CryptoniX

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Project Objective -:

Our Project aims at making a software/interface which shall aid in solving and going through various puzzles, clues, questions, etc. in a Cryptic Hunt which in turn leads to security in different and various aspects.

Modules -:

1. string
2. linked lists
3. hashing
4. iterator
5. algorithm
6. exception
7. iostream
8. fstream.h
9. stdlib.h
10. conio.h
11. cstring
12. list
13. vector
14. map
15. time.h
16. Windows.h
17. math.h
18. sstream
19. cctype

List of C++ features used -:

1. Object Oriented Concepts like Classes
2. Exception Handling
3. File Handling
4. Standard Template Library (STL)

List of DSA concepts used -:

1. Arrays
2. Linked Lists
3. Vectors
4. Maps
5. Searching
6. Recursion
7. Hashing
8. Collision Handling
9. Multilist

Design of the project -:

The project consists of 5 project file, namely:

1. cryptonix.cpp (author Nipun Mittal 21103162
2. steg.cpp (author Nipun Mittal 21103162)
3. clue.cpp (author Anshika Kamboj 21103148)
4. ciphers.cpp (author Vaibhav Singh 21103151)
5. strength.cpp (author Neelansh Sharma 21103175)

using g++ cryptonix.cpp will be saved as an executable file namely cryptonix.exe
(command to be used 'g++ cryptonix.cpp -o cryptonix.exe' by having installed gcc
and g++ in command in windows or pre-installed/installed version in linux based
systems and using gcc/g++ in command prompt or terminal by opening them in the
folder containing all the files)
NOTE: All the 5 files and any .txt file required for steganography must be in the
same folder!!

Main Screen:

Here the user first arrives and gets the options to choose what feature he/she wishes to use or are in need of. After selecting the option the menu for the respective option will be visible wherein required inputs can be given for desirable outputs.

Options:

User is to choose from the variety of options provided on the main screen which include,
Cryptic Clue Solver which can be used to get possible answers to cryptic clues or questions which have twisted language or feel broken maybe.
Text Steganography where in text can be hidden in other text to convey a message secretly or hiding words or phrases in plain sight which might be readable by some and not readable by others.
Cryptography in which we have provided a few ciphers to use and encrypt messages. Here, the text itself is encrypted and possibly the user has to give specific to access the content of ciphered text.
Password Strength Checker which allows user to check the strength of a word for security reasons or to lead to a clue based on a predetermined conditions.

Difference between Steganography and Cryptography:
Steganography is a method in which secret message is hidden in a cover media. Steganography means covered writing. Steganography is the idea to prevent secret information by creating the suspicion. In steganography, structure of data is not usually altered.
Cryptography means secret writing. In cryptography, sender does not send message directly to the receiver, before sending information to the receiver information or plain text is converted into cipher text by using some encryption algorithm then send to the receiver and receiver decrypt the cipher text into plain text to read the original information.

Output Screenshots:

```
############################################
########## CryptoniX ######################
############################################

Welcome to the CryptoniX!
!
Please Select Option of Your Interest:

1. Cryptic Clue Solver
              OR
2. Text Steganography
              OR
3. Ciphers
              OR
4. Password/Word Strength Checker
              OR
5. Exit

Enter your choice code:
```

```
Enter your choice code: 1


    <>        <>   <><><><> <>          <><>       <><>    <><>     <><>   <><><><>
    <>        <>   <>       <>          <>  <>    <>  <>   <> <>   <> <>   <>
    <>    <>  <>   <>       <>          <>    <>  <>    <> <> <> <> <>   <>
    <>  <><>  <>   <><><>   <>          <>    <>  <>   <><>  <>   <><><>
    <> <> <>  <>   <>       <>          <>    <>  <> <> <>   <>   <>
     <> <>  <> <>  <>       <>          <>   <>   <>  <>    <>    <>   <>
      <>      <>   <><><><> <><><><>  <><>      <><>       <>      <>   <><><><>

    ----------------------------------------------------------------------------------
    ----------------------------------------------------------------------------------

    -> 1 : SOLVE THE CRYPTIC CLUE
     -> 2 : RETURN TO HOMESCREEN

    ENTER YOUR CHOICE : 1


  ENTER THE STATEMENT :old pirates research physics there .



    CLUES IN DECREASING STRENGTH ARE :

    NOTE: the clue at the top has maximum probability to be true and
    this probability decreases as we go down
```

.....motion.....

