Coding Challenge # 1

Suppose we are given a matrix A with dimensions of m* n. Given another vector say B of size 1-by-2 which will indicate how much we want to enlarge each element of the matrix A. The first value in the matrix B (called p), indicates how many rows we want to enlarge each element of A and the second value in the matrix B (called q) indicate how many columns we want to enlarge we want to enlarge each element of A. The resultant matrix called Enlarge_matrix will be of size (m*p)-by-(n*q) in which each element of A has been replicated in p rows and q columns. Here is an example of this

Suppose

```
A = [1 2 3;
     4 5 6
     7 8 9]
And
B =  [3 2];
Then the result will look something like this
Enlarge_matrix = [   1 1 2 2 3 3
                     1 1 2 2 3 3
                     1 1 2 2 3 3
                     4 4 5 5 6 6
                     4 4 5 5 6 6
                     4 4 5 5 6 6
                     7 7 8 8 9 9
                     7 7 8 8 9 9
                     7 7 8 8 9 9]
```

Coding Challenge # 2

Generate a vector like 1,2,2,3,3,3,4,4,4,4, So if n = 3, then return

[1 2 2 3 3 3]

And if n = 5, then return

[1 2 2 3 3 3 4 4 4 4 5 5 5 5 5]

Coding Challenge # 3

You are given a square matrix containing positive integers. We want to determine if there is any row or column containing the same number. For example:

1 1 1
4 2 3
2 3 4

Should be marked "true" because there are three consecutive ones in the first row.
However:

5 2 3
3 5 2
1 4 5

Is false, as we do not care about the three consecutive fives along the trace of the matrix. The matrix will always be at least 3x3, but they can be larger.

Coding Challenge # 4

In this challenge we are going to create a vector from two input vectors A and B. The resultant vector will contain the numbers specified between the two indexes at the same position in the two vectors. For instance if A = [1 8 12] and B = [4 5 9] than the resultant matrix will contain the following values. [1 2 3 4 8 7 6 5 12 11 10 9]

That is the we have A(1) = 1 and B(1) =4 therefore the first entries in the resultant matrix will be from 1 to 4. Simillarly the second entry A(2) = 8 and B(2) = 5 therefore the resultant matrix will have entries from 8 to 5 and so on.