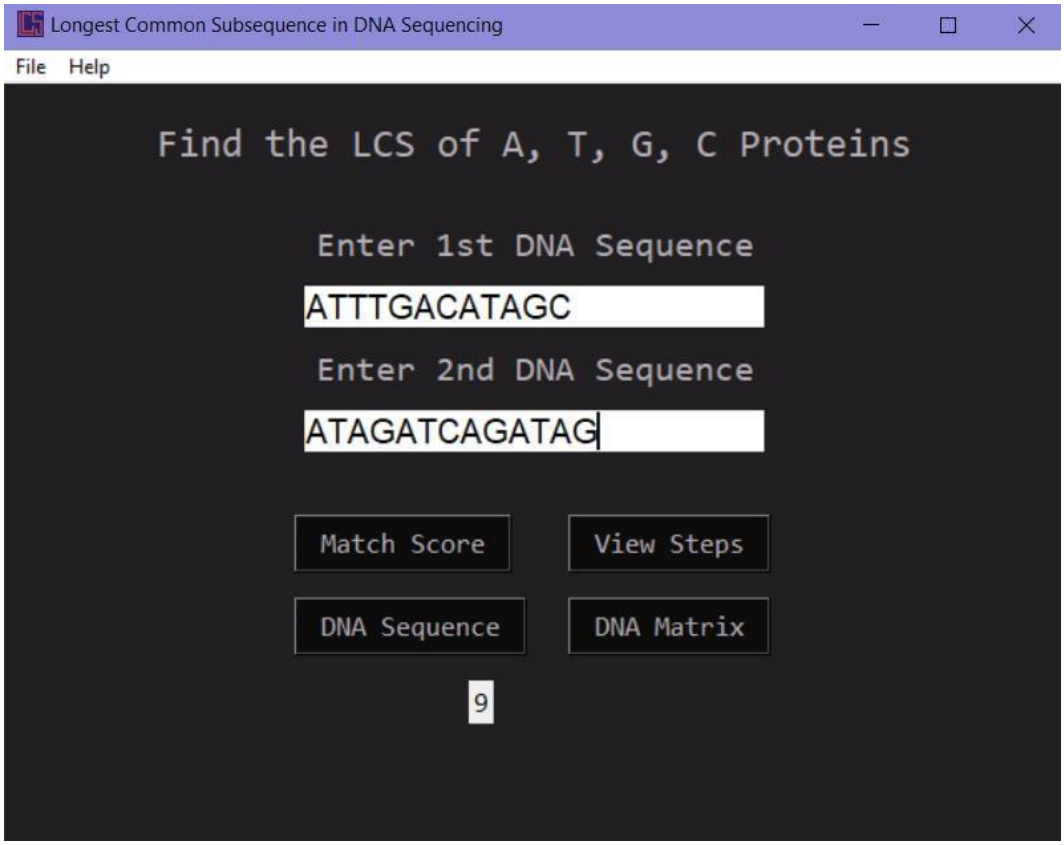
Screenshot – Takes a screenshot of your screen so you can publish outputs **Exit** – Exit will exit the application.

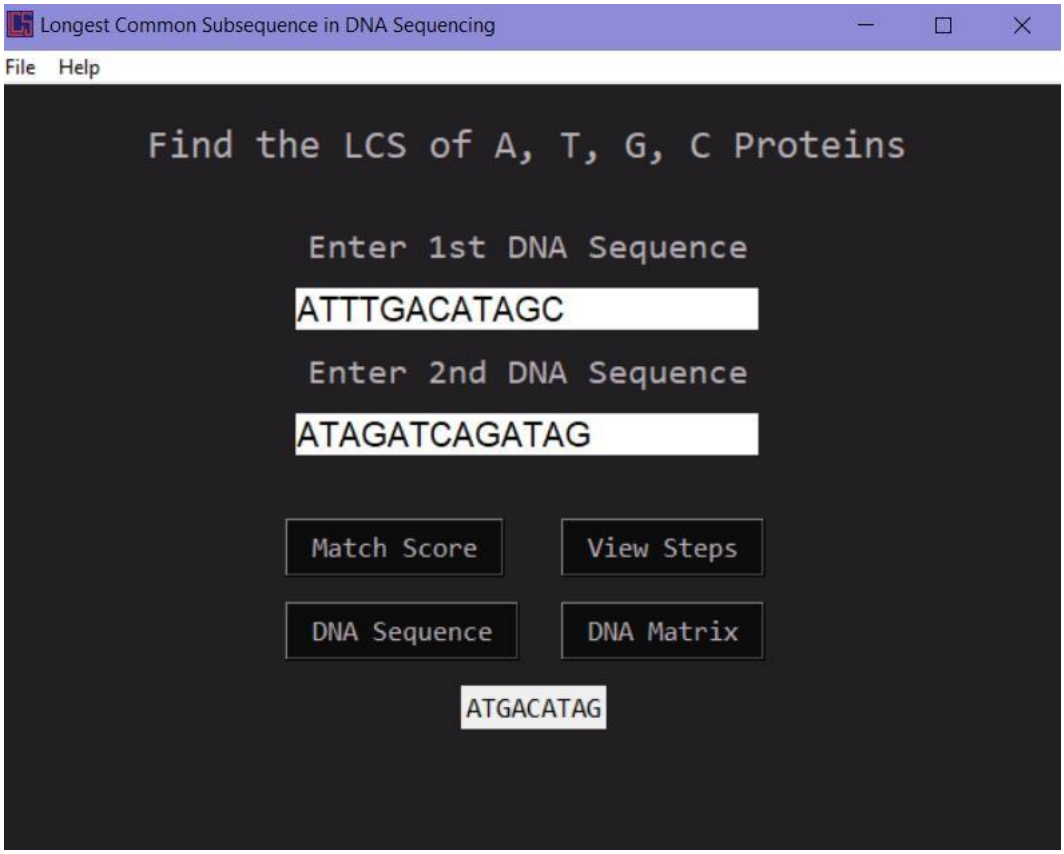
Help – It has two options About and Contact

