Top-20 Training Program
(Adhoc Thinking)

Apply the solution building strategies discussed in class to solve following problems.

Group1: Duplicate Detection/Removal Variations

Remove Duplicates-I: https://leetcode.com/problems/remove-duplicates-from-sorted-array/description/
Remove Duplicates-II: https://leetcode.com/problems/remove-duplicates-from-sorted-array-ii/description/
Remove Duplicates-III: https://leetcode.com/problems/remove-element/description/
Contains Duplicate-I: https://leetcode.com/problems/contains-duplicate/description/
Contains Duplicate-II: https://leetcode.com/problems/contains-duplicate-ii/description/

Group2: Missing/Repeated NumbersVariations

Find the Difference: https://leetcode.com/problems/find-the-difference/description/
Repeated & Missing Number: https://leetcode.com/problems/set-mismatch/description/
First Missing Positive: https://leetcode.com/problems/first-missing-positive/description/
DuplicateNumber:https://leetcode.com/problems/find-the-duplicate-number/description/
Find All Missing Numbers: https://leetcode.com/problems/find-all-numbers-disappeared-in-an-array/description/

Group3: Array Based Problems

Rotate String: http://www.lintcode.com/en/problem/rotate-string/
Student Attendance Record-I: https://leetcode.com/problems/student-attendance-record-i/description/
Increasing Triplet Subsequence: https://leetcode.com/problems/increasing-triplet-subsequence/description/
Contiguous Subarray Sum: https://leetcode.com/problems/continuous-subarray-sum/description/

Group4: 2-D Array/Matrix Problems

Spiral Matrix-I https://leetcode.com/problems/spiral-matrix/description/
Spiral Matrix-II: https://leetcode.com/problems/spiral-matrix-ii/description/
Set Matrix Zeroes: https://leetcode.com/problems/set-matrix-zeroes/description/

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Group5: Miscellaneous Problems

Remove Mystery Length:

Given an array of alpha-numeric characters with the length appended to the string, write an efficient function to remove the length part of it.

Function Prototype:

void removeLength(char[ ] s)

Example:

Input: JamesBond00712 where, 12 is length of string JamesBond007

Output: JamesBond007

Merge Arrays:

Given an array of size M+N in which first M numbers are sorted in non-decreasing order and last N slots are empty. Also given an another array of size N which is sorted in nondecreasing order. Write an efficient function to merge these two arrays without using any extra space so that the array of M+N size is sorted.

Function Prototype:

void merge(int[ ] a1, int[ ] a2, int m, int n) // array a1 is of size m+n

Polynomial Evalution:

Given a real number x, and a sequence of real numbers c0, c1, …cn, write an efficient function to find out the value of following polynomial of degree 'n':

$p_n(x) = c_n x^n + c_{n-1}x^{n-1} + \ldots + c_2x^2 + c_1x + c_0$

Function Prototype:

double evalPolynom(int[ ] coef, int x, int n)