

Student	Hassan Khan	35
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Part 1

	Available	Marks
Create a matrix <code>vigenere</code> that contains the character data. Display this matrix.	5	1
Using the keyphrase <code>UWTSDSWANSEA</code> , encrypt the message <code>CAPTURETHEFLAG</code> using the method described. You should create a vector <code>keyphrase</code> to hold the keyphrase, a vector <code>plaintext</code> to hold the plaintext and a vector <code>ciphertext</code> to hold the ciphertext. Display the plaintext and the ciphertext.	25	12
Decrypt the following ciphertext using the keyphrase <code>RPROGRAMMING</code> and store the result in the vector <code>plaintext</code> . <code>ETMSXWISTBNHRIKZKKHMFGBAUDECZEEQPBBCZC</code>	25	9
Commenting and use of white space	5	2
	TOTAL	24

Comments

Remember to include your name and student number in a comment at the top of the script. The use of white space is good but more comments are needed. In particular, remember to add comments to show which sections of code relate to which question.

Q1. This creates a matrix of the appropriate dimensions but each row is the same. Each row should be staggered by one letter, giving the matrix shown in the question.

Q2: You were specifically told not to use functions in this assignment. The code works well but does not meet the assignment requirements. This code corrects for the mistakes made in the first question.

Q3: Does not run, and provides the following error message:

```
> # Decrypt the ciphertext
> plaintext <- decrypt_vigenere(ciphertext, keyphrase)
Error in decrypt_vigenere(ciphertext, keyphrase) :
  dims [product 12] do not match the length of object [38]
In addition: Warning message:
In match(strsplit(ciphertext, NULL)[[1]], LETTERS) - key_indices :
  longer object length is not a multiple of shorter object length
> |
```

You're trying to do too much with functions, which we haven't covered at this point, so it's not surprising that you're having problems.

Part 2

	Available	Marks
Explain how your code works (including a flow chart) and explain how you tested your code (include examples of the code and data used). TASK 1	10	2
Explain how your code works (including a flow chart) and explain how you tested your code (include examples of the code and data used). TASK 2	10	2
Explain how your code works (including a flow chart) and explain how you tested your code (include examples of the code and data used). TASK 3	10	2
A reflection on what you found challenging, what you learned, and what you would do differently next time.	10	5
	TOTAL	11
Comments Q1: This explanation does not seem to apply to the code supplied. For instance there is no vector ALPHA, although there is a vector alphabet. Q2: This explanation does not seem to apply to the code supplied. For instance, there is no mention of the function created. Q3: This explanation does not seem to apply to the code supplied. For instance, there is no mention of the function created. The personal reflection is a bit confusing – things are not a challenge but are difficult, or code will be more intricate but at the same time more straightforward. If you used ChatGPT to support you in this assignment you should have mentioned it. Remember to read and follow the assignment instructions carefully next time. If you had completed this without using functions you would have achieved a much higher grade.		