PayPal Interview Problems

1) Given two unsorted arrays that represent two sets (elements in every array are distinct), find union and intersection of two arrays.

For example, if the input arrays are:

arr1[] = {7, 1, 5, 2, 3, 6}

arr2[] = {3, 8, 6, 20, 7}

Then your program should print Union as {1, 2, 3, 5, 6, 7, 8, 20} and Intersection as {3, 6}. Note that the elements of union and intersection can be printed in any order.

2) The string "PAYPALISHIRING" is written in a zigzag pattern on a given number of rows like this: (you may want to display this pattern in a fixed font for better legibility)

P.....A.....H.....N

..A..P....L....S....I...I....G

....Y.....I.....R

And then read line by line: PAHNAPLSIIGYIR

Write the code that will take a string and make this conversion given a number of rows:

string convert(string text, int nRows);

convert("PAYPALISHIRING", 3) should return "PAHNAPLSIIGYIR"

**Example 2 : **

ABCD, 2 can be written as

A....C

...B....D

and hence the answer would be ACBD.

3) Given a sequence, find the length of the longest palindromic subsequence in it.

Example:

If the given sequence is “BBABCBCAB”, then the output should be 7 as “BABCBAB” is the longest palindromic subseuqnce in it. “BBBBB” and “BBCBB” are also palindromic subsequences of the given sequence, but not the longest ones.

4) Design a Data Structure SpecialStack that supports all the stack operations like push(), pop(), isEmpty(), isFull() and an additional operation getMin() which should return minimum element from the SpecialStack. All these operations of SpecialStack must be O(1). To implement SpecialStack, you should only use standard Stack data structure and no other data structure like arrays, list, ... etc.

Example:

Consider the following SpecialStack

16 --> TOP

15

29

19

18

When getMin() is called it should return 15, which is the minimum element in the current stack.

If we do pop two times on stack, the stack becomes

29 --> TOP

19

18

When getMin() is called, it should return 18 which is the minimum in the current stack.