Security Package

1- Required Algorithms in Security Package 2021/2022

Requirement	Serial	Algorithm	Input	
			Plaintext	**Key**
Mandatory - **Encryption** - **Decryption** - **Cryptanalysis**	1	General Ceaser.	Text	integer
	2	Monoalphabetic.	Text	Text
	3	Auto key Vigenère.	Text	Text
	4	Repeating key Vigenère.	Text	Text
	5	PlayFair.	Text	Text
	6	Hill Cipher.	Text OR Numbers	Text OR Numbers 2X2 OR 3X3
	7	Rail Fence of depth Level n.	Text	Integer (n)
	8	Columnar	Text	Integers
Choose one - **Encryption** - **Decryption**	9	DES. And 3-DES	Text OR HEX	Text OR HEX
	10	Multiplicative Inverse using Extended Euclid's. AES.	Integers (No., Base)	
			Text OR HEX	Text OR HEX
Mandatory - **Encryption** - **Decryption** - **Get Keys (for Diffe-Hel)**	11	RC4.	Text OR HEX	Text OR HEX
	12	RSA.	Integers (p, q, M, e)	
	13	Diffie-Hellman key exchange.	Integers (q, α, Xa, Xb)	
[Bonus]	15	MD5	TEXT	

2- Logistics:

- This Package is a team work task.
- Final Delivery will be scheduled on practical exams week.

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    - Registration Form (here).
- Registration deadline 12 March 2022.

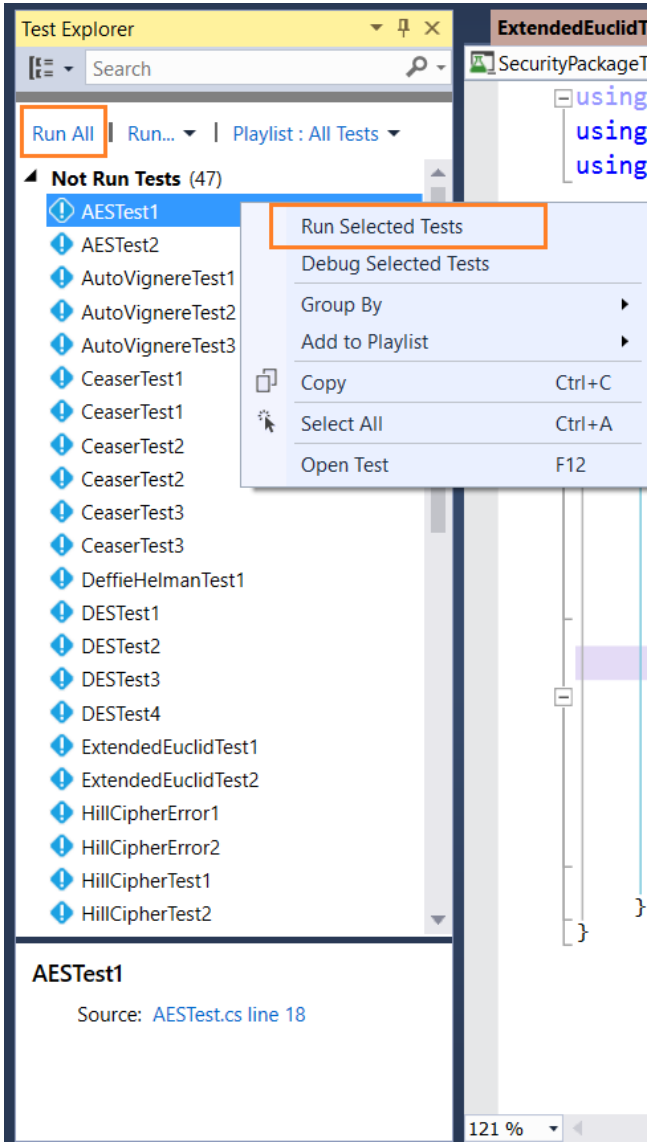
3- How to use the template code:

- You can get the package from here
- The solution you have consist of 2 projects:
    1- "SecurityLibrary": a dll project in which you'll write all your code.
    2- "SecurityPackageTest": a unit test project that you'll use to test your project.

- The "SecurityLibrary" project consists of a class for each algorithm. You have to **remove the thrown exception** and write your code in the correct place. Feel free to add the functions you need, you just need to keep the signature of these functions as they are:

```
public string Encrypt(string plainText, int key)
public string Decrypt(string cipherText, int key)
public int Analyse(string plainText, string cipherText)
```

- To test your code:
    1- Build the solution.
    2- Open test explorer (Test -> Windows -> Test explorer)



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3- If you want to run:
    a. All tests “Run all”
    b. A specific test right click, Run selected test
    c. The tests of a specific algorithm open the test class of this algorithm, right click, run tests

4- make sure you’re coding the algorithms correctly.