Lab Activity – 3

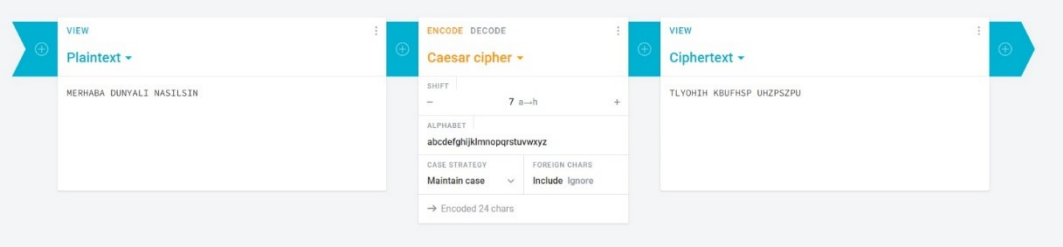
Objectives

• To learn RadioButton
• To learn GroupBox

Exercise

Ceaser Cipher: The Caesar Cipher, named because it was used by Julius Caesar himself, is actually 26 different ciphers, one for each letter of the alphabet. A person only needs to be told which Caesar cipher was used in order to decipher a message. For this experiment take 7 to rotate 7 letter forward through the alphabet.

Ex.

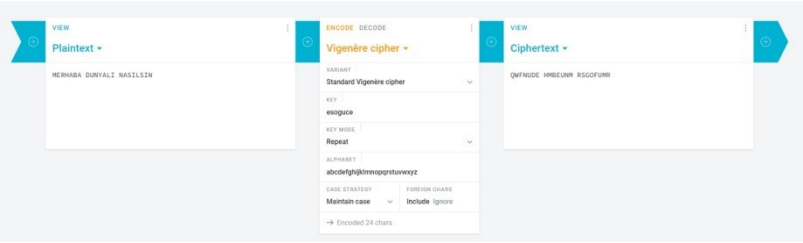


<u>You should use the information given below;</u>

Alphabet = “ABCDEFGHIJKLMNOPQRSTUVWXYZ”
Key = “7”

Vigenère Cipher: The Vigenère cipher has several Caesar ciphers in sequence with different shift values. Vigenère cipher uses “key”.

Ex.



<u>You should use the information given below;</u>

<u>Alphabet = “ABCDEFGHIJKLMNOPQRSTUVWXYZ”</u>
<u>Key = “esoguce”</u>

In this lab you are asked to design and implement an application for encryption and decryption. The algorithms above are algorithms that are used for encryption and the logic of how they work is given next to their namings. The application you design must have a TextBox that the user will enter their ID number in it. A TextBox for user to type in the text to be encrypted or decrypted. 2 group boxes, first group box which includes the radio buttons "Caesar Cipher" and "Vigenere Cipher" and the second group box will include radio buttons "Encryption" and "Decryption". There should be a label to show the result of encryption or decryption. Finally, there should be a button to execute the program. The encrypted or decrypted text should also be saved in a "username.csv" file after executing the program (the file content and name will be checked). To illustrate how the program works, the user will enter a text in the textbox, than the user will select the algorithm he/she wants to use, than the user will select encryption or decryption and press the "Encrypt/Decrypt" button. After "Encrypt/Decrypt" button is hit, the program should start running with the selections chosen from group boxes and the final result should be shown in the label. After you complete the application you can check if it works correctly by using the web site given below;

https://cryptii.com/pipes/caesar-cipher

Encrypted/Decrypted text should be checked using testFuncApp3 function that will return int score value for score label. The parameters of testFuncApp3 function is given below;

String studentNumber

String inputText

String algorithm (**ex.** "Caesar" or "Vigenere")

String encDecSelect (**ex.** "encrypt" or "decrypt")

String outputText

String encryptedTextwithCaesar (generated from the inputText)

String encryptedTextwithVigenere (generated from the inputText)

String decryptedTextwithCaesar (generated from the inputText)

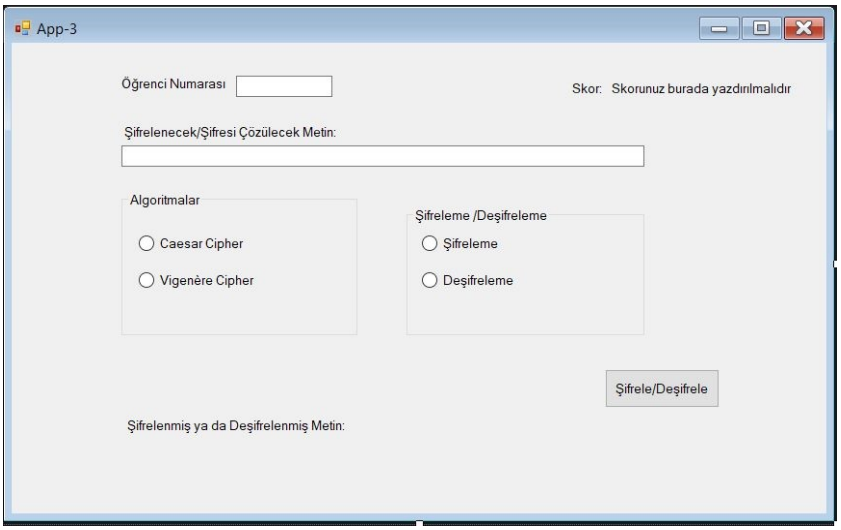
String decryptedTextwithVigenere (generated from the inputText)

For test

Algorithm	**Original/Decrypted Text**	**Encrypted Text**
Caesar	MERHABA DUNYALI NASILSIN	TLYOHIH KBUFHSP UHZPSZPU
Vigenere	MERHABA DUNYALI NASILSIN	QWFNUDE HMBEUNM RSGOFUMR

What is Expected

- Create proper user interface



- Check student number (only integers, 8 digits, example: 20230001)
- Properly show what is requested
- Configure that textboxes are filled when the application launches
- Only 1 option should be selected at a time from the group boxes
- The result shown in label should also be saved to a "username.csv" file created by the application. The program should overwrite the file every time it runs.
- Apply object-oriented programming principles
- Import.dll file and use test function for evaluation
- Report simply with step-by-step images and explanations of what has been completed
- Upload report (only .pdf) and complete project file (only .zip/.rar)
- The titles of the report and project files will be "<student number>_<student name>_lab<no>.<file format>"
  (for example, 152120230000_firstname_lastname_lab3.pdf)
  (for example, 152120230000_firstname_lastname_lab3.zip)
- Cheating is at your own initiative, but you also accept the consequences!

Problem Solving Tips

For Caesar cipher Decryption is reverse of Encryption. Therefore, you can use same functions with minus key value.