Assignment-8

Note: In all of the questions below, the array accesses should be done only using pointers. You are not allowed to access the values of the array using indexing.

1) Given three variables x, y, z write a function to circularly shift their values to the right. In other words if x=5, y=8, z=10 after circular shift x=10, y=5, z=8 Call the function with variables a, b, c to circularly shift values. **[5]**

2) Write a C function that accepts two 2D arrays as input, performs matrix multiplication between them, and returns the resulting array**.** In the main function, call this function,and print the resulting array.**[5]**

Input :
Enter the dimensions of the first matrix (rows columns): 2 2
Enter the elements of the first matrix:
1 2
3 4

Enter the dimensions of the second matrix (rows columns): 2 2
Enter the elements of the second matrix:
5 6
7 8
Output :
Resultant matrix after multiplication:
19 22
43 50

3) Write a function in C to reverse an array using pointers. The function should not return a new array but instead modify the original array in place.**[5]**

4) Write a function in C that takes the pointer to an array *nums*, containing *n + 1* integers where every integer in the range [1, n] inclusive occurs **atleast once** and prints the numbers which occur more than once. **[5]**

Bonus question: Solve the problem without altering the array nums using only a constant amount of extra space (i.e. without creating another array). **[5]**

5) Write a function in C which takes a pointer to a matrix *mat,* an integer *n* and right rotates the matrix *n* times. **[5]**

Bonus question: Solve the above problem using only a constant amount of extra space. **[5]**

6) Write a program in C which takes two strings as input and concatenates them.**[5]**

Sample Input:
Enter the length of first string: 4
Enter the string: foot

Enter the length of second string: 4
Enter the string: ball

Sample Output:
football

Note: You are not allowed to fixed size character arrays from the start.