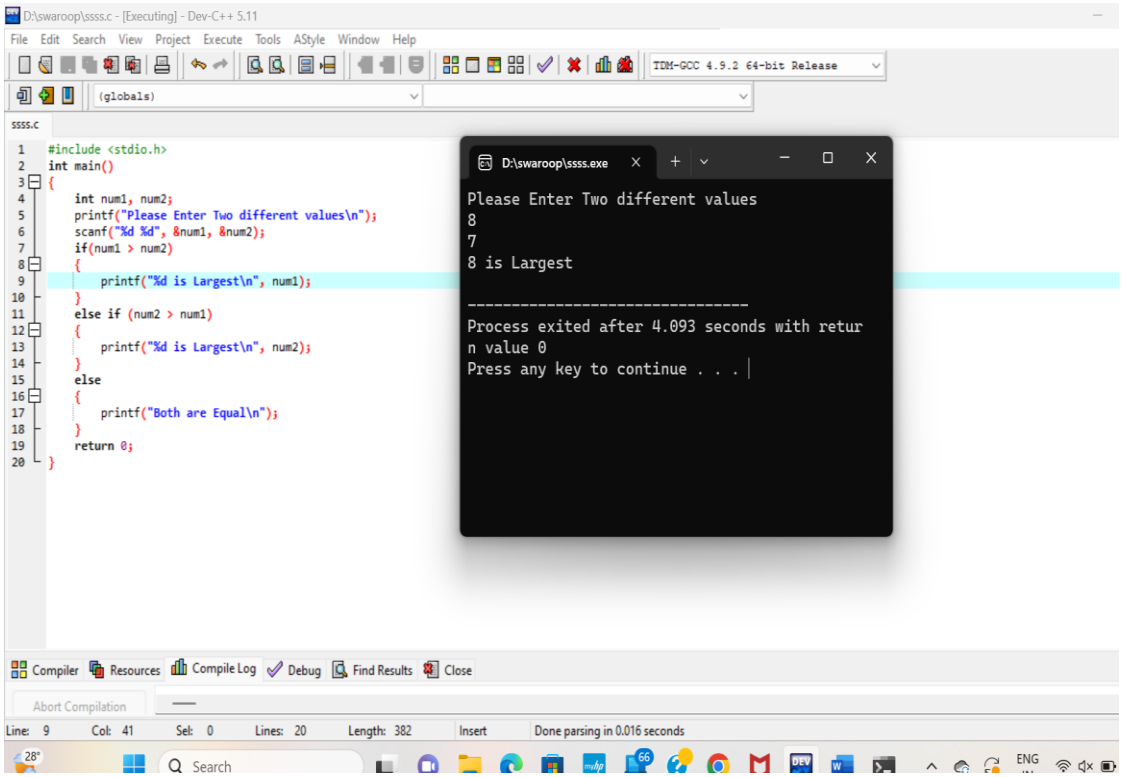
# DAY 2 : PRACTICE PROBLEMS

## ARRAYS & STRINGS

**Kala Surendra**

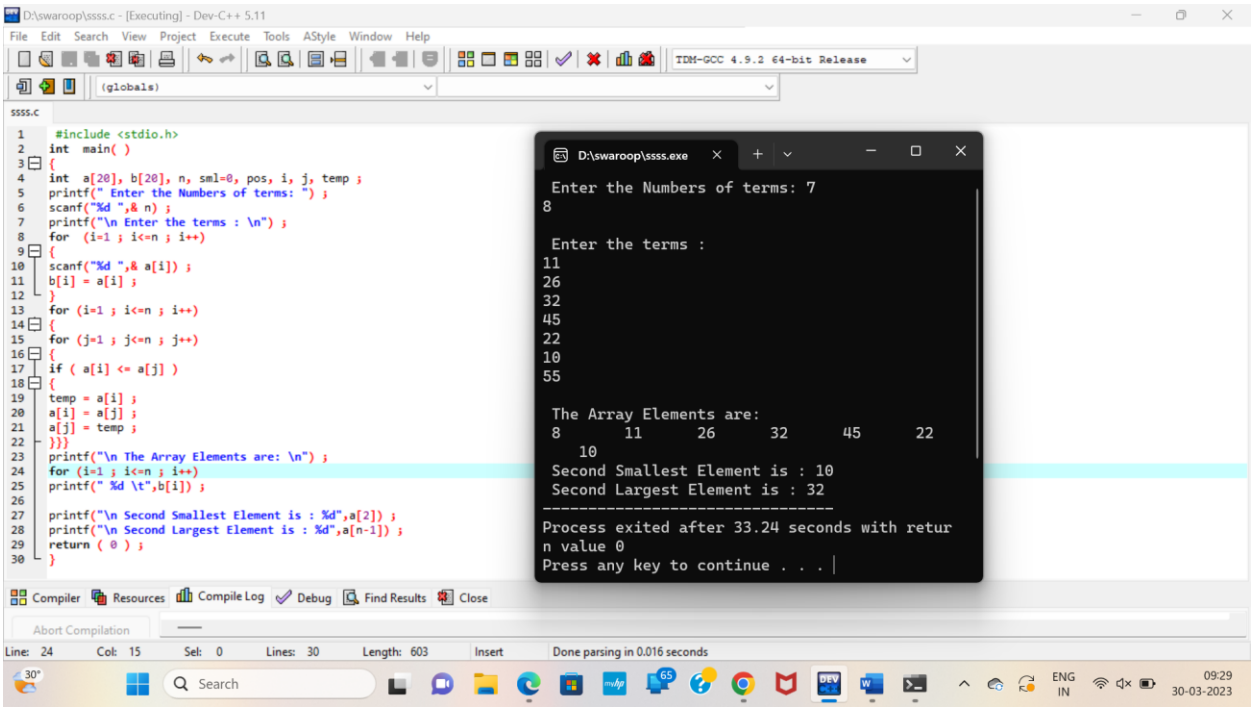
1. C Program to Find C Program to calculate the largest two numbers in a given Array.
   **Problem Description**
   We have to write a program in C such that the program will read the elements of a one-dimensional array, then compares the elements and finds which are the largest two elements in a given array.
   **Expected Input and Output**
   **Finding Largest 2 numbers in an array with unique elements:**
   If we are entering 5 elements (N = 5), with array element values as 2,4,5,8 and 7 then,
