

# Programming with C

## Assignment 9

**You don't have to submit this assignment.**

**1. Create a C++ project and copy the following code to it, then answer the questions: (This part to understand the string (Array of characters ends with null))**

```
1. #include "iostream"
2. #include <string.h>
3. #include <stdlib.h>
4. using namespace std;
5.
6. int main(){
7.     char x[12]="Hello There";
8.     cout<<endl<<x;
9.     cout<<endl<<sizeof(x);
10.    cout<<endl<<strlen(x);
11.
12.    char y[12]={'H','e','l','l','o',' ','T','h','e','r','e','!'};
13.    cout<<endl<<endl<<y;
14.    cout<<endl<<sizeof(y);
15.    cout<<endl<<strlen(y);
16.
17.    char c='o';
18.    cout<<endl<<endl<<strchr(x,c);
19.    c=' ';
20.    cout<<endl<<strchr(x,c);
21.
22.    char z[12];
23.    strcpy(z,x);
24.    cout<<endl<<endl<<z;
25.    strcpy(z,y);
26.    cout<<endl<<z;
27.
28.
29.    char m[6]="Hello";
30.    char n[6]="There";
31.    cout<<endl<<endl<<strcmp(m,n);
32.    cout<<endl<<strcmp(m,m);
33.
34.    char equation[10]="2.5+7";
35.    cout<<equation[0]+5;
36.    cout<<endl<<endl<<atoi(equation)+5;
37.    cout<<endl<<atof(equation);
38.
39.    return 0;
40. }
```

**a) Compile and run this program then , then report the output of each `cout` in lines (8-10) and explain why they are different?.**

- b) Run the program, then report the output of each `cout` in lines (13-15) and explain the difference between the output of line 10 and line 15?.
- c) Replace `'!'` by `'\0'` in line 12, compile and run the program, then report the output of each `cout` in lines (13-15) and note the difference.
- d) Run the program, then report the output of each `cout` in lines (17-20). What does function `strchr` used for, and which library contains this function?. ([hint: use the C++ help here](#))
- e) Run the program, then report the output of each `cout` in lines (22-26). What does function `strcpy` used for, and which library contains this function?. ([hint: use the C++ help here](#))
- f) Run the program, then report the output of each `cout` in lines (29-32). What does function `strcmp` used for, and which library contains this function?. ([hint: use the C++ help here](#))
- g) Run the program, then report the output of each `cout` in lines (34-37). What do functions `atoi`, `atof` used for, and which library contains these functions?. ([hint: use the C++ help here](#))

2. Create a C++ project and copy the following code to it, then answer the questions: (This part to understand how to pass an array to a function)

```

1.  #include "iostream"
2.  using namespace std;
3.
4.  int main(){
5.
6.      int m,i,j;
7.      cout<<"Enter the vectors size:";
8.      cin>>m;
9.
10.     int x[m], y[m];
11.     cout<<"\nEnter Vector X:";
12.     for(i=0;i<m;i++)
13.         cin>>x[i];
14.
15.     cout<<"\nEnter Vector Y:";
16.     for(i=0;i<m;i++)
17.         cin>>y[i];
18.
19.     cout<<"\nX+Y=";
20.     for(i=0;i<m;i++)
21.         cout<<x[i]+y[i]<<"\t";
22.     cout<<endl;
23.
24.     return 0;
25. }
```

Rewrite the previous program, and move lines (10 to 22) to a separated function called `vector_sum`, and put this function after the main function.

- 3. Write a C program with function called “min” to find the minimum value in a vector of n elements entered by the user.**
- 4. Write a C program with function called “sort” to sort the values of a vector of n elements entered by the user.**
- 5. A palindrome is a string that reads the same forward and backward, for example, “radar”, “toot”, and “madam”. Write a C program to read a string from the user and print wither the entered string is palindrome or not.**
- 6. Write a C program to read string from the user and count the number of letter ‘a’ or ‘A’ in this string.**