1 Reverse of List

1.1 Random digits: list and reversed list

Randomly generate a list of 10 digits. Print the list and the reversed.

Hint: use numpy.random package. For reversing a list , see https://www.programiz.com/python-programming/methods/list/reverse

1.2 reverse of string

The strings can also be reversed in a similar way to lists. This time, show, using the "==" sign, the reverse of the string "tacocat" spelled backwards is still "tacocat".

1.3 Challenge:sort reversely

The "sorted" function will sort a list in the ascending order (if the elements are int or float) or alphabetic order. By reading the File *FinalGrade*, can you sort the students' grade in the descending order? In addition, print the highest 5 students' numbers.

2 Translation from Imread to Matplotlib

Now you have familiarised yourself with how to reverse a list or string. Reversing is also possible and important in numpy arrays. As we can see from the example in lecture, if we naively put the numpy array from imread to matplotlib, the wired flags are generated.

Figure 1: *
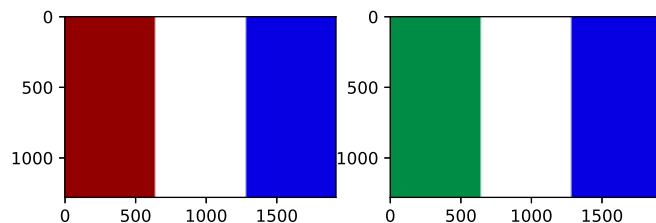
The weird flags

The reason is the colour components are put in the BGR order in imread while they are in RGB (which looks more natural) in matplotlib. Therefore, your task is

- Read both French and Italy flags with imread. For simplicity, read in cv2.IMREAD_COLOR option

- Then you will get a huge 3d numpy array, the 3rd dimension stores the colours.

- Try to reverse the colour components, and plot the array with matplotlib.

- Show that both flags look normal after the reversion.