src > 2nd_lab > ex1.cpp > ...

```cpp
// This program calculates the average of two float numbers y1, y2
#include <iostream>
using namespace std;
float avg(float, float); // function prototype

int main()
{
    float y1, y2, avgy;
    y1 = 5.0;
    y2 = 7.0;
    avgy = avg(y1, y2);
    cout << "\ny1 = " << y1 << "\ny2 = " << y2 << endl;
    cout << "The average is = " << avgy << endl;
    return 0;
}

float avg(float x1, float x2)
{
    return float((x1 + x2) / 2);
}

// Expected Output:
// y1 = 5
// y2 = 7
// The average is = 6
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab> .\ex1.exe

y1 = 5
y2 = 7
The average is = 6
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab>
```

src > 2nd_lab > ex2.cpp > ...

```cpp
// This program calculates the area of a triangle
#include <iostream>
using namespace std;

float triangle_area(float base, float height)
{
    return float(0.5 * base * height);
}

int main()
{
    float b, h, a; // base, height, area
    b = 4;
    h = 6;
    a = triangle_area(b, h);
    cout << "Area = (0.5 * base * height)" << endl;
    cout << "Where, base = 4, height = 6" << endl;
    cout << "Area = " << a << endl;
    return 0;
}

// Expected Output:
// Area = (0.5 * base * height)
// Where, base = 4, height = 6
// Area = 12
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab> g++ ex2.cpp -o ex2.exe
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_la> .\ex2.exe
Area = (0.5 * base * height)
Where, base = 4, height = 6
Area = 12
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab>
```

ex3.cpp

src > 2nd_lab > ex3.cpp > ...

```cpp

void my_func(); // my_func prototype
// Global Variables
int x = 5, y = 7;

int main()
{
    cout << "x = 5, y = 7, global scope\n";
    cout << "\nx within main: " << x << "\n";
    cout << "\ny within main: " << y << "\n\n";
    cout << "Then function call....\n";
    my_func();
    cout << "Back from my_func...\n\n";
    cout << "\nx within main: " << x << "\n";
    cout << "\ny within main: " << y << "\n\n";
    return 0;
}

void my_func()
{
    int y = 10;
    cout << "\ny = 10, local scope\n";
    cout << "x within my_func: " << x << "\n";
    cout << "y within my_func: " << y << "\n\n";
}

// Output:
// x = 5, y = 7, global scope
//
// x within main: 5
//
// y within main: 7
//
// Then function call...
//
// y = 10, local scope
// x within my_func: 5
// y within my_func: 10
//
// Back from my_func....
//
//
// x within main: 5
//
// y within main: 7
//
```

CHAT TERMINAL powershell

```
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab>g++ ex3.cpp -o ex3.exe
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab> .\ex3.exe
x = 5, y = 7, global scope

x within main: 5

y within main: 7

Then function call....

y = 10, local scope
x within my_func: 5
y within my_func: 10

Back from my_func...


x within main: 5

y within main: 7

PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab>
```

src > 2nd_lab > ex4.cpp > ...

```cpp
// Default parameter values
#include <iostream>
using namespace std;

int AreaOfCube(int lenght, int widht = 25, int height = 1);

int main()
{
    int l = 100, w = 50, h = 2, area;
    area = AreaOfCube(l, w, h);
    cout << "First time function call, area = " << area << endl;
    area = AreaOfCube(l, w); // missing height (default value is 1)
    cout << "Second time function call, area = " << area << endl;
    area = AreaOfCube(l); // missing width (default value is 25), missing height (default value is 1)
    cout << "Third time function call, area = " << area << endl;
    return 0;
}

int AreaOfCube(int lenght, int width, int height)
{
    return (lenght * width * height);
}
// Expected Output:
// First time function call, area = 10_000
// Second time function call, area = 5_000
// Third time function call, area = 2_500
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab> .\ex4.exe
First time function call, area = 10000
Second time function call, area = 5000
Third time function call, area = 2500
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab>
```

src > 2nd_lab > ex5.cpp > change(int, int)

```cpp
// Call By Value
#include <iostream>
using namespace std;
void change(int, int);
int main()
{
    int a, b;
    cout << "Enter values for a and b" << endl;
    cin >> a >> b;
    change(a, b);
    cout << "\nThe values of a and b after function execution: ";
    cout << a << " " << b << endl;
    return 0;
}
void change(int i, int ii)
{
    i *= 10; // i = i * 10
    ii += 8; // ii = ii + 8
    cout << "\nThe Values of a and b inside the function: " << i << " " << ii << endl;
}
// Expected Output:
// Enter values for a and b
// 5 8
//
// The values of a and b inside the funciton: 50 16
//
// The values of a and b after function execution: 5 8
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab> .\ex5.exe
Enter values for a and b
5 8

The Values of a and b inside the function: 50 16

The values of a and b after function execution: 5 8
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab>
```

src > 2nd_lab > ex5.cpp > ...

```cpp
// Call By Reference
#include <iostream>
using namespace std;
void change(int &, int &);
int main()
{
    int a, b;
    cout << "Enter values for a and b" << endl;
    cin >> a >> b;
    change(a, b);
    cout << "\nThe values of a and b after function execution: ";
    cout << a << " " << b << endl;
    return 0;
}
void change(int &i, int &ii)
{
    i *= 10; // i = i * 10
    ii += 8; // ii = ii + 8
    cout << "\nThe Values of a and b inside the function: " << i << " " << ii << endl;
}
// Expected Output:
// Enter values for a and b
// 5 8
//
// The values of a and b inside the funciton: 50 16
//
// The values of a and b after function execution: 50 16

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab> .\ex5.exe
Enter values for a and b
5 8

The Values of a and b inside the function: 50 16

The values of a and b after function execution: 50 16
PS F:\WorkSpace\C++_work\Lab_II_Assignments\src\2nd_lab>
```