.....hijack.....

.....boat.....

.....heat.....

.....ship.....

.....inquiry.....

.....sea.....

.....science.....

.....experiment.....

.....explore.....

.....investigate.....

.....antique.....

.....age.....

.....past.....

.....vehicle.....

.....ancient.....

.....experience.....

.....aloes.....

.....crime.....

.....old.....

.....elderly.....

.....elderly.....

.....movie.....

.....physics.....

.....reversibility.....

.....medicine.....

.....research.....

.....knowledge.....

.....pirates.....

-> 1 : SOLVE THE CRYPTIC CLUE
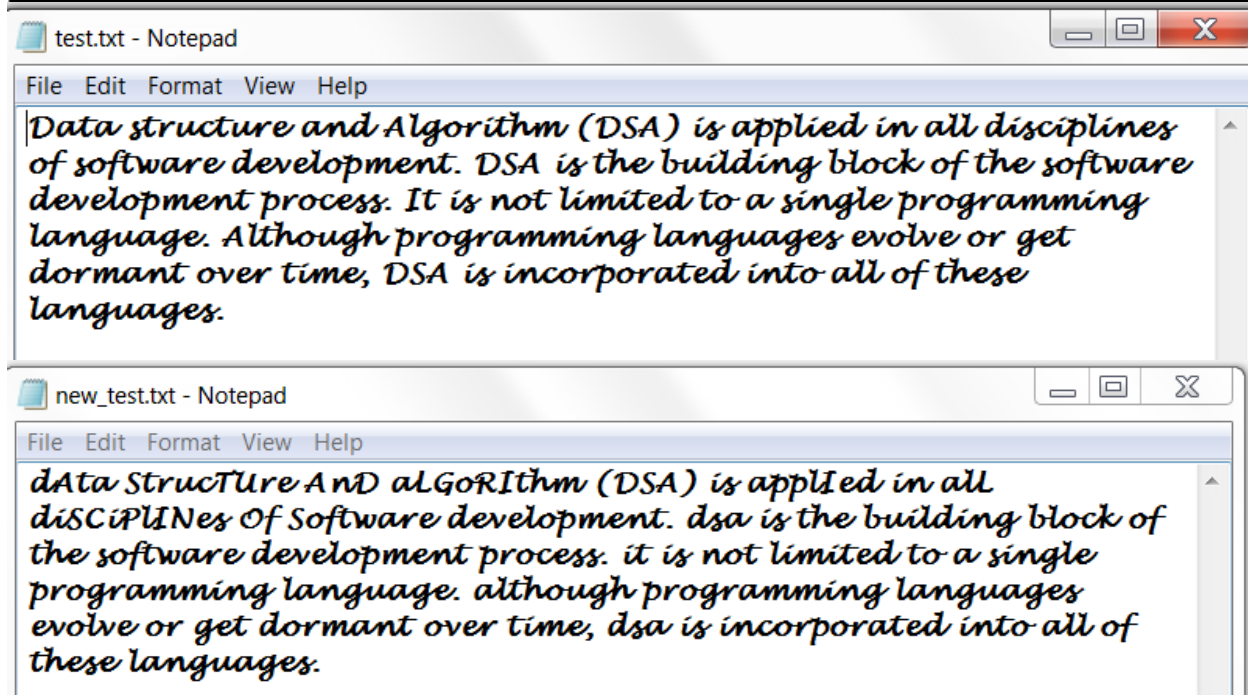-> 2 : RETURN TO HOMESCREEN

ENTER YOUR CHOICE : 2

```
##########################################################
############### Text Steganography ####################
##########################################################

Please Select A Method:
1. Basic Hide
2. Deep Hide
3. Deep Reveal
4. Go Back
Enter Chocie: 2

Please Select A Mode:
1. Direct Text
2. Load and Generate File
Enter Chocie: 2

Enter the text to hide: Help Me

Enter the text file name (with .txt): test.txt
Your Text has Successfully been Hidden in the following text: new_test.txt in the same folder!!
```

test.txt - Notepad

File Edit Format View Help

Data structure and Algorithm (DSA) is applied in all disciplines of software development. DSA is the building block of the software development process. It is not limited to a single programming language. Although programming languages evolve or get dormant over time, DSA is incorporated into all of these languages.

