Week 3 Homework

1. Write a code that behaves as one of the native list methods. You may find the Python documentation is helpful.
2. A vector is a structure to represent a stream of numbers together. For example, to represent the ‘yes’ and ‘no’ opinions of a group of people. We can say:   
   for 5 people. An important property of a vector is how big they are. Which we call as dimensions. Formally, we start with its number of rows then number of columns. So the above example has 1 row and 5 columns, so the dimension is 1, 5.   
     
   A matrix means both rows and columns have more than one. For example,   
   It has 2 rows and 3 columns. We will denote the dimension as row x columns. For example has dimension of 2,3. In the following, we will look at the dimensions under different vector/ matrix operations.   
   1. What is the dimension of
   2. Transpose means the matrices invert their rows and columns. For example,   
      What is the dimension of the transposed matrix?
   3. Matrix addition means the elements from both matrices added together. An example would be:   
      What is the dimension for above example?
   4. Multiplication means the i,j-element multiplies with the ji-element at the other matrix. Here is an example:  
      What are the dimensions of each matrices?
3. In data analytics, filling missing data is one of the important parts of data analytics. Think of 3 ways (you can be creative) that you can fill in missing data.