National University of Computer & Emerging Sciences (NUCES)
Islamabad, Department of Computer Science

# DATA STRUCTURES – FALL 2020

# LAB 11

# Learning Outcomes

In this laboratory, you will implement the concept using recursion.

## Task 1:

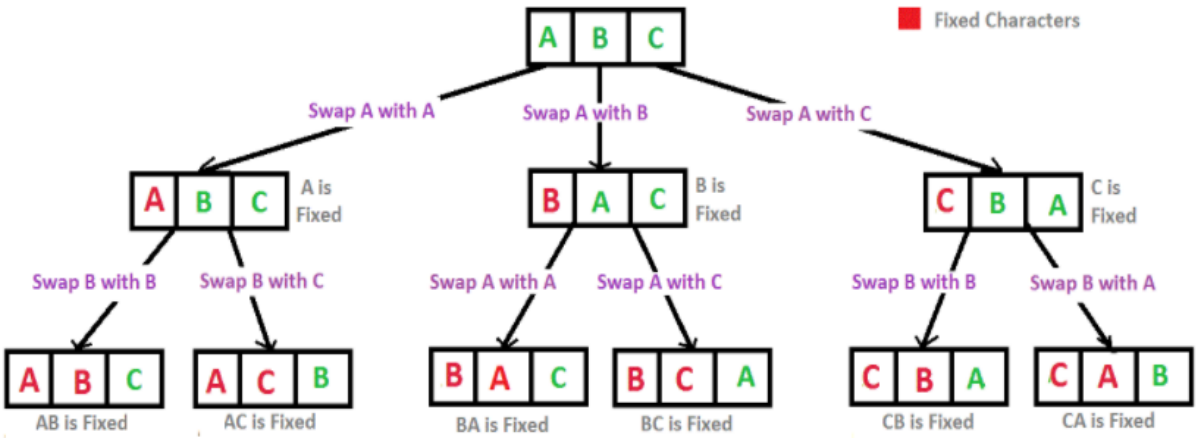
Print all numbers in range [100,999] such that sum of digits at even position is equal to sum of digits at odd position

### Output:

```
110 121 132 143 154 165 176 187 198 220 231 242 253 264 275 286 297 330
341 352 363 374 385 396 440 451 462 473 484 495 550 561 572 583 594 660
671 682 693 770 781 792 880 891 990
```

## Task 2:

Find all possible combinations of alphabets in a given string




### For Example:

**Input:** ABC

**Output:** ABC, ACB, BAC, BCA, CAB, CBA

## Task 3:

Given an array A, make a triangle such that the bottom most level has all array elements. Then, at each level number of elements is one more than the previous level. Elements at each level is the sum of consecutive elements in the previous level.

**For Example:**

**Input:** [1,2,3,4,5]

**Output:** [48]

[20,28]

[8,12,16]

[3, 5, 7, 9]

[1, 2, 3, 4, 5]