   **The FIRST LARGEST** = 8
   **THE SECOND LARGEST** = 7



2. C Program finds second largest & smallest elements in an Array.

**Problem Description**

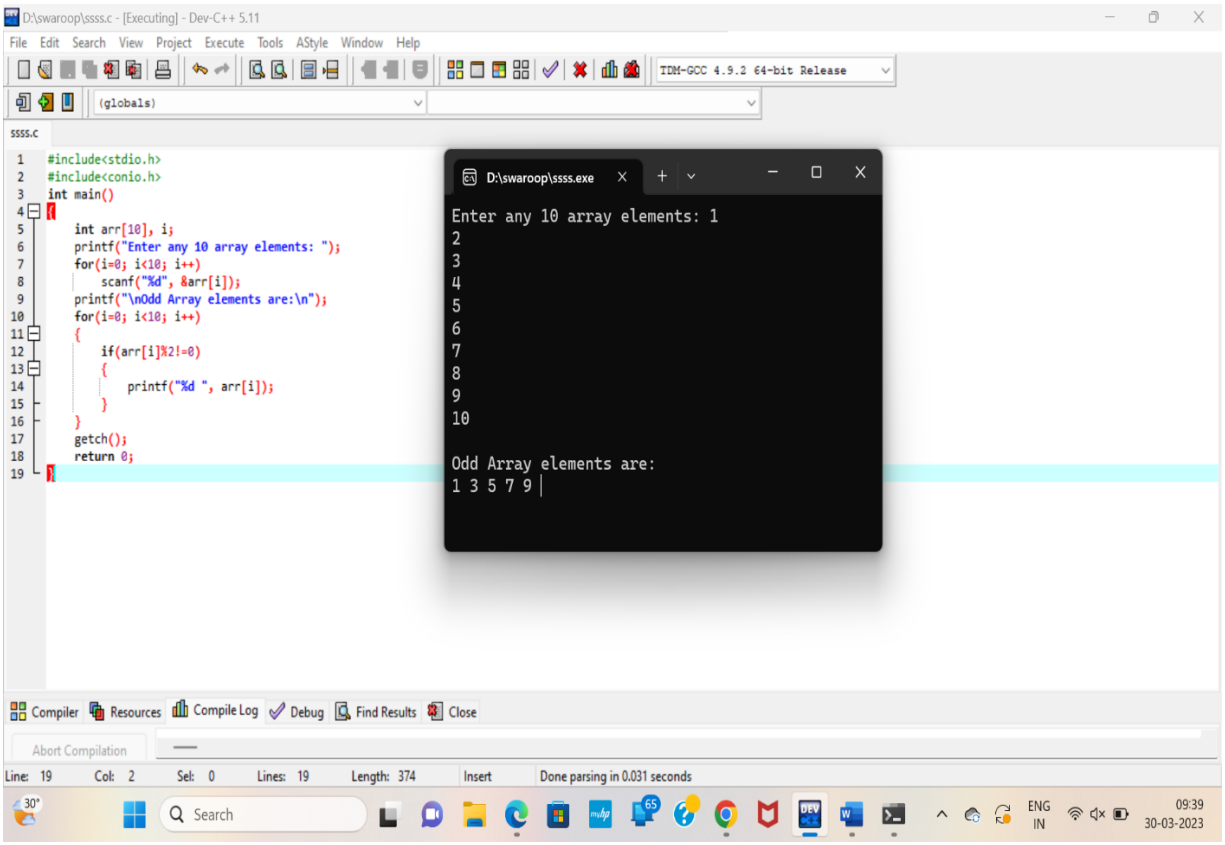
The program will implement a one-dimensional array and sort the array in descending order. Then it finds the second largest and smallest element in an array and also find the average of these two array elements. Later it checks if the resultant average number is present in a given array. If found, display appropriate message.



