1. Write a program in C to store n elements in an array and print the elements using a pointer.  
   Test Data :  
   Input the number of elements to store in the array :5  
   Input 5 number of elements in the array :  
   element - 0 : 5  
   element - 1 : 7  
   element - 2 : 2  
   element - 3 : 9  
   element - 4 : 8  
   *Expected Output* :

The elements you entered are :

element - 0 : 5

element - 1 : 7

element - 2 : 2

element - 3 : 9

element - 4 : 8

1. Write a program in C to compute the sum of all elements in an array using pointers.  
   Test Data :  
   Input the number of elements to store in the array (max 10) : 5  
   Input 5 number of elements in the array :  
   element - 1 : 2  
   element - 2 : 3  
   element - 3 : 4  
   element - 4 : 5  
   element - 5 : 6  
   *Expected Output* :

The sum of array is : 20

3. Write a C program which read an array of any type using pointers. Write a C program to scan through this array to find a particular value.

4. Write a program to find the number of times that a given word (i.e. a short string) occurs in a sentence (i.e. a long string!).

5. Write and demonstrate a C program to accept the two matrices of integers. Create a third matrix such that corresponding elements are concatenated and indicate with special symbol if the resultant number is outside of range. Use pointers and pointer arithmetic operations

e.g 11 33 44 22 44 5 1122 3344 445

55 888 77 + 66 999 88 = 5566 ∞ 7788

22 66 1111 22 77 222 2222 6677 ∞

6. Write a program for printing the elements of a two-dimensional array (not necessarily square) in each of the following orders using pointers :

* 1. To-and-fro row-major order.
  2. Diagonal-major order.
  3. Spiral order.

Notice that the diagonal-major order makes enough sense for square matrices. For general mxn matrices, take the length of each diagonal to be m and treat the elements as organized in a wrap-around fashion. For example, consider the 4x5 matrix:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 |

The listing of its elements in the to-and-fro row-major order is:

1 2 3 4 5 10 9 8 7 6 11 12 13 14 15 20 19 18 17 16

The listing of the elements in the diagonal-major order is:

1 7 13 19 2 8 14 20 3 9 15 4 10 5 1611 17 5 6 12 18

The listing of the elements in the spiral order is:

1 2 3 4 5 10 15 20 19 18 17 16 11 6 7 8 9 14 13 12

7. Write a program in C to print all permutations of a given string using pointers.  
*Expected Output* :

The permutations of the string are :

abcd abdc acbd acdb adcb adbc bacd badc bcad bcda bdca bdac cbad cbda cabd cadb cdab cdba db

ca dbac dcba dcab dacb dabc

8. Write a program in C to count the number of vowels and consonants in a string using a pointer.  
Test Data :  
Input a string: string  
*Expected Output* :

Number of vowels : 1

Number of constant : 5