# CP Lab-12 Tasks

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# Lab 12 Pointers

Note: The task performed in this lab are menu driven and functions based

# Tasks: 01

Write a program which takes two strings of at-least 6 characters and changes its contents using pointers.

# Tasks: 02

Write a program to count the number of elements in a string using pointers.

# Tasks: 03

Bubble sort a numeric array using a pointer.

- Loop of access each array
- Loop of compare array elements
- Compare two adjacent elements
- Change < to > in descending order.
- Swapping elements if elements are not in intended order.

## Bubble sort Algorithm:

For i<-1 to indexofLastelemnt -1

　If(leftelement>rightelement)

　Swap leftelement and rightelement

End

　Bubble sort.

# Code:

```cpp
#include <iOStream>
#include <string>
using namespace std;


void swap(string* ptr_a, string* ptr_b) {
cout << "Strings before swapping are : " << endl << *ptr_a << endl <<
*ptr_b << endl;
string temp;
temp = *ptr_a;
*ptr_a = *ptr_b;
*ptr_b = temp;
cout << "Strings after swapping are : " << endl << *ptr_a << endl <<
*ptr_b << endl;
}
void bubbleSort(int* arr, int size) {
for (int i = 0; i < size - 1; i++) {
for (int j = 0; j < size - i - 1; j++) {
if (*(arr + j) > *(arr + j + 1)) {
int temp = *(arr + j);
*(arr + j) = *(arr + j + 1);
*(arr + j + 1) = temp;
}
}
}
}


void printArray(int* arr, int size) {
for (int i = 0; i < size; i++) {
cout << *(arr + i) << " ";
}
cout << endl;
}
void print(int* arr, int size) {
for (int i = 0; i < size; i++) {
cout << *(arr + i) << " , ";
}
}

int main() {
char choice;
cout << "Press 1 to perform Task 01" << endl
<< "Press 2 to perform Task 02" << endl
<< "Press 3 to perform Task 02" << endl;
cin >> choice;

if (choice == '1') {
```

```cpp
string a, b;
string* ptr_a = &a, * ptr_b = &b;
cout << "Enter a string" << endl;
cin.ignore();
getline(cin, a);
cout << "Enter another string" << endl;
getline(cin, b);
swap(ptr_a, ptr_b);
}
else if (choice == '2') {
string a;
string* ptr_a = &a;
cout << "Enter a string" << endl;
cin.ignore();
getline(cin, *ptr_a);
int b = a.length();
cout << "The length of the entered string is " << b;


}
else if (choice == '3') {
int arr[] = { 64, 34, 25, 12, 22, 11, 90 };
int size = sizeof(arr) / sizeof(arr[0]);

cout << "Original array: ";
printArray(arr, size);

bubbleSort(arr, size);

cout << "Sorted array: ";
printArray(arr, size);


}
}
```

## Output (for task 01):

```
Press 1 to perform Task 01
Press 2 to perform Task 02
Press 3 to perform Task 02
1
Enter a string
Apple
Enter another string
mango
Strings before swapping are :
Apple
mango
Strings after swapping are :
mango
Apple
```

## Output (for task 2):

```
Press 1 to perform Task 01
Press 2 to perform Task 02
Press 3 to perform Task 02
2
Enter a string
An apple a day keeps doctor away
The length of the entered string is 32
```

## Output (for task 3):

```
Press 1 to perform Task 01
Press 2 to perform Task 02
Press 3 to perform Task 02
3
Original array: 64 34 25 12 22 11 90
Sorted array: 11 12 22 25 34 64 90
```