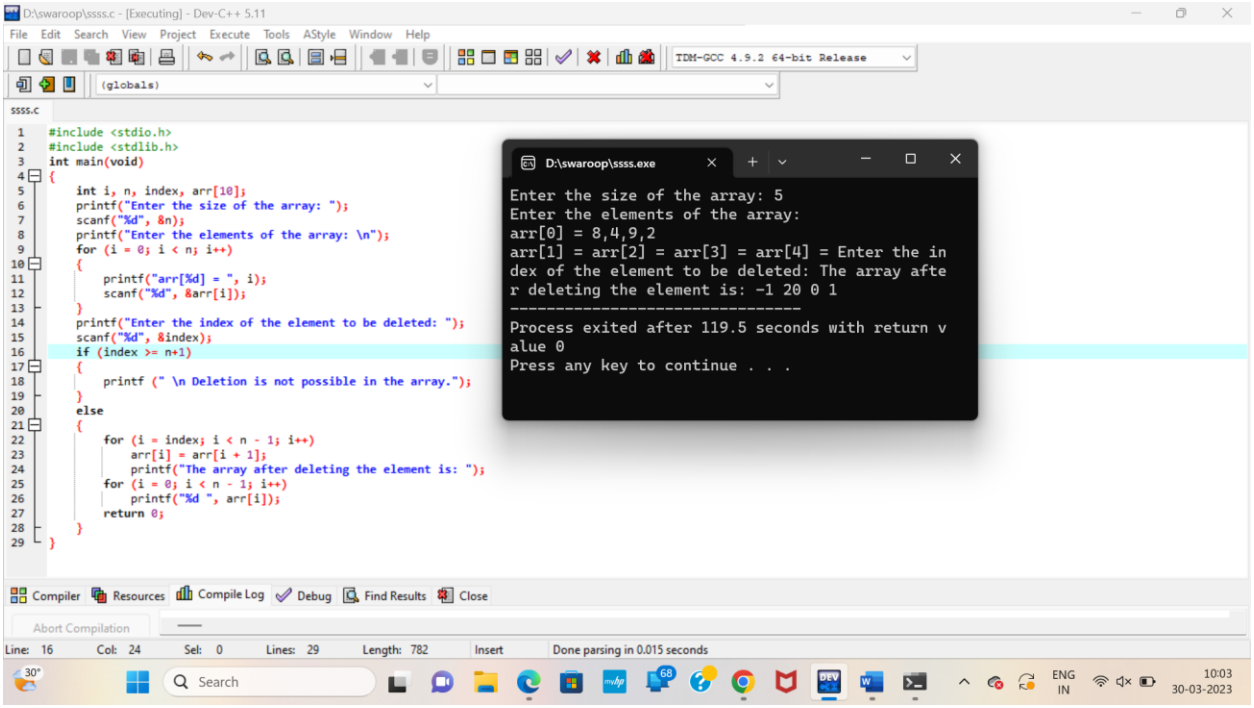
3. C Program to find the odd element given an array with only two different elements.

