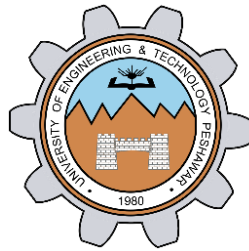**POINTERS (PART 1 BASICS)**

LAB # 8

Spring 2022

CSE102L Computer Programming Lab

Submitted by: **Ali Asghar**

Registration No. : **21PWCSE2059**

Class Section: **C**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engr. Abdullah Hamid

July 4, 2022

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Lab Objective(s)
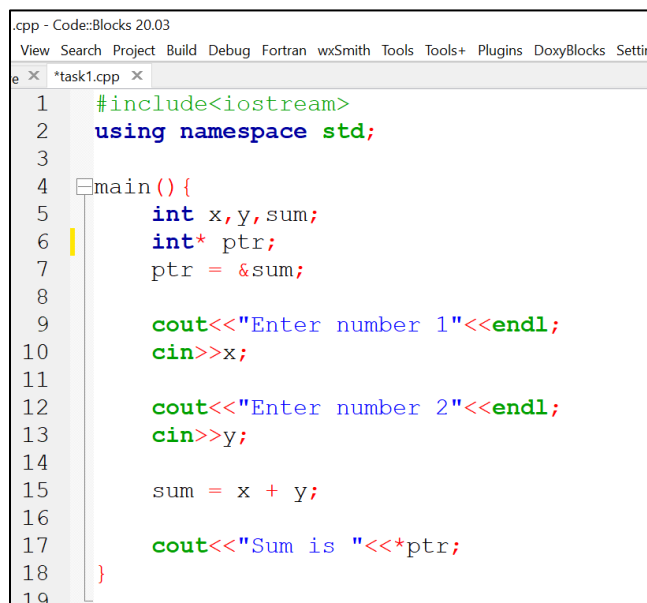
- To understand the programming of recursive functions and overloading functions
- To understand function programming, its types and function-call

TASK # 1:

Title:

Write a C++ program where you take two values in two………………you must you use only one pointer.

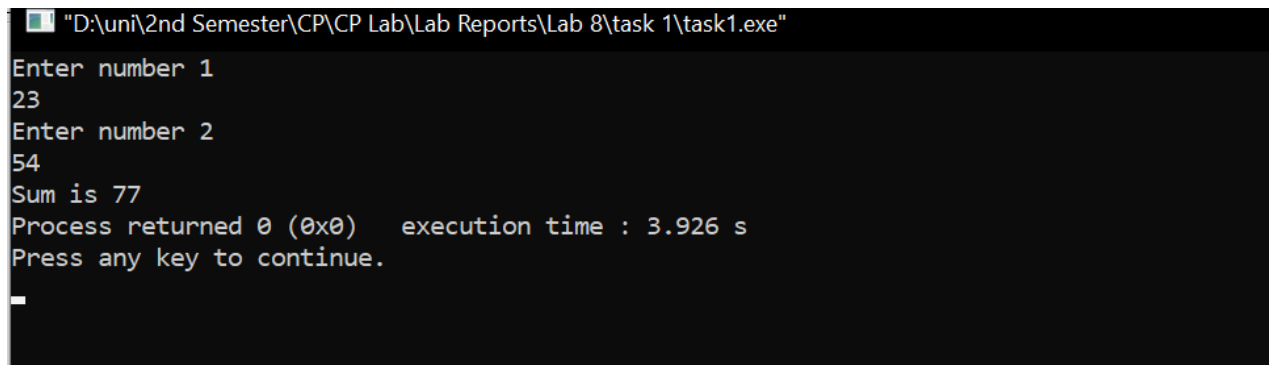**CODE SCREENSHOTS:**

Here is the screenshot of the code.

```
.cpp - Code::Blocks 20.03
View  Search  Project  Build  Debug  Fortran  wxSmith  Tools  Tools+  Plugins  DoxyBlocks  Settin
e ×  *task1.cpp  ×
1      #include<iostream>
2      using namespace std;
3
4    ⊟main(){
5          int x,y,sum;
6          int* ptr;
7          ptr = &sum;
8
9          cout<<"Enter number 1"<<endl;
10         cin>>x;
11
12         cout<<"Enter number 2"<<endl;
13         cin>>y;
14
15         sum = x + y;
16
17         cout<<"Sum is "<<*ptr;
18     }
19
```

