Discipline Knowledge Morality

Bangladesh Army University of Science and Technology (BAUST)

LAB REPORT

Topic Name: Array Sum, Matrix Sum, Quick Sort, Binary Search, Palindrome String debugging process.

Course title: : Compiler Sessional

Course code: CSE 3202

Submitted to:

Md. Sydur Rahman

Lecturer

Dept. of CSE,Bangladesh Army University of science and technology

Submitted by:

MD Asif Hossain
Session: 2018-19

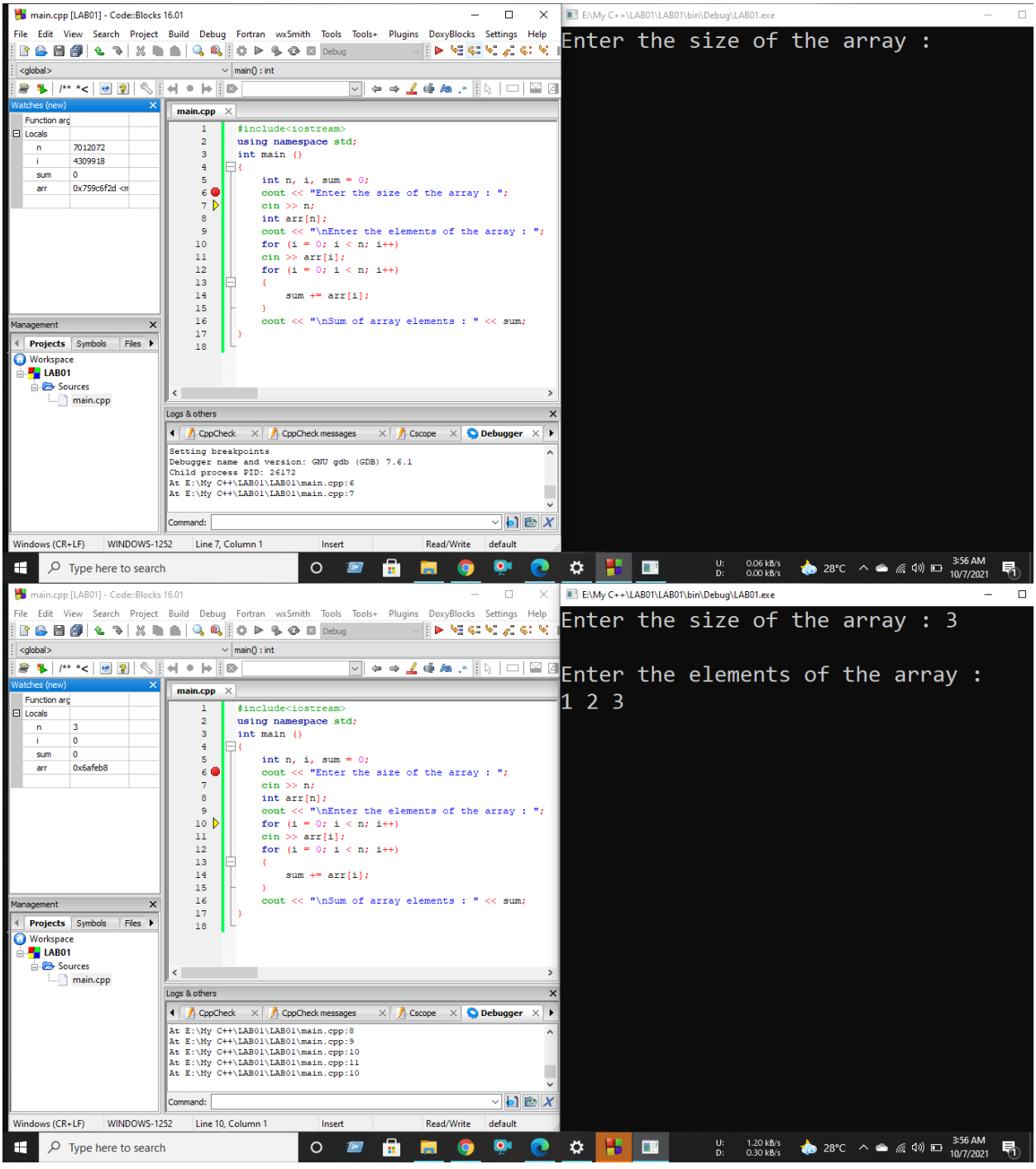
Roll: 180201015

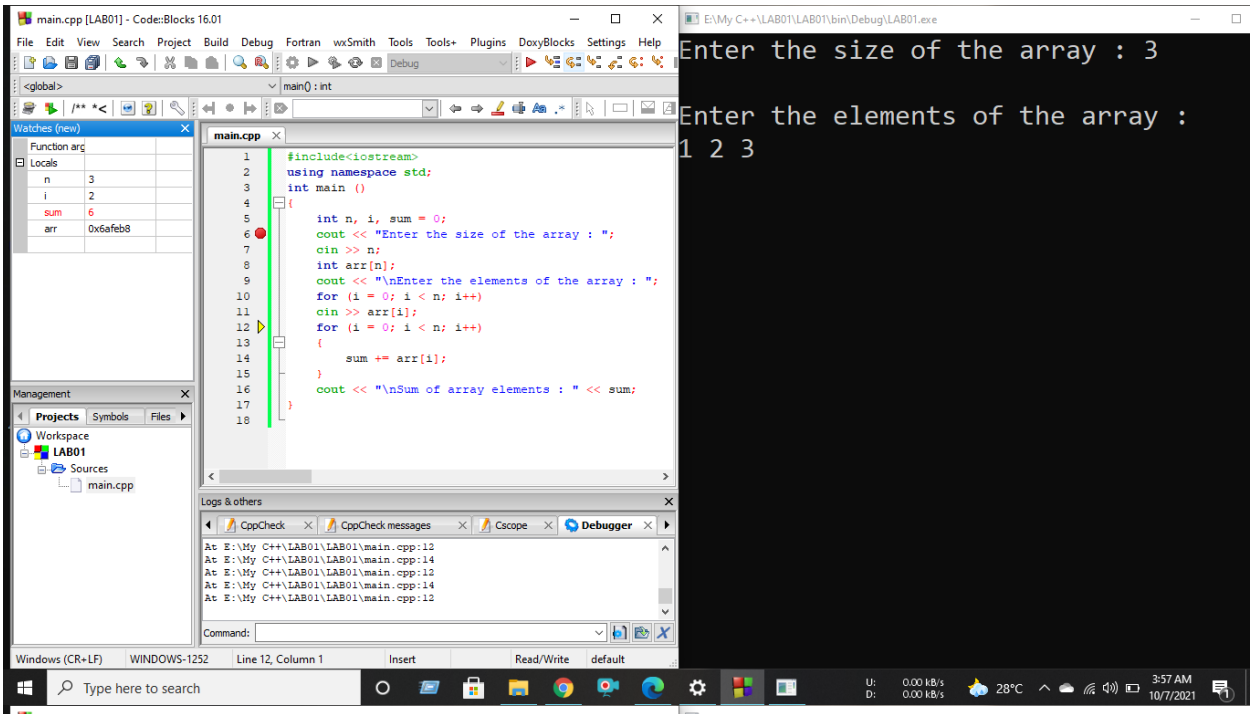
Level-3, Term-II

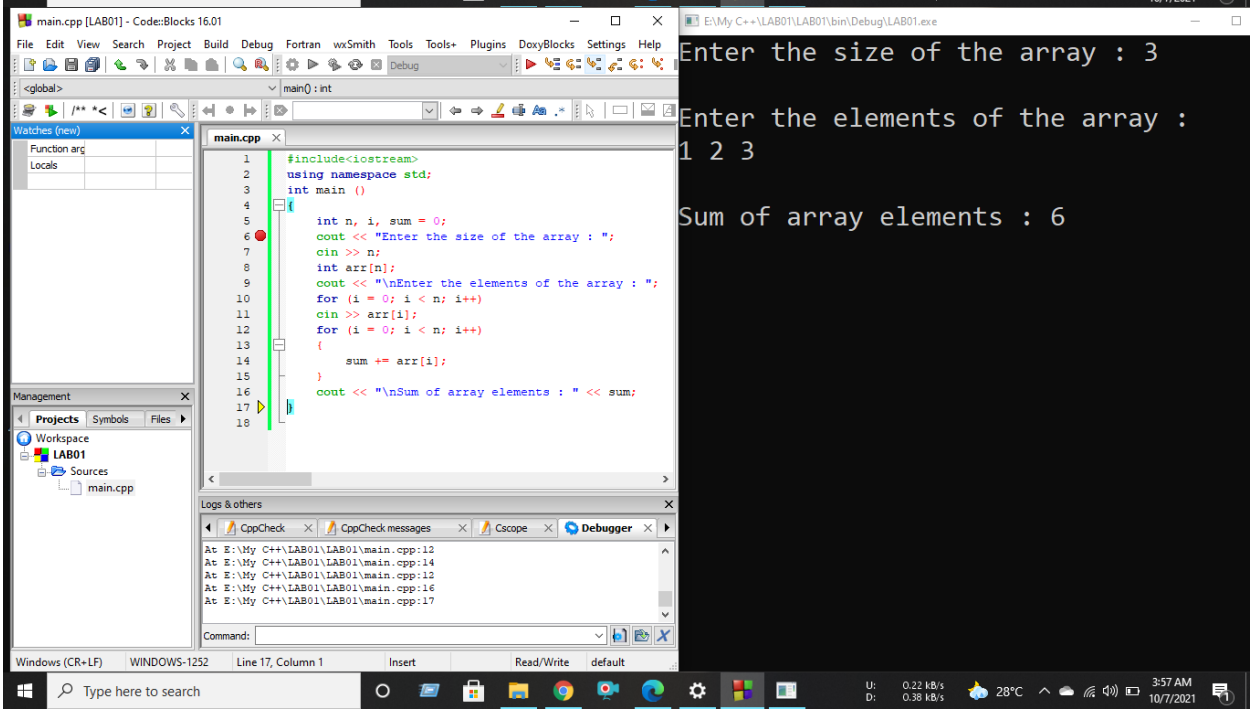
Sec: A, Dept. of CSE

Date of submission: 10/07/2021

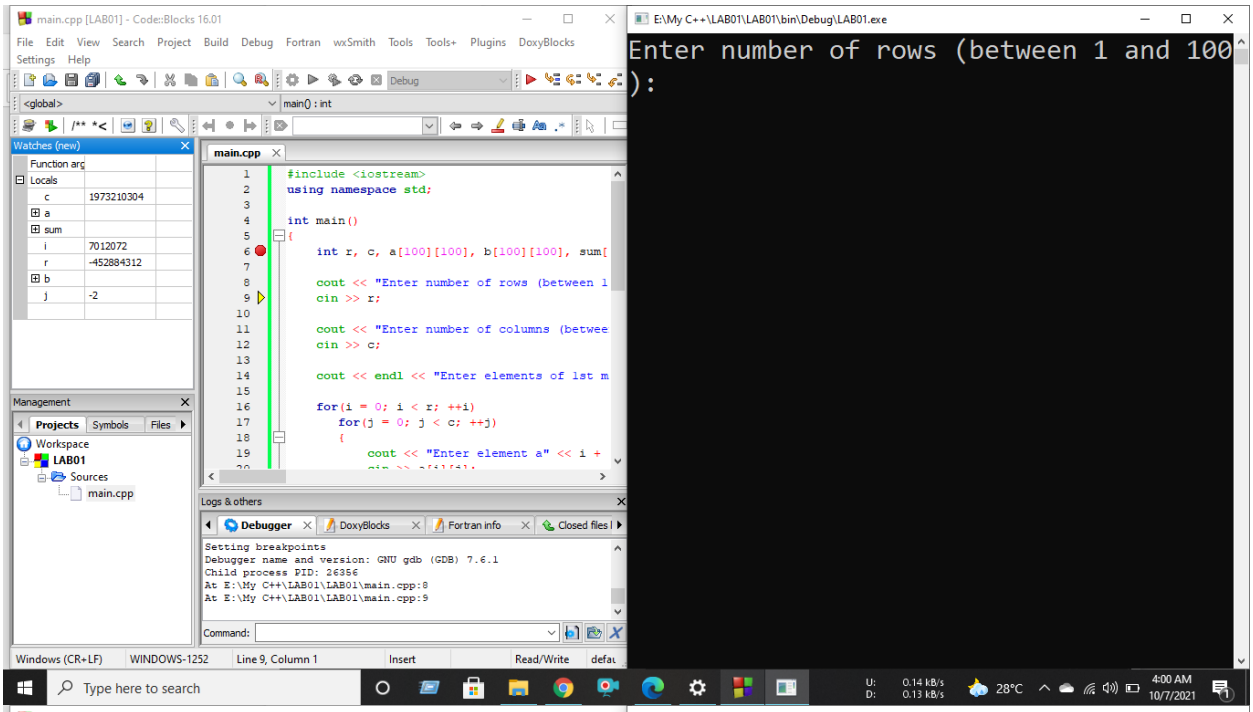
1.Array Sum:

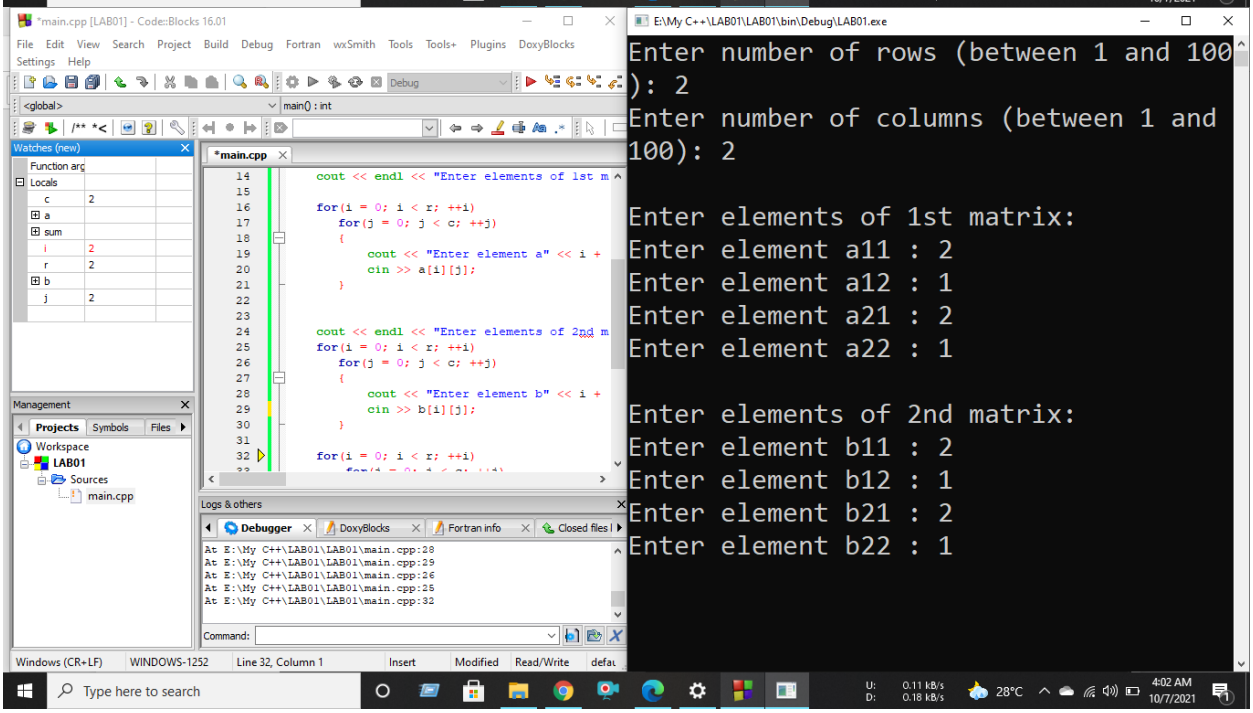

main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Watches (new)
Function arg
Locals
n 7012072
i 4309918
sum 0
arr 0x759c6f2d <n
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
main.cpp
1 #include<iostream>
2 using namespace std;
3 int main ()
4 {
5 int n, i, sum = 0;
6 cout << "Enter the size of the array : ";
7 cin >> n;
8 int arr[n];
9 cout << "\nEnter the elements of the array : ";
10 for (i = 0; i < n; i++)
11 cin >> arr[i];
12 for (i = 0; i < n; i++)
13 {
14 sum += arr[i];
15 }
16 cout << "\nSum of array elements : " << sum;
17 }
18
Logs & others
CppCheck CppCheck messages Cscope Debugger
Setting breakpoints