**Problem Description**

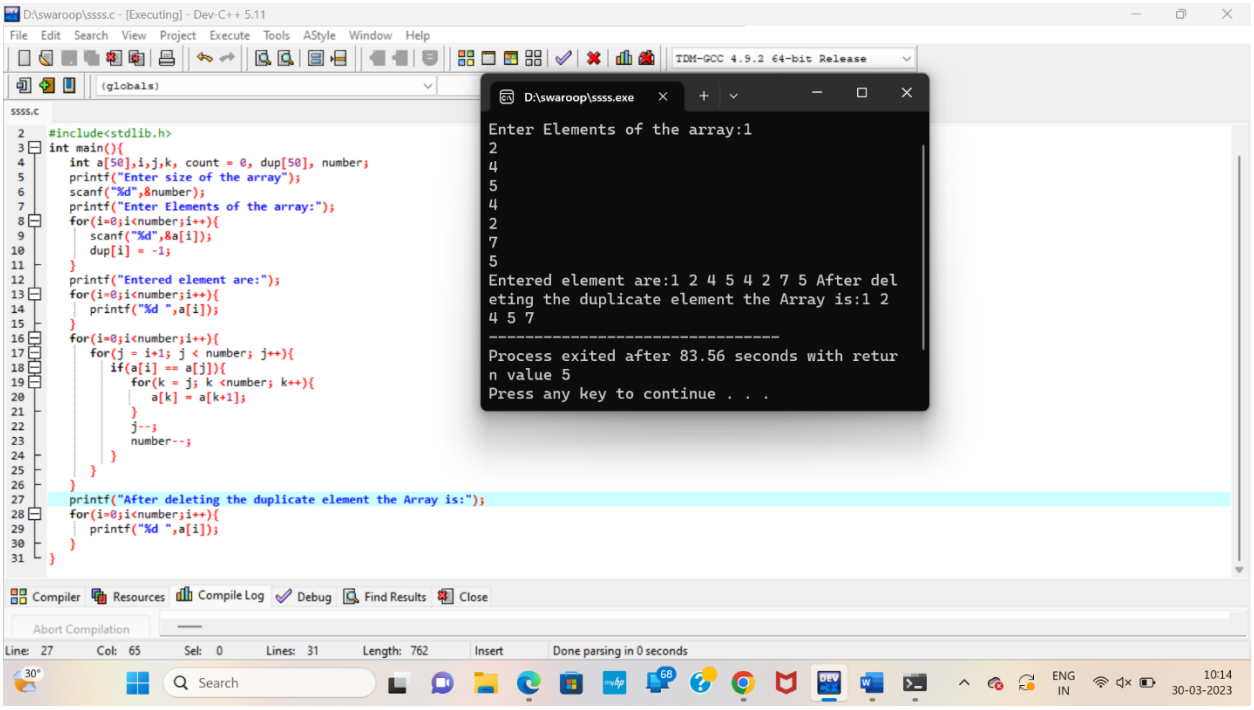
This C Program finds odd element in a given array with only two different element.



