I. Find the output of the following:

```
#include <iostream.h>
#include <string.h>

  void main()
  {
    char str1[20] = "Welcome all !\0" ;
    char str2[20] = "How are you ?\0" ;

    int len1, len2, total;

    len1 = strlen(str1) ;
    len2 = strlen(str2) ;
    total = len1 + len2 ;
    cout << total << endl ;

    strcat(str1, str2) ;
    total = strlen(str1);
    cout << total <<endl ;
  }
```

II. Find the output of the following:

```
#include <iostream.h>
#include <string.h>

void main()
{
  char str1[20] = "abcdefghi\0" ;
  char str2[20] = "abcdefghij\0" ;

  int result1, result2 ;

  result1 = strcmp(str1, str2) ;
  result2 = strncmp(str1, str2, 10) ;

  switch (result1)
  {
  case  0: cout << "The two strings are equal." ;
  break ;
  case  1: cout << "The first string is larger than
  the second." ; break ;
```

```
            case -1: cout << "The first string is smaller than
            the second." ; break ;
            default: cout << "An error has occured while trying
            to compare strings" ;
            }
            switch (result2)
            {
            case 0: cout << "The first 10 characters of the two
            strings are equal." ;
                    break ;
            case  1: cout << "The first 10 characters of the
            first string is larger"
                        << "than first 10 characters of the
                    second." ;
                    break ;
            case -1: cout << "The first 10 characters of the
            first string is smaller"
                        << "than first 10 characters of the
                    second." ;
                    break ;
            default: cout << "An error has occured while trying
            to compare strings" ;
            }
}
```

III. Write a program that will read a sentence containing several percent sign characters (%) and substitute the word percent for each of them.

> *For example:*   *50% → 50 percent*

IV. Write a program that will sort a given string in alphabetic order.

> *For example:*   *g d j b p o k a z x → a b d g j k o p x z*

V. Write a program that will convert the case of a string.

For example: *Welcome EVERYBODY ! → wELCOME everybody !*

VI. As a software developer, you were asked to create a prototype program that can manage a bookstore. The program must be sub-divided into a set of **functions** where each function performs a specific task. Assume that we have the following data to be stored about each of the books in the bookstore.

	Business	Management	Mathematics	Engineering	English
Arabic	2	2	1	5	6
English	4	7	8	5	4
French	5	9	6	7	4
Spanish	1	5	8	7	3

This table contains the number of books in the store (we have 2 business books written in Arabic language, and so on). Another table contains the prices of each of the books as shown below:

	Business	Management	Mathematics	Engineering	English
Arabic	1200	800	750	950	700
English	1300	750	750	700	960
French	1100	820	780	630	500
Spanish	1000	900	760	860	650

The followings are the requirements of the program:

1. A function that explains the purpose of the program and gets a choice from the user.
2. A function that initializes two 2-dimentional arrays, namely **books** [ ][ ] and **prices** [ ][ ].
3. A function that returns the price of a book by specifying the indices of the book in the array.
4. A function that checks whether a book exists in the store or not.
5. A function that calculates the total price of the collection of books. Notice that if a book is delivered to a customer, then the corresponding count of the **books** array should be decremented. If the number of books is zero, then the program must tell the user that the book is not available.
6. A function that prints a table showing the number of books available and the corresponding prices.