OUTPUT (COMPILATION, DEBUGGING & TESTING):

Here is the screenshot of the output of above code.

```
"D:\uni\2nd Semester\CP\CP Lab\Lab Reports\Lab 8\task 1\task1.exe"
Enter number 1
23
Enter number 2
54
Sum is 77
Process returned 0 (0x0)    execution time : 3.926 s
Press any key to continue.
```
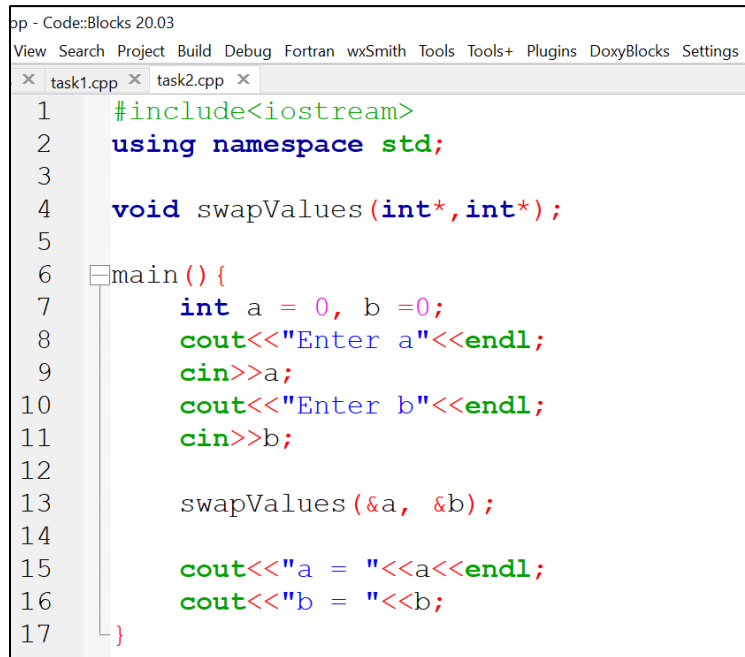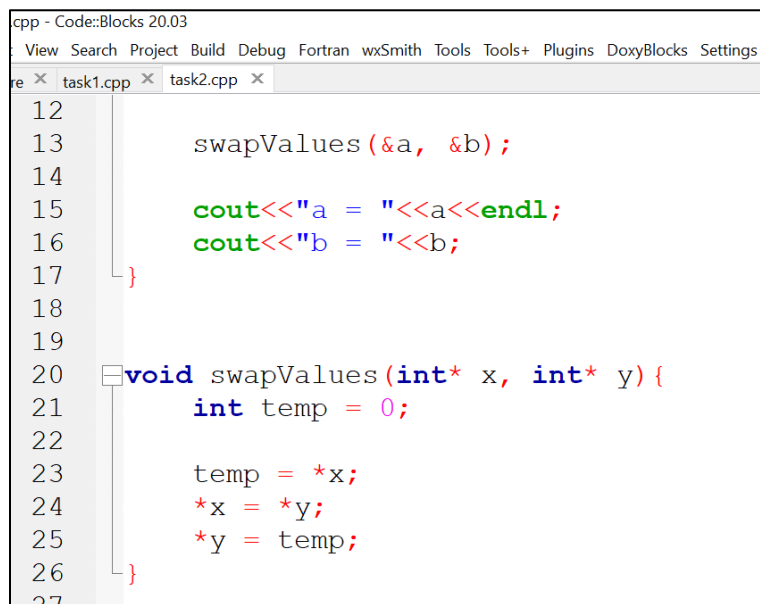
TASK # 2:

Title:

Write a C++ program where you take two values from user in two variables, swaps the values of the variables using pointers.

CODE SCREENSHOTS:

Here are the screenshots of the code.

```cpp
#include<iostream>
using namespace std;

void swapValues(int*,int*);

main(){
    int a = 0, b =0;
    cout<<"Enter a"<<endl;
    cin>>a;
    cout<<"Enter b"<<endl;
    cin>>b;

    swapValues(&a, &b);

    cout<<"a = "<<a<<endl;
    cout<<"b = "<<b;
}
```

```cpp
        swapValues(&a, &b);

        cout<<"a = "<<a<<endl;
        cout<<"b = "<<b;
}


void swapValues(int* x, int* y){
    int temp = 0;

    temp = *x;
    *x = *y;
    *y = temp;
}
```

OUTPUT (COMPILATION, DEBUGGING & TESTING):

Here are the screenshots of the output of above code.