Debugger name and version: GNU gdb (GDB) 7.6.1
Child process PID: 26172
At E:\My C++\LAB01\LAB01\main.cpp:6
At E:\My C++\LAB01\LAB01\main.cpp:7
Command:
Windows (CR+LF) WINDOWS-1252 Line 7, Column 1 Insert Read/Write default
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Enter the size of the array :
Type here to search
28°C
3:56 AM
10/7/2021
main.cpp [LAB01] - Code::Blocks 16.01
Watches (new)
Function arg
Locals
n 3
i 0
sum 0
arr 0x6afeb8
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
main.cpp
1 #include<iostream>
2 using namespace std;
3 int main ()
4 {
5 int n, i, sum = 0;
6 cout << "Enter the size of the array : ";
7 cin >> n;
8 int arr[n];
9 cout << "\nEnter the elements of the array : ";
10 for (i = 0; i < n; i++)
11 cin >> arr[i];
12 for (i = 0; i < n; i++)
13 {
14 sum += arr[i];
15 }
16 cout << "\nSum of array elements : " << sum;
17 }
18
Logs & others
CppCheck CppCheck messages Cscope Debugger
At E:\My C++\LAB01\LAB01\main.cpp:8
At E:\My C++\LAB01\LAB01\main.cpp:9
At E:\My C++\LAB01\LAB01\main.cpp:10
At E:\My C++\LAB01\LAB01\main.cpp:11
At E:\My C++\LAB01\LAB01\main.cpp:10
Command:
Windows (CR+LF) WINDOWS-1252 Line 10, Column 1 Insert Read/Write default
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Enter the size of the array : 3
Enter the elements of the array :
1 2 3
Type here to search
28°C
3:56 AM
10/7/2021

