DC_Task_1

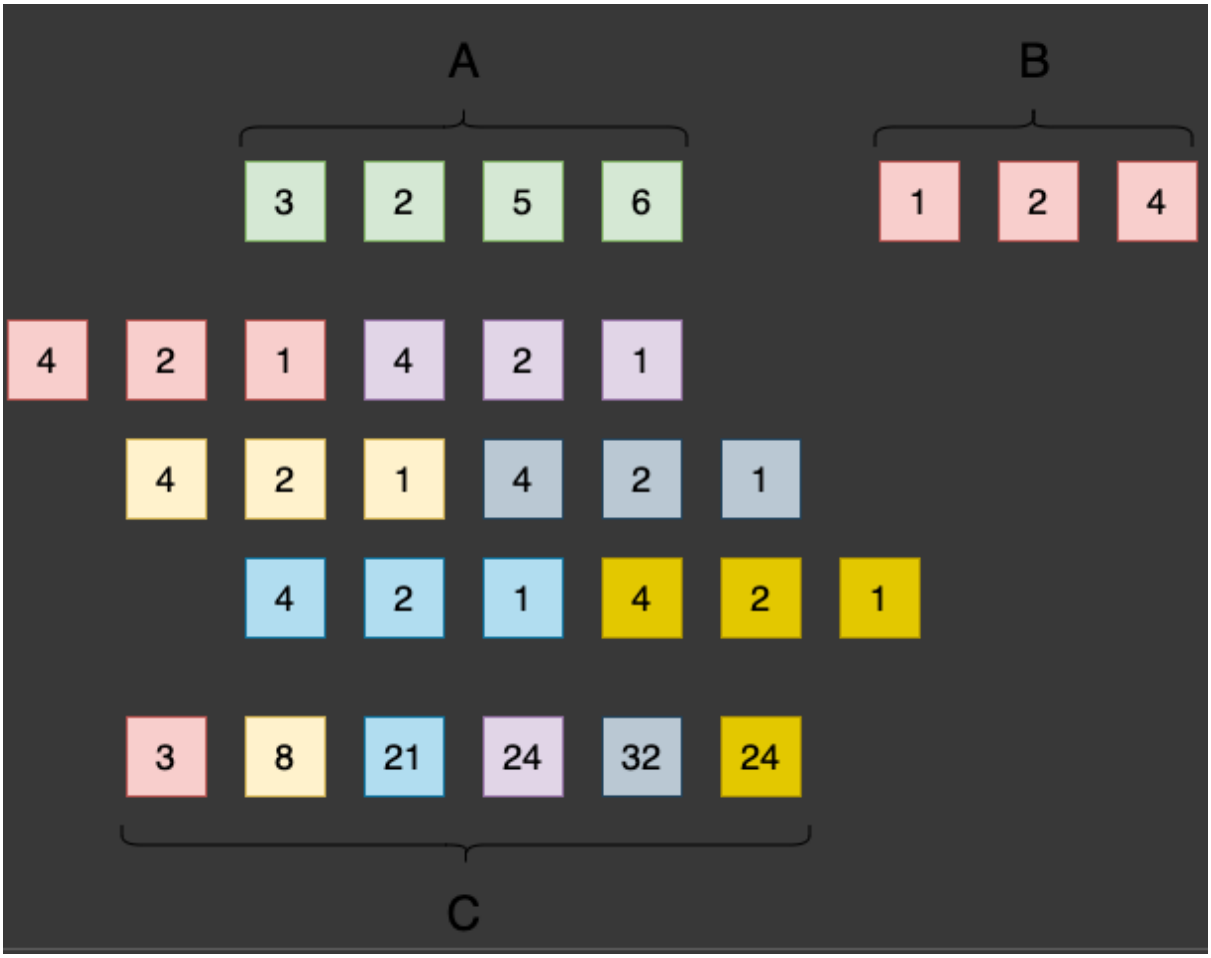
Instructions:- Create a separate google colab notebook for Q-1,2,3,5 and for Q4.

For Q4, comment your approach of filling the values in the notebook itself

Submit both the notebooks separately in the form which we will share soon

1. Convolution is an operation used to implement filtering in digital signal processing (among other things). Numerically, if you have two sequences A and B, then the result of conv(A, B) is another sequence where sequence B is reversed and slid over the sequence A, as shown in the figure.

   Therefore, for example, if
   A = [3, 2, 5, 6]
   B = [1, 2, 4]
   Convolve(A, B) with the above definitions should return the list [3 8 21 24 32 24]



(P.S. you might want to change the array size of A depending on your needs (:)

2. You are given a list. You need to "rotate" the list by N elements to the left.

   For example:

   - list_rotate([1,2,3,4], 1) -> [2,3,4,1]

   - list_rotate([1,2,3,4], 2) -> [3,4,1,2]

   -list_rotate([1,2,3,4], 11) -> [4,1,2,3]. Why? Make sure you understand this.

   Shortest solution wins !!!
   (Please don't ask what you win 🔫)

3. Create two numpy arrays of random elements of size 3*5 and 5*4 and multiply them without using numpy.matmul or a*b.

4. You are given a .csv file. Read it into a data frame . Find out method to fill the missing values that follow the trend of the columns. We will run your code against our model and find out which has the highest accuracy

   Find the dataset here :- https://www.kaggle.com/datasets/shaileshkvr/dc-task-1

5. You are given a list of numbers and a value N. If the number is divisible by N, you need to take the square of the number, else drop it from the return list. Finally return a list containing the squares of the numbers divisible by N.
   (Input of the function has to be the list and the number N)