

Student	Gowri Parmathi	15
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Part 1

	Available	Marks
Create a matrix <i>message1</i> that contains the character data above, together with the numerical labels for rows and columns. Display this matrix.	5	1
Generate the ciphertext using the following ruleset: Start at 5,5 and work towards the left. Read odd-numbered columns upwards and even-numbered columns downwards. Display the encrypted message as a vector <i>ciphertext1</i> which contains each character of the ciphertext as a separate element in the vector.	20	4
Suppose that the message is written in a 3x9 array rather than a 5x5 array. Generate an appropriate matrix <i>message2</i> and use the two methods given in the introduction to generate two more vectors <i>ciphertext2</i> and <i>ciphertext3</i> .	15	2
Which of the two matrices, <i>message1</i> or <i>message2</i> do you think produces the most secure encryption methods? In a comment at the end of your script say which you think is the most secure and why this is the case. Do not write more than 100 words on this.	5	0
Commenting and use of white space	5	4
	TOTAL	11
Comments Good clear commenting. Could do with a little more white space. 1.1 You've created a data frame rather than a matrix. X1-X5 are not needed. 1.2 The ciphertext reads starts at 1,1 and reads everything down the columns, not from 5,5 and alternating up and down. You display ciphertext 1 but it is as a matrix, not as a vector 1.3 The data frame you created for message2 does not contain the correct data. It should have contained the same data as for message1, but arranged it as a 3x9 matrix rather than a 5x5 matrix. Ciphertext2 and ciphertext 3 are incorrect and cannot be generated using the methods you have chosen. 1.4 The justification does not address the complexity of the created ciphertext.		

Part 2

	Available	Marks
Create an appropriate matrix to hold the decrypted message and populate it from the ciphertext. Display the matrix once it has been populated. METHOD 1	13	0
Create an appropriate matrix to hold the decrypted message and populate it from the ciphertext. Display the matrix once it has been populated. METHOD 2	13	0
Create an appropriate matrix to hold the decrypted message and populate it from the ciphertext. Display the matrix once it has been populated. METHOD 3	13	0
Which of the two matrices, 5x5 or 9x6, do you think produces the most secure encryption methods? In a comment at the end of your script say which you think is the most secure and why this is the case. Do not write more than 100 words on this.	6	0
Commenting and use of white space	5	4
	TOTAL	4
Comments Good clear commenting. Could do with a little more white space. 2.1, 2.2, 2.3 You have not created a suitable matrix. Each element of the matrix should be an individual letter, not a collection of letters. 2.4 Justifications are incorrect, as this problem calls for the comparison of 5x5 and 9x6 matrices, which you do not do.		