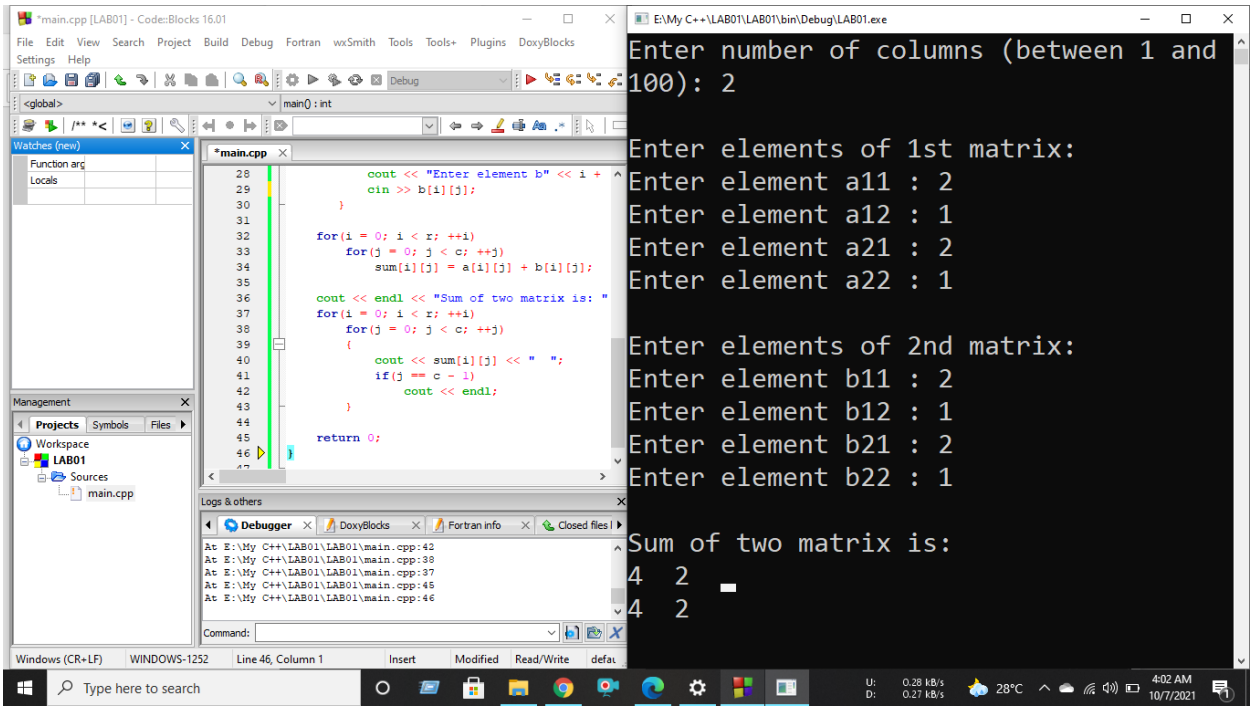

main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Watches (new)
Function arg
Locals
n 3
i 2
sum 6
arr 0x6afeb8
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
main.cpp
1 #include<iostream>
2 using namespace std;
3 int main ()
4 {
5 int n, i, sum = 0;
6 cout << "Enter the size of the array : ";
7 cin >> n;
8 int arr[n];
9 cout << "\nEnter the elements of the array : ";
10 for (i = 0; i < n; i++)
11 cin >> arr[i];
12 for (i = 0; i < n; i++)
13 {
14 sum += arr[i];
15 }
16 cout << "\nSum of array elements : " << sum;
17 }
18
Logs & others
CppCheck CppCheck messages Cscope Debugger
At E:\My C++\LAB01\LAB01\main.cpp:12
At E:\My C++\LAB01\LAB01\main.cpp:14
At E:\My C++\LAB01\LAB01\main.cpp:12
At E:\My C++\LAB01\LAB01\main.cpp:14
At E:\My C++\LAB01\LAB01\main.cpp:12
Command:
Windows (CR+LF) WINDOWS-1252 Line 12, Column 1 Insert Read/Write default
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Enter the size of the array : 3
Enter the elements of the array :
1 2 3
Type here to search
28°C
3:57 AM
10/7/2021


main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Watches (new)
Function arg
Locals
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
main.cpp
1 #include<iostream>
2 using namespace std;
3 int main ()
4 {
5 int n, i, sum = 0;
6 cout << "Enter the size of the array : ";
7 cin >> n;
8 int arr[n];
9 cout << "\nEnter the elements of the array : ";
10 for (i = 0; i < n; i++)
11 cin >> arr[i];
12 for (i = 0; i < n; i++)
13 {
14 sum += arr[i];
15 }
16 cout << "\nSum of array elements : " << sum;
17 }
18
Logs & others
CppCheck CppCheck messages Cscope Debugger
At E:\My C++\LAB01\LAB01\main.cpp:12
At E:\My C++\LAB01\LAB01\main.cpp:14
At E:\My C++\LAB01\LAB01\main.cpp:12
At E:\My C++\LAB01\LAB01\main.cpp:16
At E:\My C++\LAB01\LAB01\main.cpp:17
Command:
Windows (CR+LF) WINDOWS-1252 Line 17, Column 1 Insert Read/Write default
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Enter the size of the array : 3
Enter the elements of the array :
1 2 3
Sum of array elements : 6
Type here to search
28°C
3:57 AM
10/7/2021

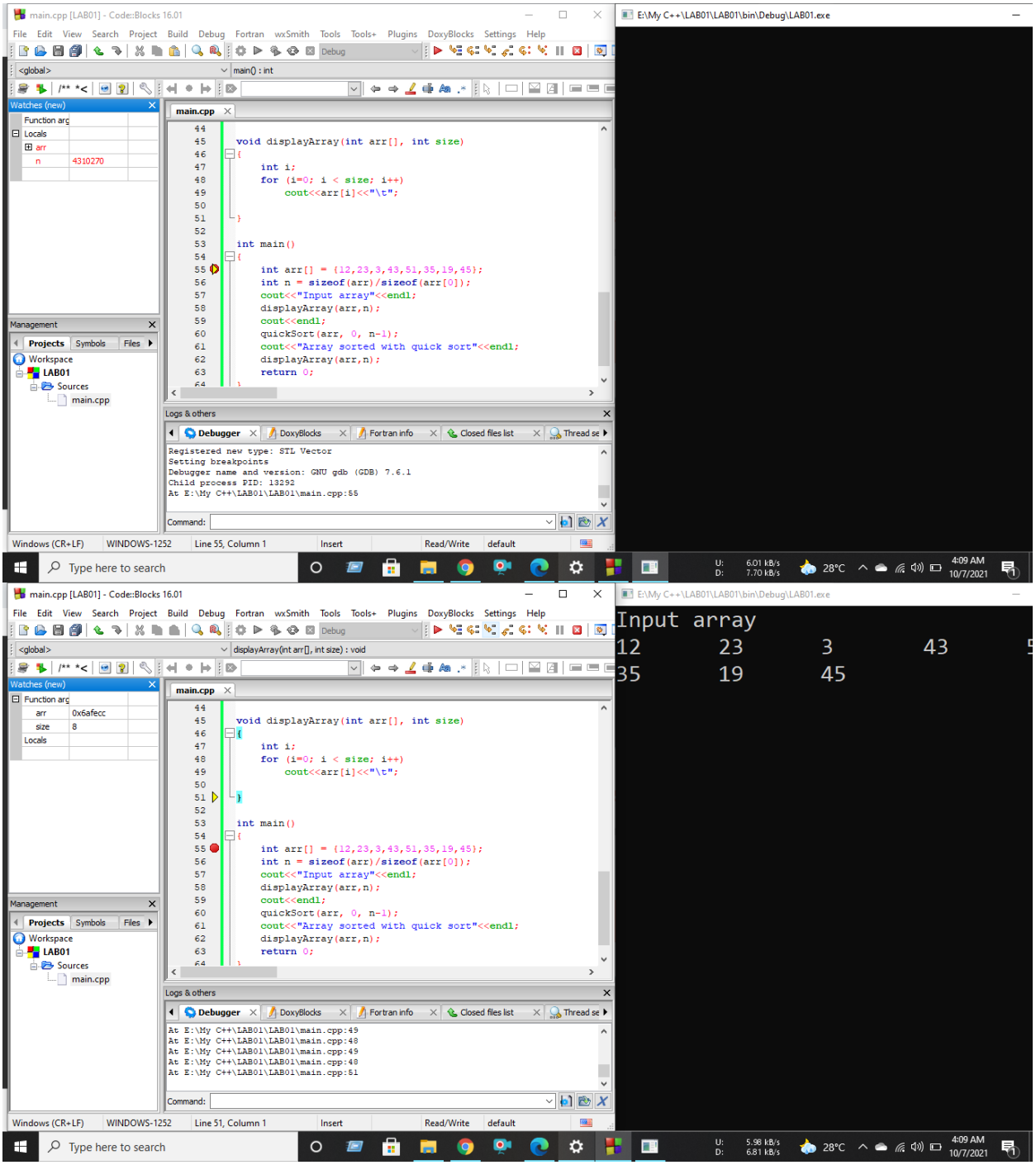
2.Matrix Sum:

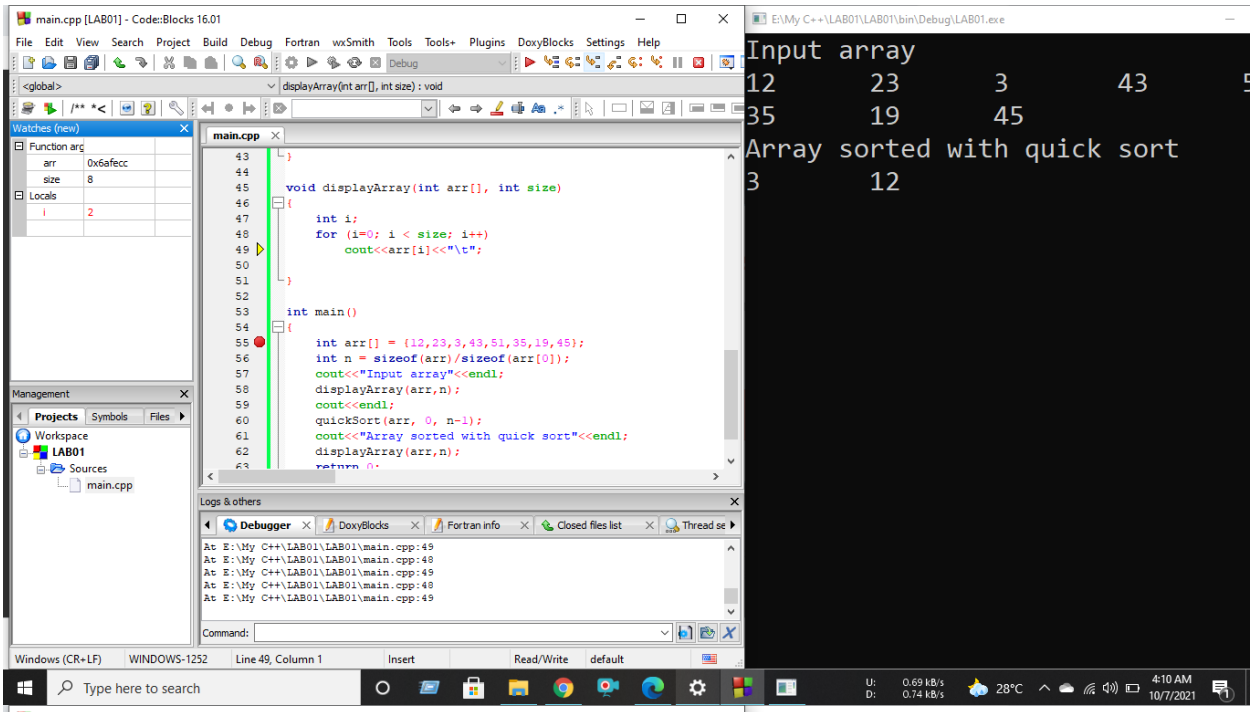

main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks
Settings Help
Watches (new)
Function arg
Locals
c 1973210304
a
sum
i 7012072
r -452884312
b
j -2
main.cpp
#include <iostream>
using namespace std;
int main()
{
int r, c, a[100][100], b[100][100], sum[
cout << "Enter number of rows (between 1
cin >> r;
cout << "Enter number of columns (betwee
cin >> c;
cout << endl << "Enter elements of 1st m
for(i = 0; i < r; ++i)
for(j = 0; j < c; ++j)
{
cout << "Enter element a" << i +
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
Logs & others
Debugger DoxyBlocks Fortran info Closed files
Setting breakpoints
Debugger name and version: GNU gdb (GDB) 7.6.1
Child process PID: 26356
At E:\My C++\LAB01\LAB01\main.cpp:8
At E:\My C++\LAB01\LAB01\main.cpp:9
Command:
Windows (CR+LF) WINDOWS-1252 Line 9, Column 1 Insert Read/Write
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Enter number of rows (between 1 and 100
):
Type here to search
28°C
4:00 AM
10/7/2021

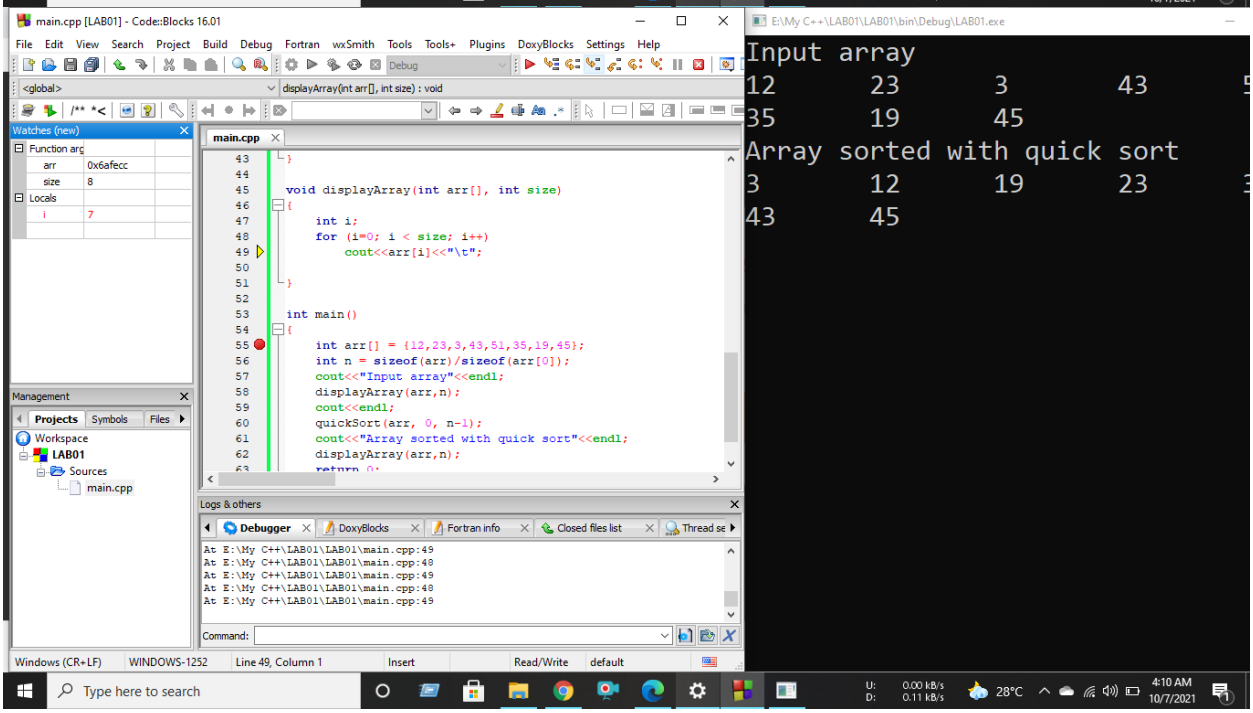

*main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks
Settings Help
Watches (new)
Function arg
Locals
c 2
a
sum
i 2
r 2
b
j 2
*main.cpp
cout << endl << "Enter elements of 1st m
for(i = 0; i < r; ++i)
for(j = 0; j < c; ++j)
{
cout << "Enter element a" << i +
cin >> a[i][j];
}
cout << endl << "Enter elements of 2nd m
for(i = 0; i < r; ++i)
for(j = 0; j < c; ++j)
{
cout << "Enter element b" << i +
cin >> b[i][j];
}
for(i = 0; i < r; ++i)
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
Logs & others
Debugger DoxyBlocks Fortran info Closed files
At E:\My C++\LAB01\LAB01\main.cpp:28
At E:\My C++\LAB01\LAB01\main.cpp:29
At E:\My C++\LAB01\LAB01\main.cpp:26
At E:\My C++\LAB01\LAB01\main.cpp:25
At E:\My C++\LAB01\LAB01\main.cpp:32
Command:
Windows (CR+LF) WINDOWS-1252 Line 32, Column 1 Insert Modified Read/Write
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Enter number of rows (between 1 and 100
): 2
Enter number of columns (between 1 and
100): 2
Enter elements of 1st matrix:
Enter element a11 : 2
Enter element a12 : 1
Enter element a21 : 2
Enter element a22 : 1
Enter elements of 2nd matrix:
Enter element b11 : 2
Enter element b12 : 1
Enter element b21 : 2
Enter element b22 : 1
Type here to search
28°C
4:02 AM
10/7/2021