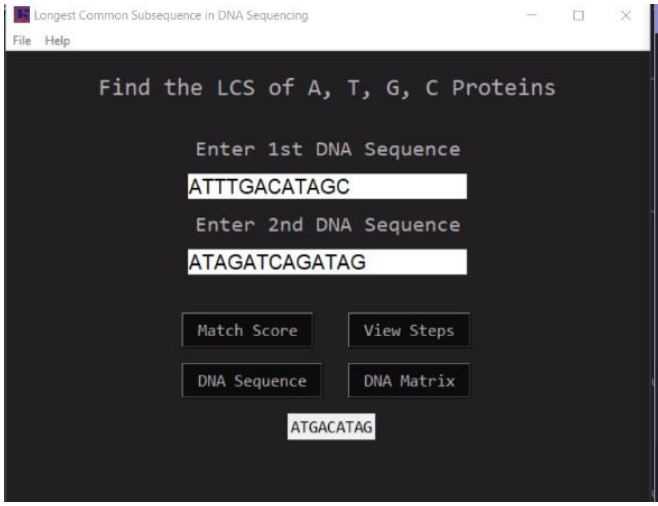
About – Has details of the dev.

Contact – Resource to reach the dev. Click on the button which says click me after you've clicked on contact. This will redirect you to the dev's email.

Output Samples –


Longest Common Subsequence in DNA Sequencing
File Help
Find the LCS of A, T, G, C Proteins
Enter 1st DNA Sequence
ATTTGACATAGC
Enter 2nd DNA Sequence
ATAGATCAGATAG
Match Score
View Steps
DNA Sequence
DNA Matrix
9


Longest Common Subsequence in DNA Sequencing
File Help
Find the LCS of A, T, G, C Proteins
Enter 1st DNA Sequence
ATTTGACATAGC
Enter 2nd DNA Sequence
ATAGATCAGATAG
Match Score
View Steps
DNA Sequence
DNA Matrix
ATGACATAG