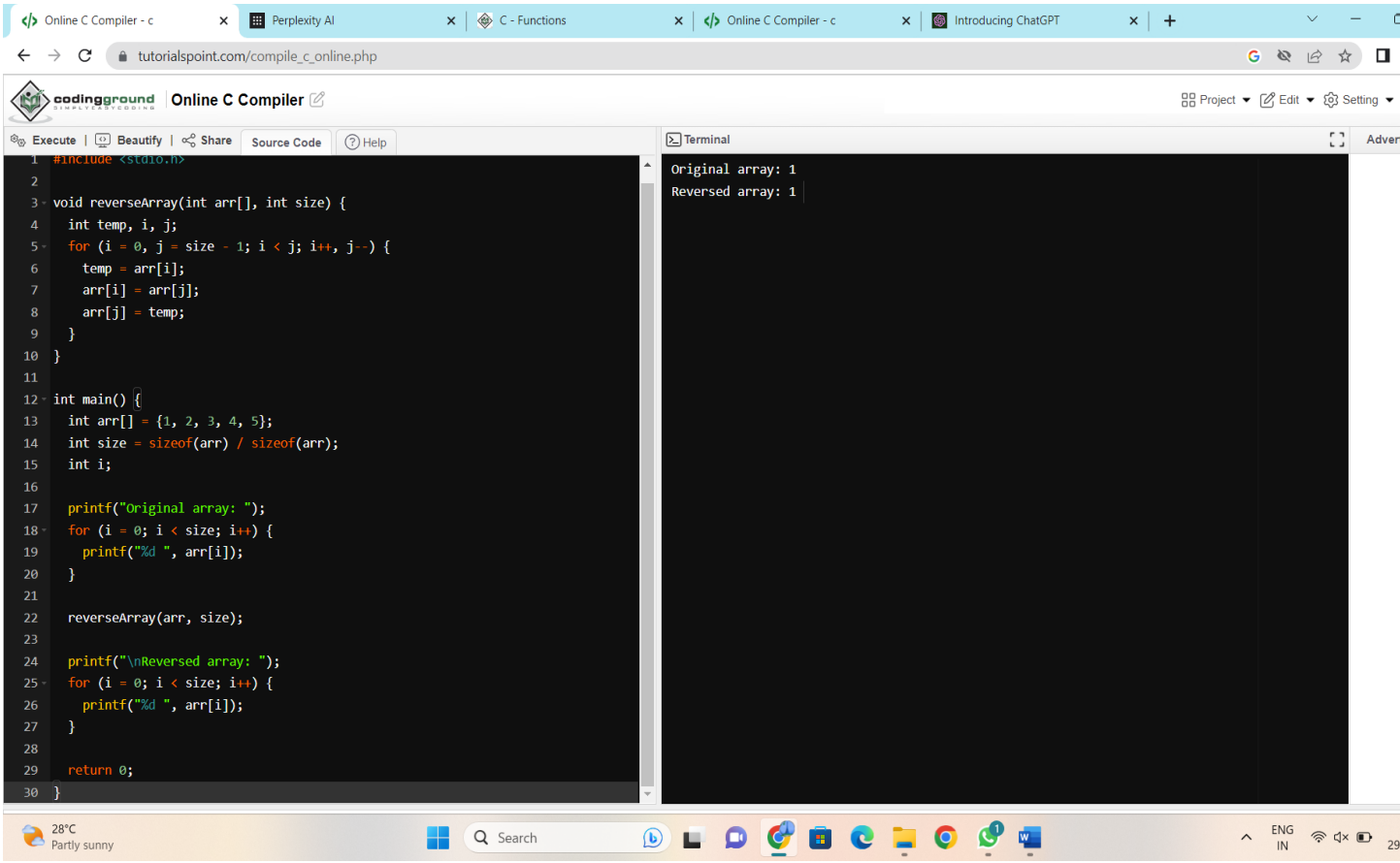
4. C Program to delete an element in an Array by index or value.
   **Method 1: (Delete Element by Index)**In this approach, we will use a loop to iterate through the array and delete the element from the array.
   **Example:**
   **Input:**
   Size of array = 5
   array = [8, 4, 9, 6, 2] Index of the element to be deleted is “3”
   **Output:**
   [8, 4, 9, 2]