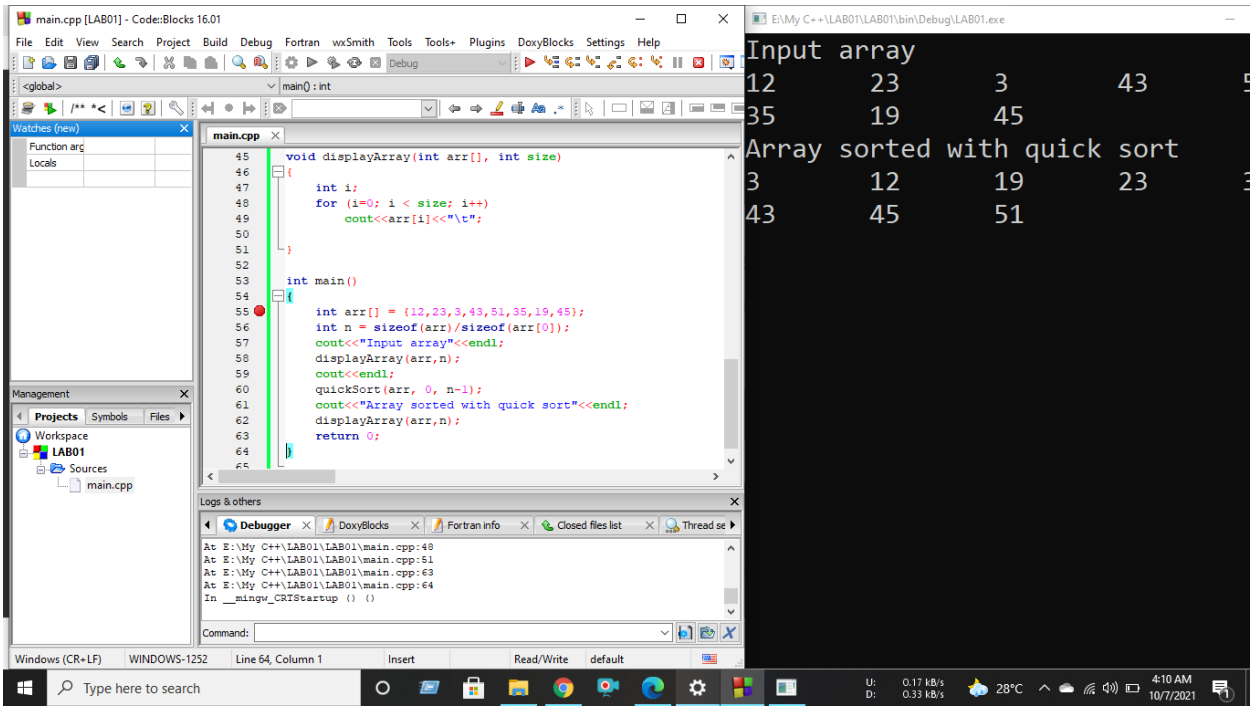

*main.cpp [LAB01] - Codeblocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks
Settings Help
Watches (new)
Function arg
Locals
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
*main.cpp
28 cout << "Enter element b" << i +
29 cin >> b[i][j];
30 }
31
32 for(i = 0; i < r; ++i)
33 for(j = 0; j < c; ++j)
34 sum[i][j] = a[i][j] + b[i][j];
35
36 cout << endl << "Sum of two matrix is: "
37 for(i = 0; i < r; ++i)
38 for(j = 0; j < c; ++j)
39 {
40 cout << sum[i][j] << " ";
41 if(j == c - 1)
42 cout << endl;
43 }
44
45 return 0;
46 }
Logs & others
Debugger
DoxyBlocks
Fortran info
Closed files
At E:\My C++\LAB01\LAB01\main.cpp:42
At E:\My C++\LAB01\LAB01\main.cpp:38
At E:\My C++\LAB01\LAB01\main.cpp:37
At E:\My C++\LAB01\LAB01\main.cpp:45
At E:\My C++\LAB01\LAB01\main.cpp:46
Command:
Windows (CR+LF)
WINDOWS-1252
Line 46, Column 1
Insert
Modified
Read/Write
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Enter number of columns (between 1 and 100): 2
Enter elements of 1st matrix:
Enter element a11 : 2
Enter element a12 : 1
Enter element a21 : 2
Enter element a22 : 1
Enter elements of 2nd matrix:
Enter element b11 : 2
Enter element b12 : 1
Enter element b21 : 2
Enter element b22 : 1
Sum of two matrix is:
4 2
4 2
Type here to search
28°C
4:02 AM
10/7/2021

3.Quick Sort:

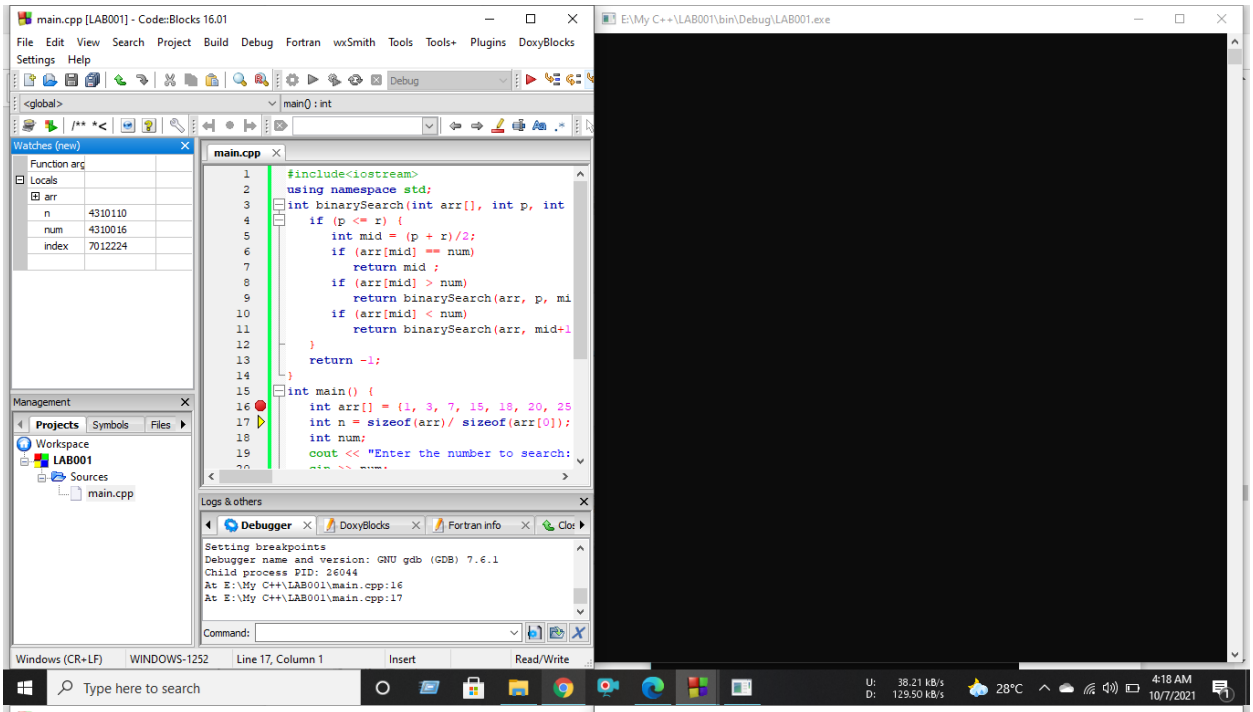

main.cpp [LAB01] - Code::Blocks 16.01
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
void displayArray(int arr[], int size)
int main()
int arr[] = {12,23,3,43,51,35,19,45};
cout<<"Input array"<<endl;
displayArray(arr,n);
quickSort(arr, 0, n-1);
cout<<"Array sorted with quick sort"<<endl;
Registered new type: STL Vector
Setting breakpoints
Debugger name and version: GNU gdb (GDB) 7.6.1
Child process PID: 13292
At E:\My C++\LAB01\LAB01\main.cpp:55
Input array
12 23 3 43
35 19 45
At E:\My C++\LAB01\LAB01\main.cpp:49
At E:\My C++\LAB01\LAB01\main.cpp:48
At E:\My C++\LAB01\LAB01\main.cpp:51
Type here to search