TASK # 3:

Title:

Write a C++ program where you take a value in a variable from use increment that value by 5 using a

pointer in a for loop and display its value using pointer.

CODE SCREENSHOTS:

Here is the screenshot of the code.

```cpp
#include<iostream>
using namespace std;

main(){
    int a =0;
    int* p;

    p = &a;

    cout<<"Enter value of a"<<endl;
    cin>>a;

    for(int i = 0; i < 5; i++)
        *p += 1;

    cout<<"a = "<<*p;
}
```

OUTPUT (COMPILATION, DEBUGGING & TESTING):

Here is the screenshot of the output of above code.

```
"D:\uni\2nd Semester\CP\CP Lab\Lab Reports\Lab 8\task 3\task3.exe"
Enter value of a
4
a = 9
Process returned 0 (0x0)   execution time : 1.562 s
Press any key to continue.
```

TASK # 4:

Title:

Write a C++ program where you take your first name from user in a string variable.....And then display both using a single pointer.

CODE SCREENSHOTS:

Here are the screenshots of the code.

```
- Code::Blocks 20.03
iew  Search  Project  Build  Debug  Fortran  wxSmith  Tools  Tools+  Plugins  DoxyBlocks  Settings  Help
task1.cpp ×  task2.cpp ×  task3.cpp ×  task4.cpp ×
1      #include<iostream>
2      using namespace std;
3
4      main(){
5           string x = "";
6           string y = "";
7
8           string* ptr1;
9
10          ptr1 = &x;
11
12          cout<<"Enter your name"<<endl;
13          cin>>x;
```

```
p - Code::Blocks 20.03
View  Search  Project  Build  Debug  Fortran  wxSmith  Tools  Tools+  Plugins  DoxyBlocks  Settings  Help
× task1.cpp  × task2.cpp  × task3.cpp  × task4.cpp  ×

 11
 12          cout<<"Enter your name"<<endl;
 13          cin>>x;
 14
 15          cout<<"Enter your registration number"<<endl;
 16          cin>>y;
 17
 18          cout<<"Name ="<<*ptr1<<endl;
 19
 20          ptr1 = &y;
 21
 22          cout<<"Registration Number ="<<*ptr1;
 23     }
 24
```

OUTPUT (COMPILATION, DEBUGGING & TESTING):

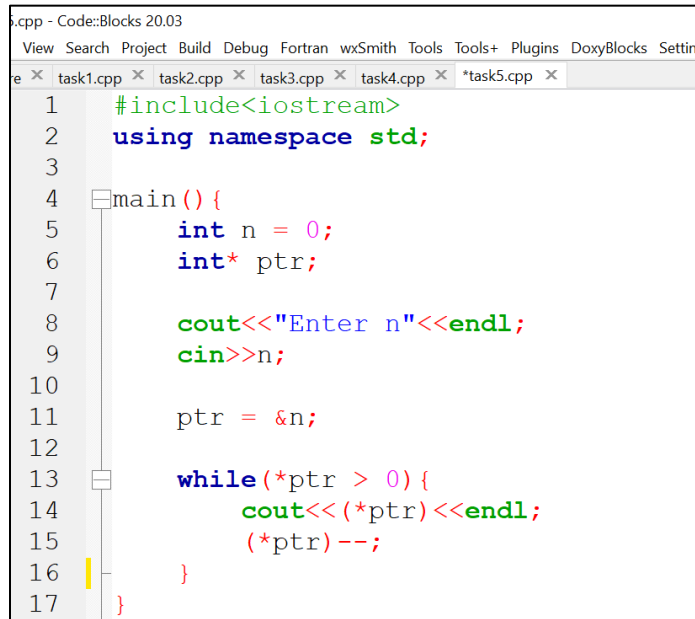Here is the screenshot of the output of above code.

```
 "D:\uni\2nd Semester\CP\CP Lab\Lab Reports\Lab 8\task 4\task4.exe"

Enter your name
ALiAsghar
Enter your registration number
21PWCSE2059
Name =ALiAsghar
Registration Number =21PWCSE2059
Process returned 0 (0x0)    execution time : 13.167 s
Press any key to continue.
```