Longest Common Subsequence in DNA Sequencing
File Help
Find the LCS of A, T, G, C Proteins
Enter 1st DNA Sequence
ATTTGACATAGC
Enter 2nd DNA Sequence
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Match Score
View Steps
DNA Sequence
DNA Matrix
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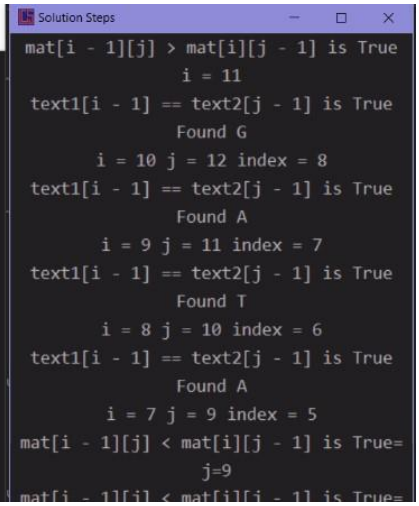
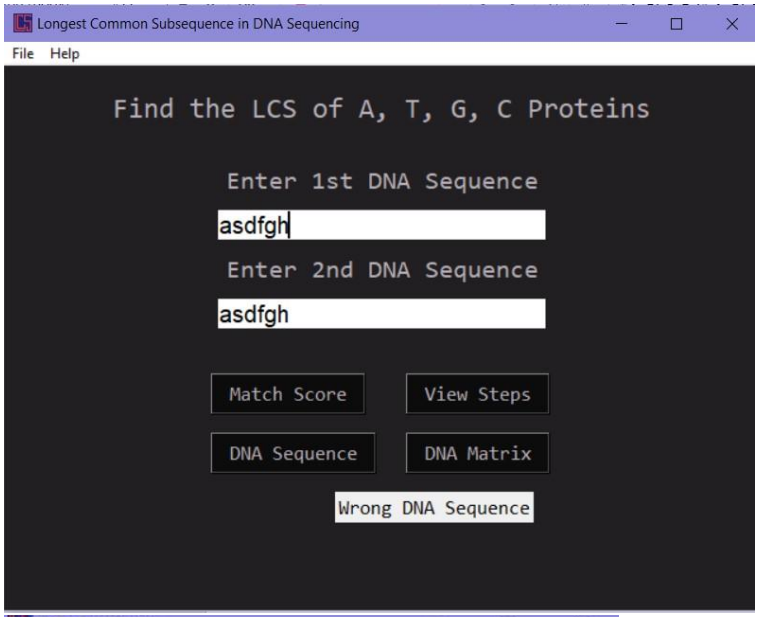
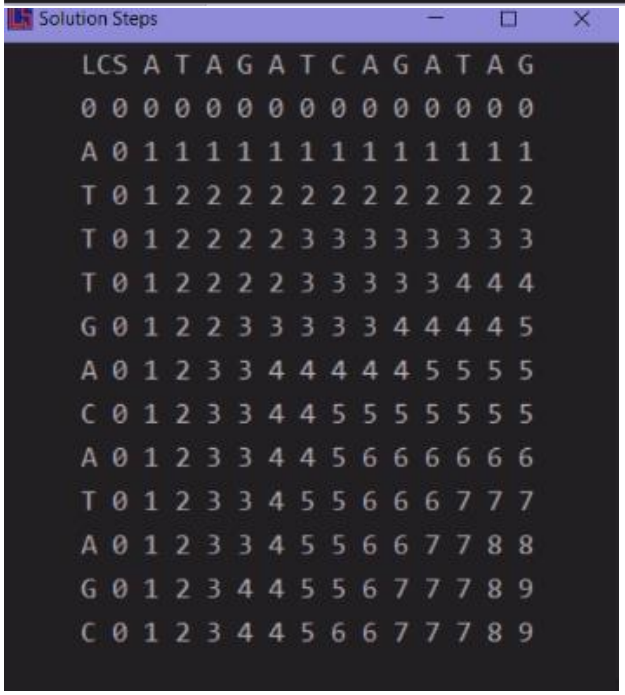

Solution Steps
mat[i - 1][j] > mat[i][j - 1] is True
i = 11
text1[i - 1] == text2[j - 1] is True
Found G
i = 10 j = 12 index = 8
text1[i - 1] == text2[j - 1] is True
Found A
i = 9 j = 11 index = 7
text1[i - 1] == text2[j - 1] is True
Found T
i = 8 j = 10 index = 6
text1[i - 1] == text2[j - 1] is True
Found A
i = 7 j = 9 index = 5
mat[i - 1][j] < mat[i][j - 1] is True=
j=9


Longest Common Subsequence in DNA Sequencing
File Help
Find the LCS of A, T, G, C Proteins
Enter 1st DNA Sequence
asdfgh
Enter 2nd DNA Sequence
asdfgh
Match Score
View Steps
DNA Sequence
DNA Matrix
Wrong DNA Sequence


Solution Steps
LCS A T A G A T C A G A T A G
0 0 0 0 0 0 0 0 0 0 0 0 0 0
A 0 1 1 1 1 1 1 1 1 1 1 1 1
T 0 1 2 2 2 2 2 2 2 2 2 2 2
T 0 1 2 2 2 2 3 3 3 3 3 3 3
T 0 1 2 2 2 2 3 3 3 3 4 4 4
G 0 1 2 2 3 3 3 3 4 4 4 4 5
A 0 1 2 3 3 4 4 4 4 4 5 5 5
C 0 1 2 3 3 4 4 5 5 5 5 5 5
A 0 1 2 3 3 4 4 5 6 6 6 6 6
T 0 1 2 3 3 4 5 5 6 6 6 7 7
A 0 1 2 3 3 4 5 5 6 6 7 7 8
G 0 1 2 3 4 4 5 5 6 7 7 7 8
C 0 1 2 3 4 4 5 6 6 7 7 7 8