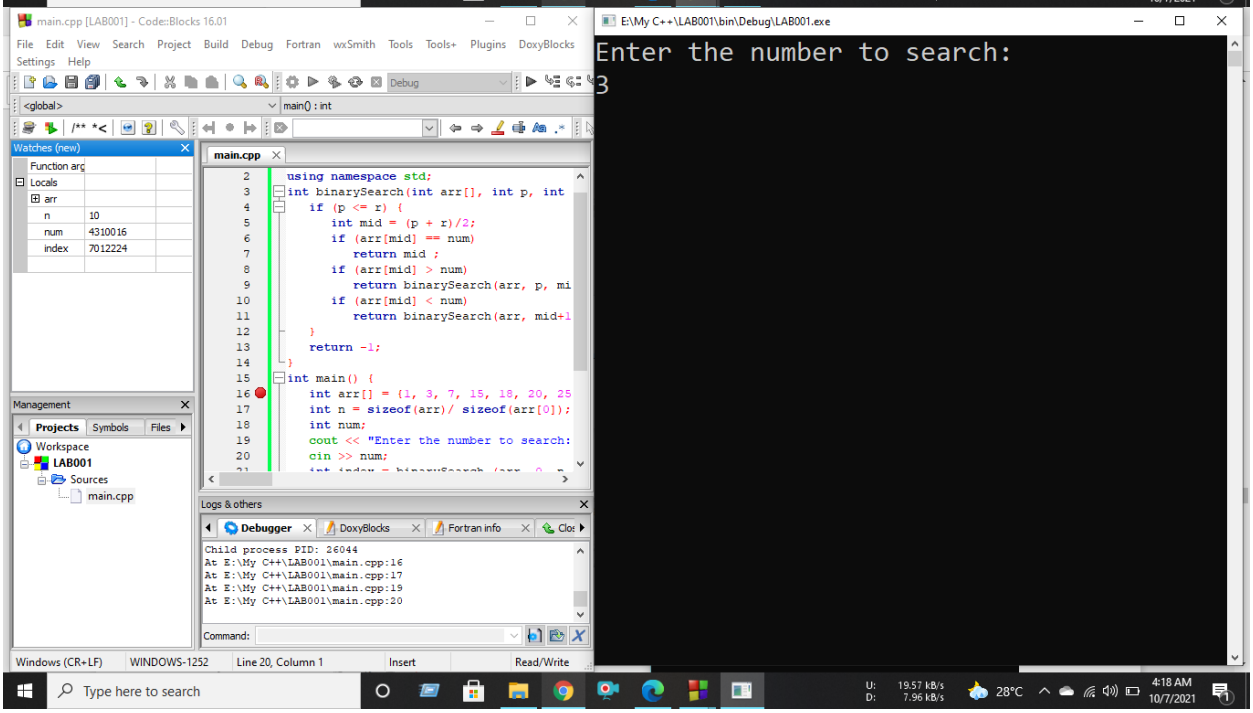

main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
displayArray(int arr[], int size) : void
Watches (new)
Function arg
arr 0x6afecc
size 8
Locals
i 2
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
main.cpp
43 }
44
45 void displayArray(int arr[], int size)
46 {
47 int i;
48 for (i=0; i < size; i++)
49 cout<<arr[i]<<"\t";
50
51 }
52
53 int main()
54 {
55 int arr[] = {12,23,3,43,51,35,19,45};
56 int n = sizeof(arr)/sizeof(arr[0]);
57 cout<<"Input array"<<endl;
58 displayArray(arr,n);
59 cout<<endl;
60 quickSort(arr, 0, n-1);
61 cout<<"Array sorted with quick sort"<<endl;
62 displayArray(arr,n);
Logs & others
Debugger DoxyBlocks Fortran info Closed files list Thread se
At E:\My C++\LAB01\LAB01\main.cpp:49
At E:\My C++\LAB01\LAB01\main.cpp:48
At E:\My C++\LAB01\LAB01\main.cpp:49
At E:\My C++\LAB01\LAB01\main.cpp:48
At E:\My C++\LAB01\LAB01\main.cpp:49
Command:
Windows (CR+LF) WINDOWS-1252 Line 49, Column 1 Insert Read/Write default
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Input array
12 23 3 43 5
35 19 45
Array sorted with quick sort
3 12
Type here to search
28°C
4:10 AM
10/7/2021

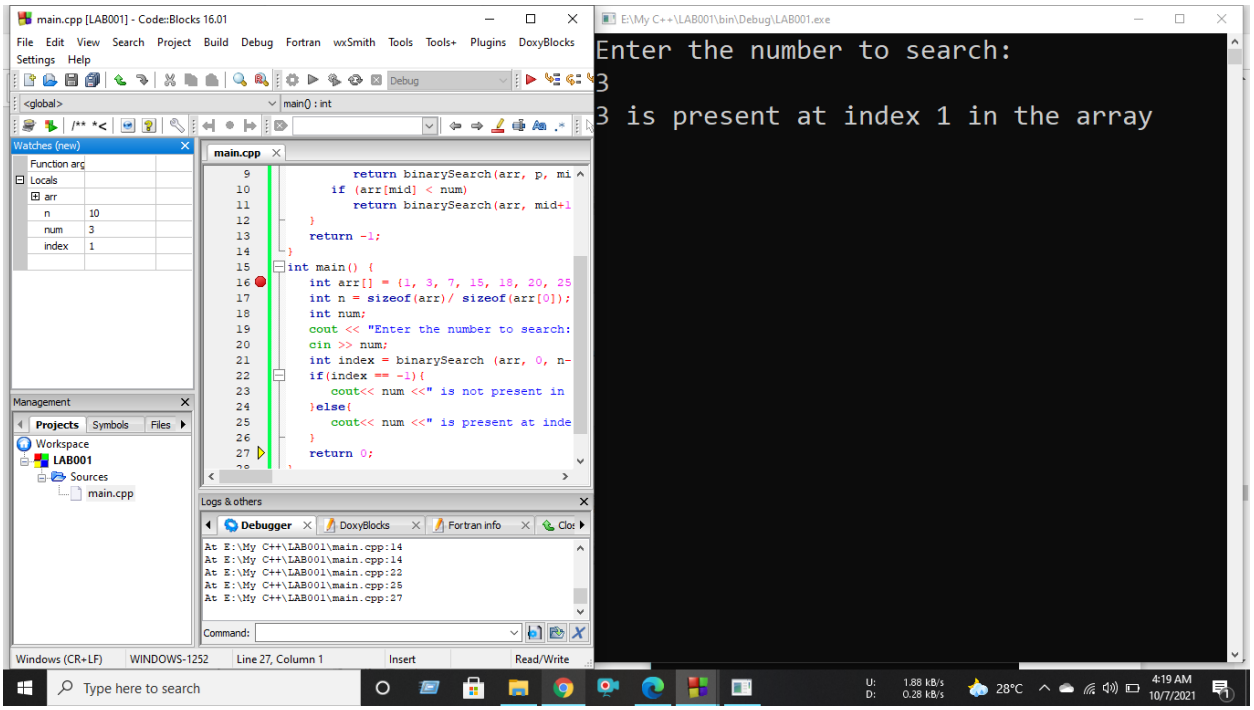

main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
displayArray(int arr[], int size) : void
Watches (new)
Function arg
arr 0x6afecc
size 8
Locals
i 7
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
main.cpp
43 }
44
45 void displayArray(int arr[], int size)
46 {
47 int i;
48 for (i=0; i < size; i++)
49 cout<<arr[i]<<"\t";
50
51 }
52
53 int main()
54 {
55 int arr[] = {12,23,3,43,51,35,19,45};
56 int n = sizeof(arr)/sizeof(arr[0]);
57 cout<<"Input array"<<endl;
58 displayArray(arr,n);
59 cout<<endl;
60 quickSort(arr, 0, n-1);
61 cout<<"Array sorted with quick sort"<<endl;
62 displayArray(arr,n);
Logs & others
Debugger DoxyBlocks Fortran info Closed files list Thread se
At E:\My C++\LAB01\LAB01\main.cpp:49
At E:\My C++\LAB01\LAB01\main.cpp:48
At E:\My C++\LAB01\LAB01\main.cpp:49
At E:\My C++\LAB01\LAB01\main.cpp:48
At E:\My C++\LAB01\LAB01\main.cpp:49
Command:
Windows (CR+LF) WINDOWS-1252 Line 49, Column 1 Insert Read/Write default
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Input array
12 23 3 43 5
35 19 45
Array sorted with quick sort
3 12 19 23 3
43 45
Type here to search
28°C
4:10 AM
10/7/2021


