Student	Martin Darzins	48+26 74

Part 1

	Available	Marks
Create a vector *v1* that contains the values 1 to 16	2	2
Add the values 17 to 20 to the end of *v1*.	2	2
Delete elements 5, 6, 7 and 13 from *v1*. You should use a one method to remove elements 5, 6, 7 and another method to remove element 13.	4	4
Using *v1*, create a new vector *v2* that contains the 1st to 5th and 9th to 11th elements of *v1*.	3	3
Calculate *v1*v2* and display the results. In your comments, explain how R adds two vectors of different lengths.	4	4
Create a new vector *v3* by selecting all even elements of *v1* using a filter	2	2
Using a loop, create a new vector *v4* the same length as *v1*, that contains the value *TRUE* if the corresponding element of *v1* has an integer square root and the value *FALSE* otherwise. *HINT: You will need to use the* sqrt() *and* round() *functions.*	6	6
Create a matrix *m1* with 4 rows from vector *v1*	3	3
Create a matrix *m2* with 2 columns from vector *v2*	3	3
Swap all of the elements in row 3 of *m1* with the elements in column 2 of *m1*	3	3
Create and display a new matrix *m3* from *m1* and *m2* where *m3* contains all of the columns of both source matrices	2	2
Replace all values in *m3* that are in (column 1 or column 3) and in (row 2 or row 3) with double their value	4	2
Remove row 2 of m3	1	1
Label the columns of m3 as “c1”, “c2”, “c3”, “c4”, “c5”, and “c6	1	1
Create a vector *mmeans* that contains the means of each column	3	3
Create a barplot of *mmeans*	2	2
Commenting, white space etc.	5	5

Comments
Nice work getting 10 into a single line of code. 😊
You've only doubled row 3 and column 1, not 2 rows and 2 columns. There are easier ways to do this – simply do m3[,3]<-m3[,3]*2 – but your method works.
Excellent use of colour in barplot.
Excellent commenting and use of white space.

Part 2

	Available	Marks
Create *Polybius* matrix	5	3
Encrypt the message using the *Polybius* matrix	20	11
Display the ciphertext in groups of five characters	20	7
Commenting and use of white space	5	5

Comments
Q1: Generates an appropriate matrix, but it would be much faster to just create a vector of letters and NAs and turn that into a matrix. The NULLs in lines 22-31 are not needed. Good approach to use the column and row names to identify the required numbers.

Q2: The encryption function works, but would be much better to take a letter and compare it with the cells of the matrix and extract the rowname and columname to get the appropriate numbers.

Q3: You've split the ciphertext into groups of 5 2-digit numbers rather that 5 digits as shown in the question.

Excellent use of comments and white space.