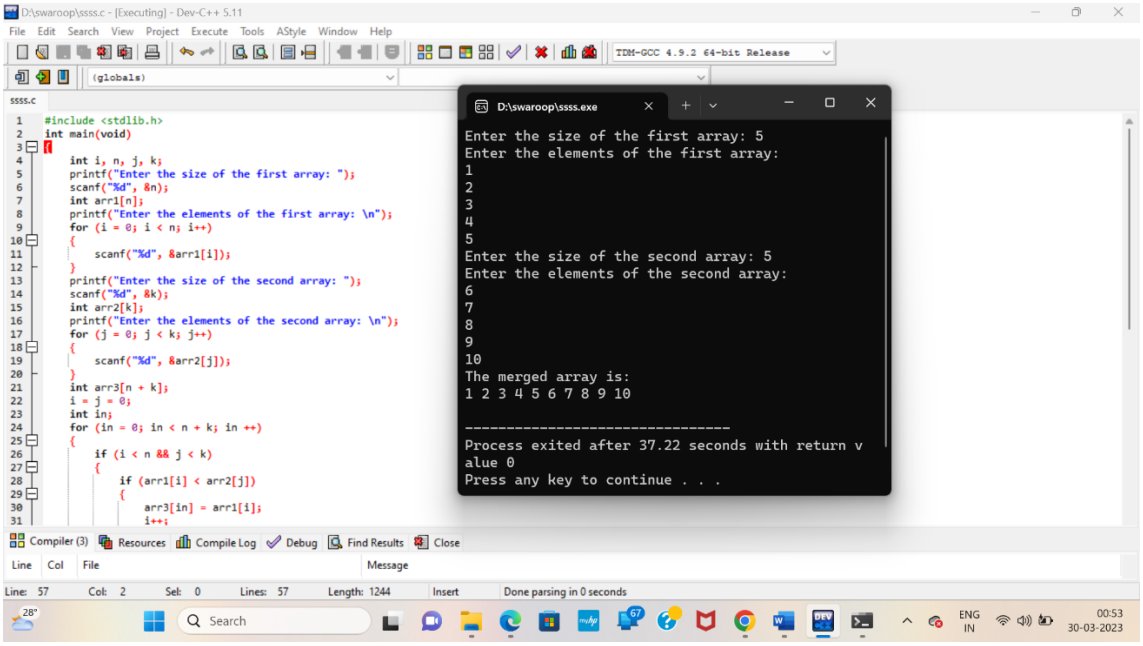
5. C Program to remove duplicate elements from an Array.
   **Input Array:** 1,2,4,5,4,2,7,5
   **Output:** Resultant Array after removing duplicates: 1,2,4,5,7



6. C Program to reverse an Array.
   **Reversing an array** means substituting the last element in the first position and vice versa and doing such a thing for all elements of the array. For **example**, first element is swapped with last, second element is swapped by second last and so on.
   Such arrays where the original and reversed arrays are equal are called palindrome arrays.
   **Examples:**
   **Input array:** [1,2,3,4]
   **Reversed array:** [4,3,2,1]
   **Input array:** [3,2,1]
   **Reversed array:** [1,2,3]



7. Write a C program to merge two sorted array elements into a single array.
   **Merging two arrays** in c is similar to Concatenating or combining two arrays into a single array. For **example**, if the first array has four elements and the second array has five elements, the resulting array has nine elements.
   **Example:**
   **First Array** = [1, 2, 3, 4, 5]
   **Second Array** = [6, 7, 8, 9, 10]
   **Merged Array** = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
   **Problem Description**
   Write a C program to merge two sorted array elements into a single array.



