C# Coding Exercises

Complete the following coding problems in C#.

* **Problem 1 - Longest Sequence**

The following string contains number of sales made per day in a month:

"1,2,1,1,0,3,1,0,0,2,4,1,0,0,0,0,2,1,0,3,1,0,0,0,6,1,3,0,0,0"

How long is the longest sequence of days without a sale? (in this example it's 4).

* **Problem 2 - Anagrams**

From the following dictionary of words

"parts,traps,arts,rats,starts,tarts,rat,art,tar,tars,stars,stray"

return all words that are an anagram of star (no leftover letters allowed).

* **Problem 3 - Stars on Screen**

Using minimum number of console.writeLines to produce the following pattern of Stars:

The stars start from centre of screen

Feel free to use Arrays, ArrayList or StringBuilder.

stars in tree pattern

A screenshot of a cell phone

Description automatically generated

* **Problem 4 Star - Diamond**

Produce the following pattern on screen, using Arrays, ArrayList or StringBuilder

Star Diamond pattern

A screenshot of a cell phone

Description automatically generated

* **Problem 5 - String Reversal**

Print out the following string in reverse:

input : “hello world”

Output: dlrow olleh

* **Problem 6 - palindrome**

Write an algorithm to find a palindrome

•input: madam, output: Palindrome

•input: step on no pets, output: Palindrome

•input: book, output: Not Palindrome

* **Problem 7 - Sum of digits**

Write an algorithm to sum the digits of a number:

Input 12: output 3

Input 123 : output 6

Input 5000: output 5

* **Problem 8 - TwoSums**

Two Sums

Write a function that, when passed a list and a target sum, returns, efficiently with respect to time used, two distinct zero-based indices of any two of the numbers, whose sum is equal to the target sum. If there are no two numbers, the function should return null.

For example, FindTwoSum(new List<int>() { 3, 1, 5, 7, 5, 9 }, 10) should return a Tuple<int, int> containing any of the following pairs of indices:

•0 and 3 (or 3 and 0) as 3 + 7 = 10

•1 and 5 (or 5 and 1) as 1 + 9 = 10

•2 and 4 (or 4 and 2) as 5 + 5 = 10

* **Problem 9 - Prime at Nth Position**

Write an algorithm to return the prime number at Nth position from the sequence of prime numbers.

sequence of first 100 prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

input: 3

output: 5

input: 5

output: 11

* **Problem 10 - Next prime number**

Write an algorithm to return the next prime, given a number.

input :6

output: 7

input: 11

output: 13

input: 15

output: 17

Further problems at:

CodingBat.com, try to complete the exercises in C#.

<https://codingbat.com/java>