main.cpp [LAB01] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
main.cpp
void displayArray(int arr[], int size)
{
int i;
for (i=0; i < size; i++)
cout<<arr[i]<<"\t";
}
int main()
{
int arr[] = {12,23,3,43,51,35,19,45};
int n = sizeof(arr)/sizeof(arr[0]);
cout<<"Input array"<<endl;
displayArray(arr,n);
cout<<endl;
quickSort(arr, 0, n-1);
cout<<"Array sorted with quick sort"<<endl;
displayArray(arr,n);
return 0;
}
Management
Projects Symbols Files
Workspace
LAB01
Sources
main.cpp
Logs & others
Debugger DoxyBlocks Fortran info Closed files list Thread se
At E:\My C++\LAB01\LAB01\main.cpp:48
At E:\My C++\LAB01\LAB01\main.cpp:51
At E:\My C++\LAB01\LAB01\main.cpp:63
At E:\My C++\LAB01\LAB01\main.cpp:64
In __mingw_CRTStartup () ()
Command:
Windows (CR+LF) WINDOWS-1252 Line 64, Column 1 Insert Read/Write default
E:\My C++\LAB01\LAB01\bin\Debug\LAB01.exe
Input array
12 23 3 43 5
35 19 45
Array sorted with quick sort
3 12 19 23 3
43 45 51
Type here to search
28°C
4:10 AM
10/7/2021

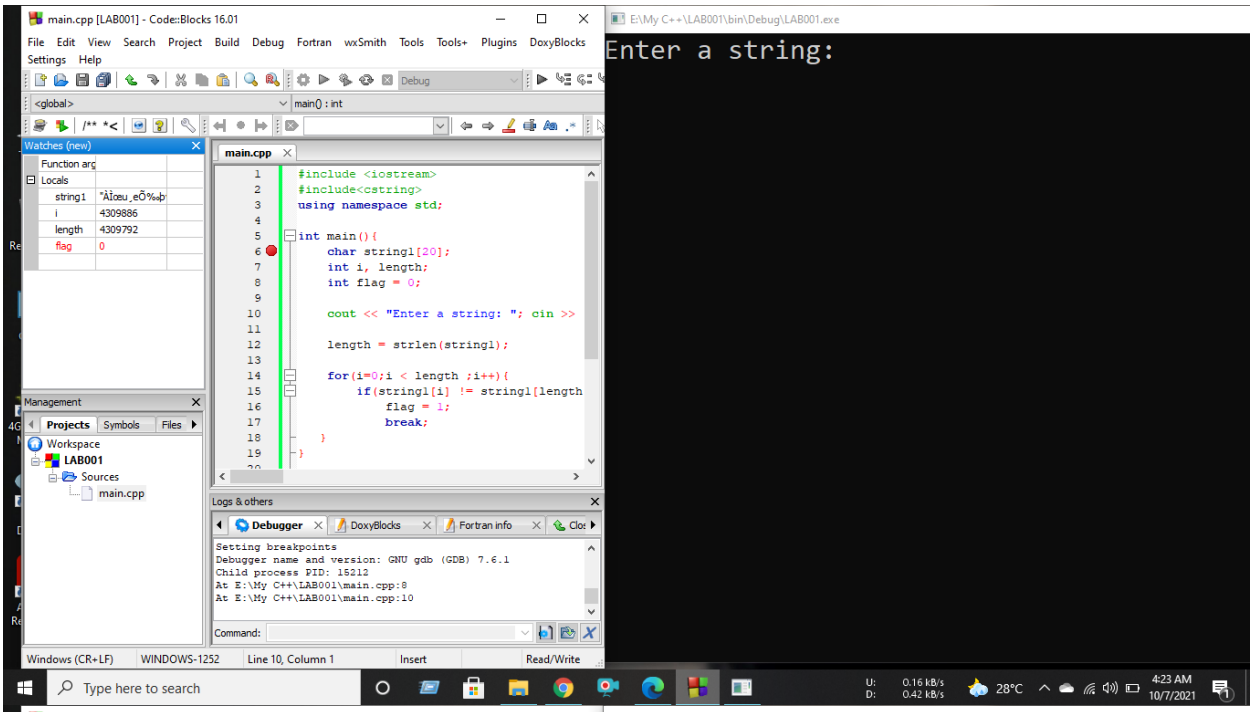
4.Binary Search:

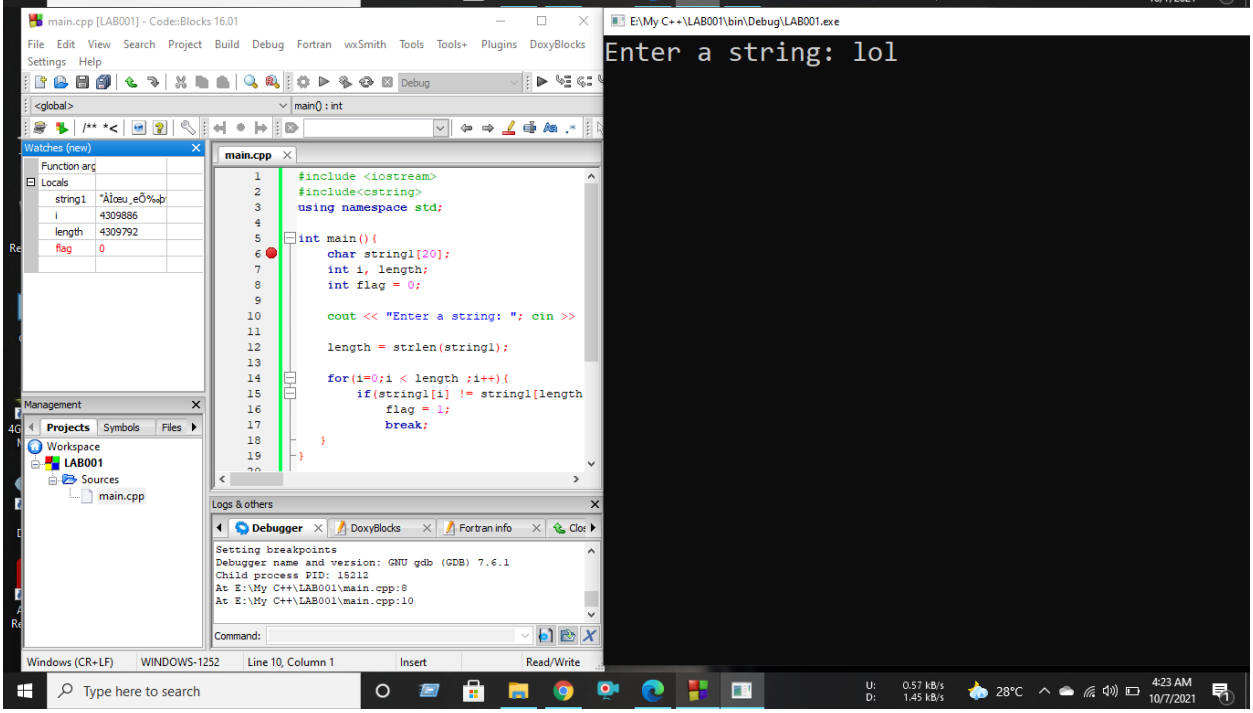

main.cpp [LAB001] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks
Settings Help
Watches (new)
Function arg
Locals
arr
n 4310110
num 4310016
index 7012224
Management
Projects Symbols Files
Workspace
LAB001
Sources
main.cpp
main.cpp
#include<iostream>
using namespace std;
int binarySearch(int arr[], int p, int
if (p <= r) {
int mid = (p + r)/2;
if (arr[mid] == num)
return mid ;
if (arr[mid] > num)
return binarySearch(arr, p, mi
if (arr[mid] < num)
return binarySearch(arr, mid+1
}
return -1;
}
int main() {
int arr[] = {1, 3, 7, 15, 18, 20, 25
int n = sizeof(arr)/ sizeof(arr[0]);
int num;
cout << "Enter the number to search:
Logs & others
Debugger DoxyBlocks Fortran info
Setting breakpoints
Debugger name and version: GNU gdb (GDB) 7.6.1
Child process PID: 26044
At E:\My C++\LAB001\main.cpp:16
At E:\My C++\LAB001\main.cpp:17
Command:
Windows (CR+LF) WINDOWS-1252 Line 17, Column 1 Insert Read/Write
E:\My C++\LAB001\bin\Debug\LAB001.exe
Type here to search
U: 38.21 kB/s
D: 129.50 kB/s
28°C
4:18 AM
10/7/2021