8. Write a program to find the number of composite numbers in an array of elements

**Sample Input:**

Array of elements = {16, 18, 27, 16, 23, 21, 19}

**Sample Output:**

Number of Composite Numbers = 5

**Test cases:**

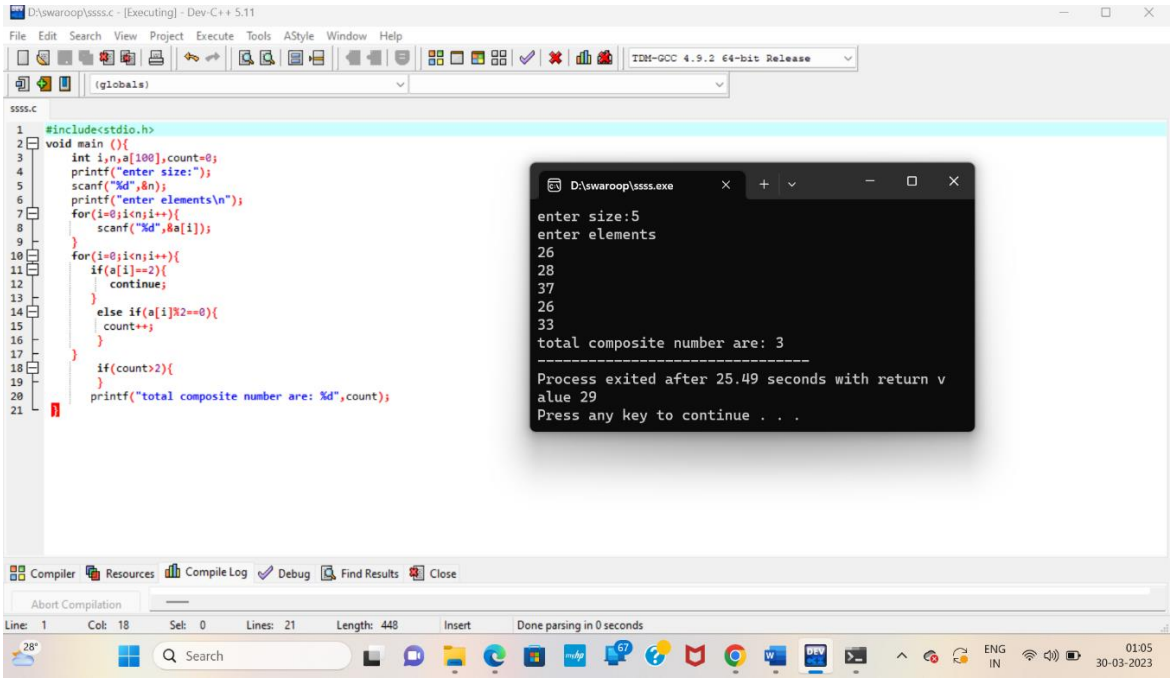
1.Array of elements = {26, 28, 37, 26, 33, 31, 29}

2. Array of elements = {1.6, 1.8, 2.7, 1.6, 2.3, 2.1, .19}

3. Array of elements = {0, 160, 180, 270, 160, 230, 210, 190, 0}

4. Array of elements = {200, 180, 180, 270, 270, 270, 190, 200}

5. Array of elements = {100, 100, 100, 100, 100, 100, 100, 100}



10. Write a program to print the number of negative numbers in an array of number

**Sample Input:**

Array of elements = {16, -18, 27, -16, 23, -21, 19}

**Sample Output:**

Number of negative numbers in Array elements = 3

**Test cases:**

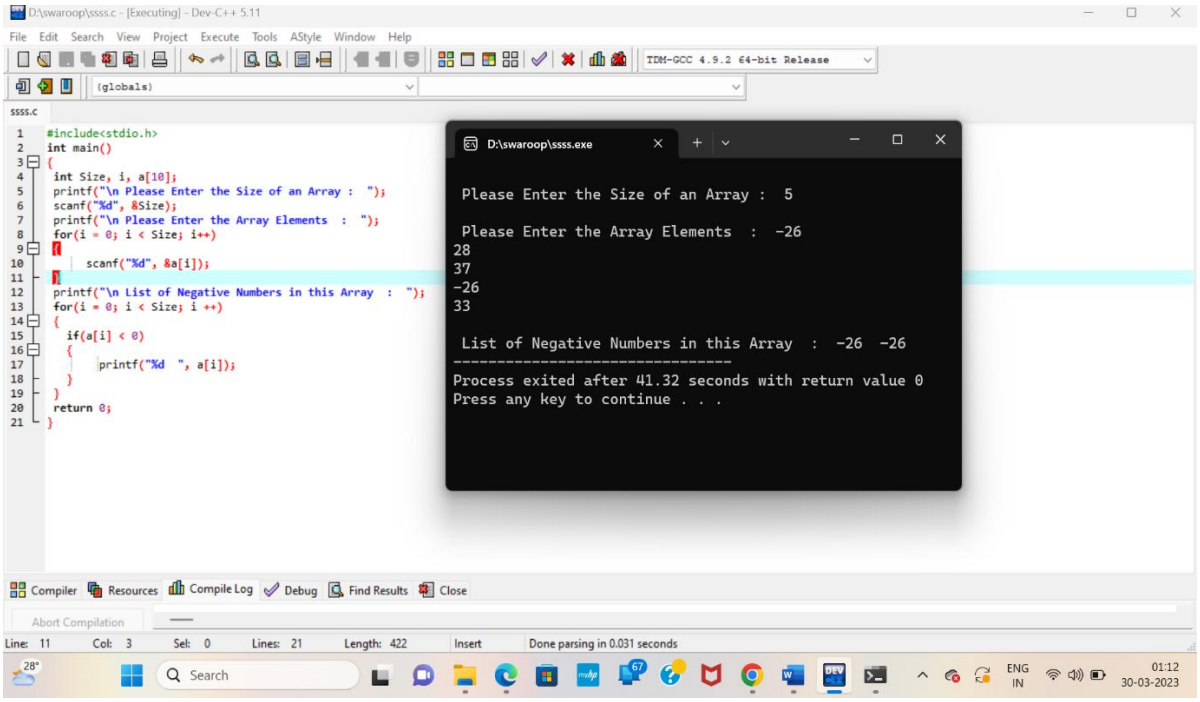
1.Array of elements = {-26, 28, 37, -26, 33, -31, -29}

