CATH CON 2020 Reference Questions - Junior Category

[There are a total of 5 questions in this document]

1. Stuck in the Middle
   A long String with multiple repetitions of the same short String is given. The program must find the index position of the middle occurrence of the String. If the String is present more than 3 times then the 2nd occurrence must be found.

2. Silly String
   a)The program has to go through a very long string full of multiple palindromes and has to find the longest one and display it.
   Eg: Input: nnmadamhsjcarannaandaracecar
          Output: racecar
   b)The program has to go through two very long strings to determine whether or not they are anagrams of each other.

3. Mind your Language
   A String must take a sentence as an input and then an array of words will also be taken as an input. Then all words of the array must be censored in the following manner - irrespective of the case and spacing.

   For example: if "ship" is a word in the array, the following words must be censored
ship	→ s**p
Ship	→ S**p
sHiP	→ s**P
SHIP	→ S**P
shipping	→ s**pping
SHiPPinG	→ S**PPinG

4. Union
   Two long single dimensional arrays are given and the program has to find the union of two arrays. Here it would have to add the elements and then remove all the duplicates to have a union array.
   Eg: Array 1 : {1,2,3,4,5,6}
          Array 2: {4,5,6,7,8,9}

          Output Array: {1,2,3,4,5,6,7,8,9}

5. Spin the Box
Take an input N and create an integer square matrix of size NxN. Then take input for the elements of this array. Your code must then rotate the matrix by 90 degrees clockwise.
Example:

Input:
3
123
456
789

Output:
741
852
963