new_test.txt - Notepad

File Edit Format View Help

dAta StrucTUre AnD aLGoRIthm (DSA) is applIed in alL diSCiPlINes Of Software development. dsa is the building block of the software development process. it is not limited to a single programming language. although programming languages evolve or get dormant over time, dsa is incorporated into all of these languages.

```
##########################################################
############### Text Steganography ###################
##########################################################

Please Select A Method:
1. Basic Hide
2. Deep Hide
3. Deep Reveal
4. Go Back
Enter Chocie: 3

Please Select A Mode:
1. Direct Text
2. Load and Generate File
Enter Chocie: 2

Enter the text file name (with .txt): new_test.txt
Your Text has Successfully been Revealed in the following text: rev_new_test.txt in the same folder!!
```

new_test.txt - Notepad

File Edit Format View Help

dAta StrucTUre AnD aLGoRIthm (DSA) is applIed in aLL diSCiPlINes Of Software development. dsa is the building block of the software development process. it is not limited to a single programming language. although programming languages evolve or get dormant over time, dsa is incorporated into all of these languages.

rev_new_test.txt - Notepad

File Edit Format View Help

Help Me

```
####################################################
############### Text Steganography ##################
####################################################

Please Select A Method:
1. Basic Hide
2. Deep Hide
3. Deep Reveal
4. Go Back
Enter Chocie: 4

Welcome to the CryptoniX!
!
Please Select Option of Your Interest:

1. Cryptic Clue Solver
            OR
2. Text Steganography
            OR
3. Ciphers
            OR
4. Password/Word Strength Checker
            OR
5. Exit
```

```
Enter your choice code: 3

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$ CIPHERS $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

enter the string you want to encrypt using our ciphers
Hello World
enter your encryption choice among :
1 : monoalphabetic
2 : caesar
3 : polyalphabetic/vignere
4 : hill
2
enter the shift
5
encrypted string :
Text : Hello World
Shift: 5
Cipher: MjqqtYBtwqi
decrypted string :
Text : MjqqtYBtwqi
Shift: 5
Cipher: HelloT=orld
```

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$ CIPHERS $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

enter the string you want to encrypt using our ciphers
Hello World
enter your encryption choice among :
1 : monoalphabetic
2 : caesar
3 : polyalphabetic/vignere
4 : hill
4
enter the order of matrix for hill cipher
3
Enter the key matrix
ty
li_Tkmrtaxss
```

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$ PASSWORD STRENGTH CHECKER $$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

        Enter Password: Checking Password Strength...\\\\\\\\\\\\\\\\Password Status: Weak
Do you want to generate password again (y/n):
```

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$ PASSWORD STRENGTH CHECKER $$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

        Enter Password: H3110 M1k3
Checking Password Strength...\\\\\\\\\\\\\\\\\\\\\\Password Status: Strong
Do you want to generate password again (y/n):
```

```
Please Select Option of Your Interest:

1. Cryptic Clue Solver
             OR
2. Text Steganography
             OR
3. Ciphers
             OR
4. Password/Word Strength Checker
             OR
5. Exit

Enter your choice code: Thank YOU for using CryptoniX!!
```

Files after execution of the code :

Name	Date modified	Type	Size
.vscode	26-11-2022 06:06	File folder	
a.exe	26-11-2022 07:07	Application	3,581 KB
ciphers.cpp	26-11-2022 07:01	Turbo C++	7 KB
clue.cpp	26-11-2022 07:09	Turbo C++	10 KB
cryptonix.cpp	26-11-2022 07:35	Turbo C++	2 KB
cryptonix.exe	26-11-2022 07:22	Application	3,581 KB
new_test.txt	26-11-2022 08:03	Text Document	1 KB
rev_new_test.txt	26-11-2022 08:04	Text Document	1 KB
steg.cpp	26-11-2022 06:57	Turbo C++	10 KB
strength.cpp	26-11-2022 06:57	Turbo C++	4 KB
test.txt	26-11-2022 05:44	Text Document	1 KB
test2.txt	26-11-2022 04:56	Text Document	1 KB

References:-

1. GeeksforGeeks
2. Stackoverflow
3. TutorialsPoint
4. Programiz
5. Pointers in C/C++
6. Quora
7. Class Slides