

Brac University
Department of Computer Science and Engineering
CSE220: Data Structures
Lab Midterm Examination
Spring 2024

Time: 40 Min

Marks: 10

Suppose, One of your friend's birthday is today and on this occasion he received a cryptic message which is encoded with Vigenère Encryption technique. As you are a Computer Science student your friend seeks your help to decrypt the message. Vigenère Cipher is a method of encrypting alphabetic text using a simple form of polyalphabetic (Each new row right rotates one position) substitution. Then a given key is repeated to decrypt the message.

At first you need to go to the row according to the key value, then find the letter from the input string within that row. After that, collect the column number of that letter, then store the first row value of that column. [Read the explanation given below for clarification]

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
2	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
3	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
4	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D

Vigenère Cipher Table

[0,1,2,3,4..] represents the row/column number

Your task is to complete the **Decrypt_Msg(Table , St , key)** function. The function takes three parameters: Cipher table as a multi dimensional array, a encoded String and a key value.

Your function should return the decrypted string.

Colab_File:  **CSE220_Lab_Mid_S(13).ipynb**

Sample Input	Sample Output
<p>String: JCG RJVIPQ Key: 213</p> <p>Explanation: The key will be repeated like 213213213..... until the string ends. Goto row 2, Find J, Column of J = 7 column(7) row(0) value = H; Goto Row 1, Column of C = 1, column(1) row(0) value = B; Goto Row 3, Column of G = 3, column(3) row(0) value = D ; Space will remain the same.</p> <p>Goto row 2, Find R, Column of R = 15 column(15) row(0) value = P; Loop will continue until the string ends...</p>	<p>HBD PISHON</p>
<p>String: GQSD LWGK Key: 024</p> <p>Explanation: 0,G → column 6 column(6) row(0) value → G 2,Q → column 14 column(14) row(0) value → O 4,S → column 14 column(14) row(0) value → O 0,D → column 3 column(3) row(0) value → D</p>	<p>GOOD LUCK</p>
<p>String: NNP DQLP Key: 532</p> <p>Explanation: Index out of range. Row 5 does not exist.</p>	<p>Invalid Key</p>