TASK # 5:

Title:

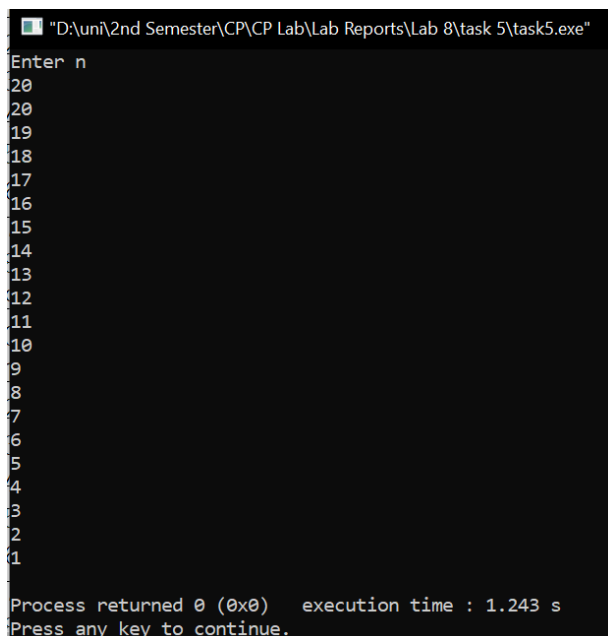Display 1 to n numbers using pointer, user must enter the n.

CODE SCREENSHOTS:

Here is the screenshot of the code.

```cpp
#include<iostream>
using namespace std;

main(){
    int n = 0;
    int* ptr;

    cout<<"Enter n"<<endl;
    cin>>n;

    ptr = &n;

    while(*ptr > 0){
        cout<<(*ptr)<<endl;
        (*ptr)--;
    }
}
```

OUTPUT (COMPILATION, DEBUGGING & TESTING):

Here is the screenshot of the output of above code.

```
"D:\uni\2nd Semester\CP\CP Lab\Lab Reports\Lab 8\task 5\task5.exe"
Enter n
20
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

Process returned 0 (0x0)   execution time : 1.243 s
Press any key to continue.
```
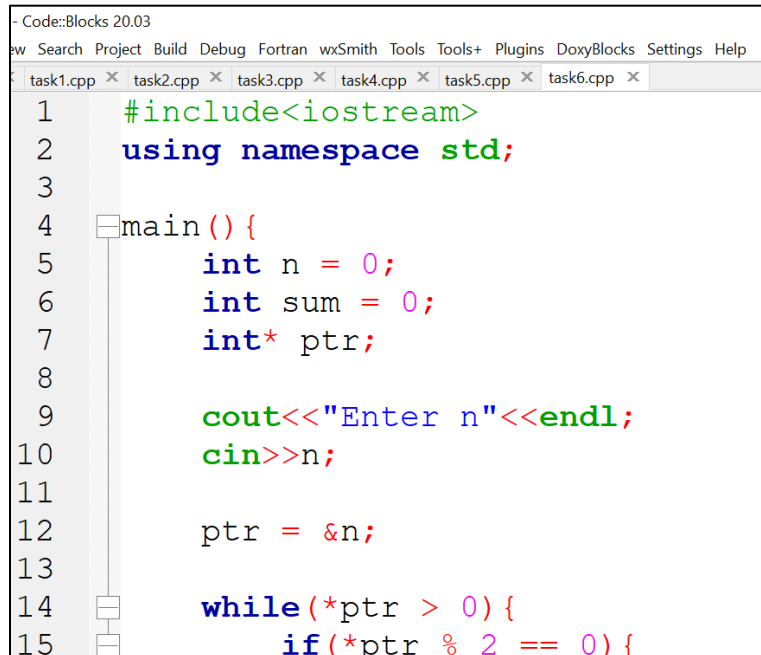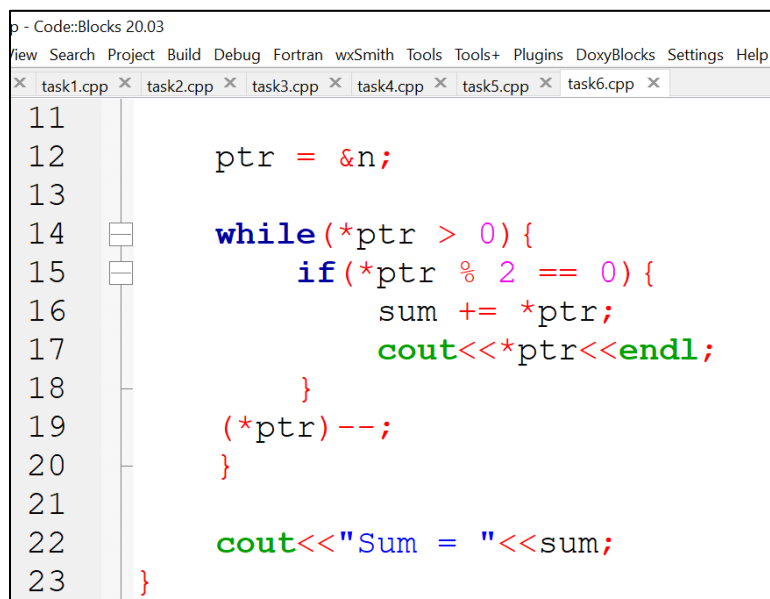
TASK # 6:

Title:

Add even numbers from 1 to n using pointers user must enter n.

CODE SCREENSHOTS:
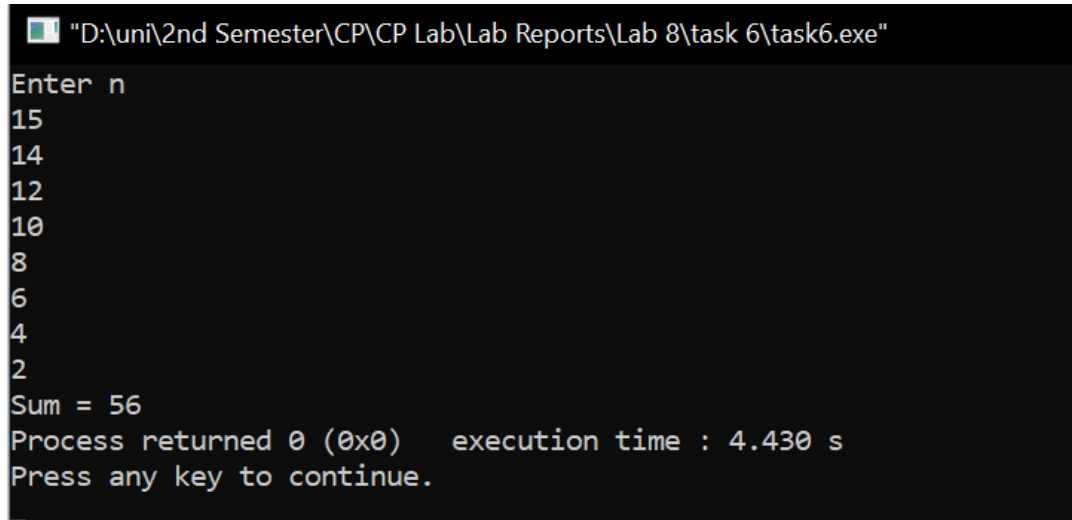
Here are the screenshots of the code.

```cpp
#include<iostream>
using namespace std;

main(){
    int n = 0;
    int sum = 0;
    int* ptr;

    cout<<"Enter n"<<endl;
    cin>>n;

    ptr = &n;

    while(*ptr > 0){
        if(*ptr % 2 == 0){
```

```cpp
        ptr = &n;

        while(*ptr > 0){
            if(*ptr % 2 == 0){
                sum += *ptr;
                cout<<*ptr<<endl;
            }
        (*ptr)--;
        }

        cout<<"Sum = "<<sum;
}
```

OUTPUT (COMPILATION, DEBUGGING & TESTING):

Here is the screenshot of the output of above code.

```
■ "D:\uni\2nd Semester\CP\CP Lab\Lab Reports\Lab 8\task 6\task6.exe"
Enter n
15
14
12
10
8
6
4
2
Sum = 56
Process returned 0 (0x0)    execution time : 4.430 s
Press any key to continue.
```