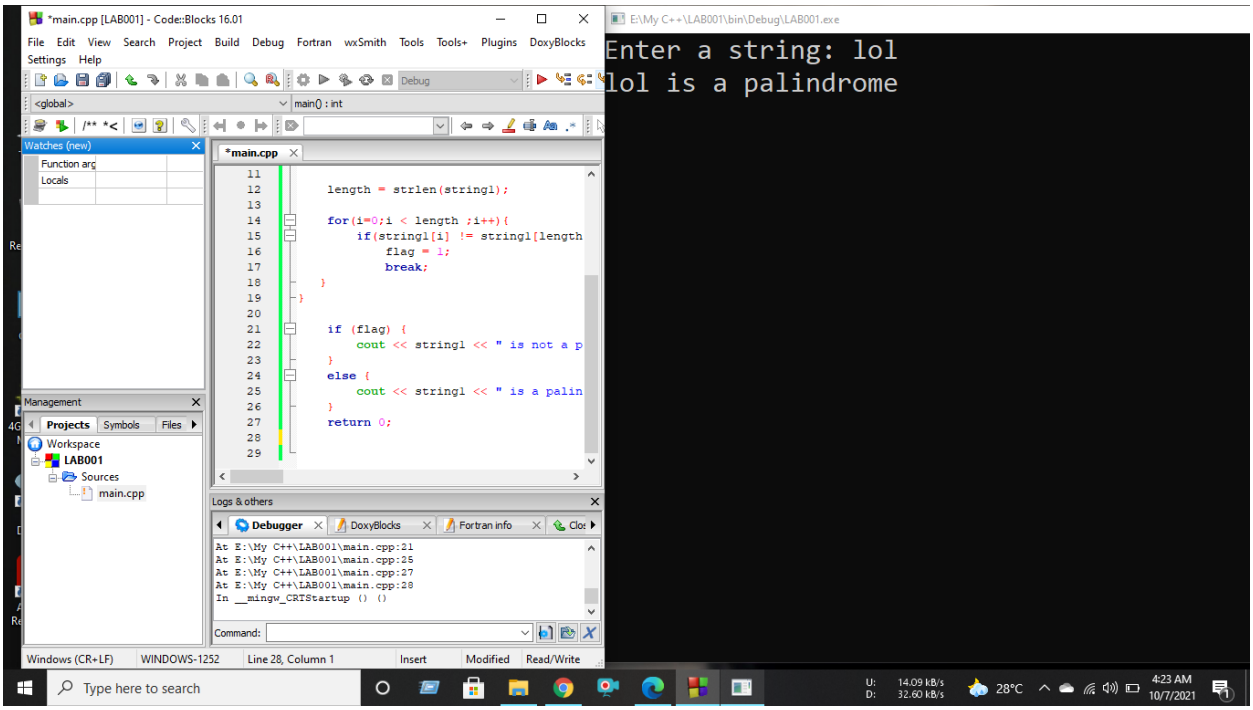

main.cpp [LAB001] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks
Settings Help
Watches (new)
Function arg
Locals
arr
n 10
num 4310016
index 7012224
Management
Projects Symbols Files
Workspace
LAB001
Sources
main.cpp
main.cpp
using namespace std;
int binarySearch(int arr[], int p, int
if (p <= r) {
int mid = (p + r)/2;
if (arr[mid] == num)
return mid ;
if (arr[mid] > num)
return binarySearch(arr, p, mi
if (arr[mid] < num)
return binarySearch(arr, mid+1
}
return -1;
}
int main() {
int arr[] = {1, 3, 7, 15, 18, 20, 25
int n = sizeof(arr)/ sizeof(arr[0]);
int num;
cout << "Enter the number to search:
cin >> num;
Logs & others
Debugger DoxyBlocks Fortran info
Child process PID: 26044
At E:\My C++\LAB001\main.cpp:16
At E:\My C++\LAB001\main.cpp:17
At E:\My C++\LAB001\main.cpp:19
At E:\My C++\LAB001\main.cpp:20
Command:
Windows (CR+LF) WINDOWS-1252 Line 20, Column 1 Insert Read/Write
E:\My C++\LAB001\bin\Debug\LAB001.exe
Enter the number to search:
3
Type here to search
U: 19.57 kB/s
D: 7.96 kB/s
28°C
4:18 AM
10/7/2021


main.cpp [LAB001] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks
Settings Help
Watches (new)
Function arg
Locals
arr
n 10
num 3
index 1
Management
Projects Symbols Files
Workspace
LAB001
Sources
main.cpp
main.cpp
return binarySearch(arr, p, mi
if (arr[mid] < num)
return binarySearch(arr, mid+1
return -1;
int main() {
int arr[] = {1, 3, 7, 15, 18, 20, 25
int n = sizeof(arr)/ sizeof(arr[0]);
int num;
cout << "Enter the number to search:
cin >> num;
int index = binarySearch (arr, 0, n-
if(index == -1){
cout<< num <<" is not present in
}else{
cout<< num <<" is present at inde
return 0;
Logs & others
Debugger DoxyBlocks Fortran info
At E:\My C++\LAB001\main.cpp:14
At E:\My C++\LAB001\main.cpp:14
At E:\My C++\LAB001\main.cpp:22
At E:\My C++\LAB001\main.cpp:26
At E:\My C++\LAB001\main.cpp:27
Command:
Windows (CR+LF) WINDOWS-1252 Line 27, Column 1 Insert Read/Write
E:\My C++\LAB001\bin\Debug\LAB001.exe
Enter the number to search:
3
3 is present at index 1 in the array
Type here to search
U: 1.88 kB/s
D: 0.28 kB/s
28°C
4:19 AM
10/7/2021

5. Palindrome String:


main.cpp [LAB001] - Code::Blocks 16.01
E:\My C++\LAB001\bin\Debug\LAB001.exe
Enter a string:
main.cpp
#include <iostream>
#include<cstring>
using namespace std;
int main(){
char string1[20];
int i, length;
int flag = 0;
cout << "Enter a string: "; cin >>
length = strlen(string1);
for(i=0;i < length ;i++){
if(string1[i] != string1[length
flag = 1;
break;
}
}
Setting breakpoints
Debugger name and version: GNU gdb (GDB) 7.6.1
Child process PID: 15212
At E:\My C++\LAB001\main.cpp:8
At E:\My C++\LAB001\main.cpp:10
Type here to search


main.cpp [LAB001] - Code::Blocks 16.01
E:\My C++\LAB001\bin\Debug\LAB001.exe
Enter a string: lol
main.cpp
#include <iostream>
#include<cstring>
using namespace std;
int main(){
char string1[20];
int i, length;
int flag = 0;
cout << "Enter a string: "; cin >>
length = strlen(string1);
for(i=0;i < length ;i++){
if(string1[i] != string1[length
flag = 1;
break;
}
}
Setting breakpoints
Debugger name and version: GNU gdb (GDB) 7.6.1
Child process PID: 15212
At E:\My C++\LAB001\main.cpp:8
At E:\My C++\LAB001\main.cpp:10
Type here to search


*main.cpp [LAB001] - Code::Blocks 16.01
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks
Settings Help
Debug
<global>
main() : int
Watches (new)
Function arg
Locals
*main.cpp
11 length = strlen(string1);
12
13 for(i=0;i < length ;i++){
14 if(string1[i] != string1[length
15 flag = 1;
16 break;
17 }
18 }
19
20 if (flag) {
21 cout << string1 << " is not a p
22 }
23 else {
24 cout << string1 << " is a palin
25 }
26 return 0;
27
28
29
Management
Projects Symbols Files
Workspace
LAB001
Sources
main.cpp
Logs & others
Debugger DoxyBlocks Fortran info
At E:\My C++\LAB001\main.cpp:21
At E:\My C++\LAB001\main.cpp:25
At E:\My C++\LAB001\main.cpp:27
At E:\My C++\LAB001\main.cpp:28
In __mingw_CRTStartup () ()
Command:
Windows (CR+LF) WINDOWS-1252 Line 28, Column 1 Insert Modified Read/Write
E:\My C++\LAB001\bin\Debug\LAB001.exe
Enter a string: lol
lol is a palindrome
Type here to search
U: 14.09 kB/s
D: 32.60 kB/s
28°C
4:23 AM
10/7/2021