2. Array of elements = {1.6, 1.8, 2.7, -1.6, 2.3, -2.1, .19}

3. Array of elements = {0, 160, 180, 270, 160, 230, 210, 190, 0}

4. Array of elements = {-16, 2.8, -7, -1.5, 2.8, -2.8, -.19}

5. Array of elements = {-160, -160, -180, -270, -160, -230, -210, 1-90, 0}



11. Write a program to search the given element and display its position in a linear array.

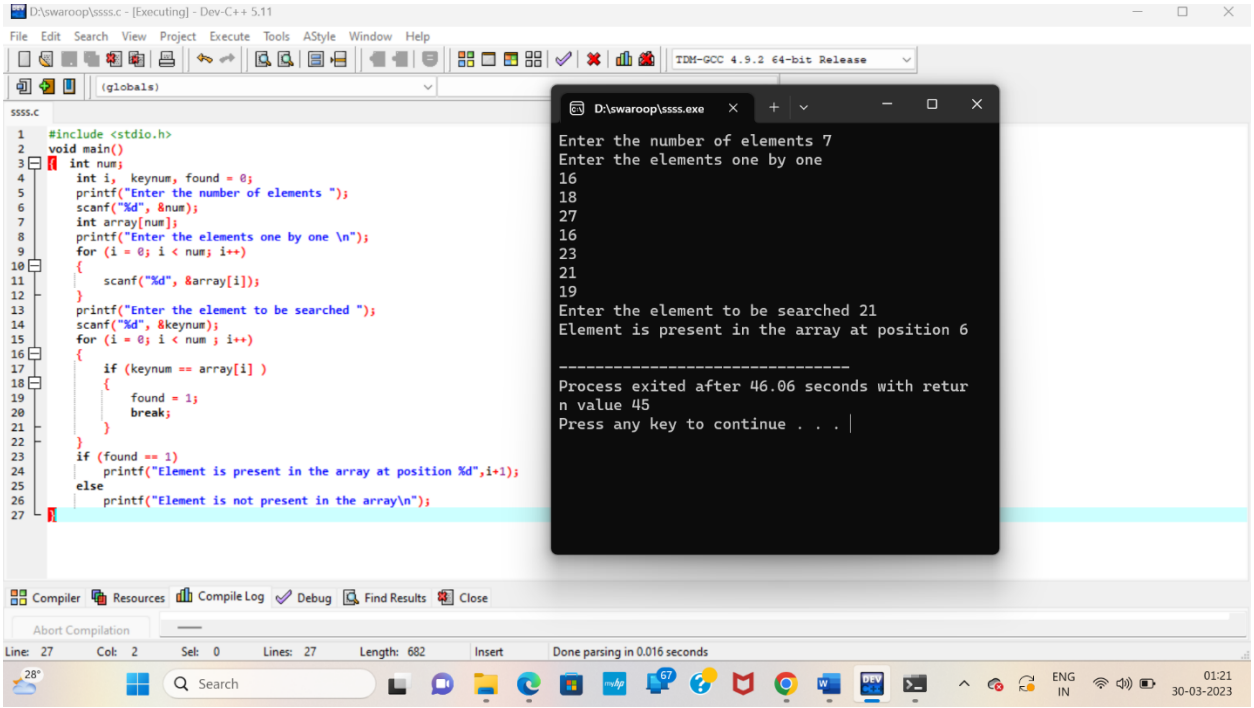
**Sample Input:**

Array of elements = {16, 18, 27, 16, 23, 21, 19}

Element to search = 23

**Sample Output:**

Given element 23 is found at 5 th position



12. Write a program to find the sum and average of the elements in an array

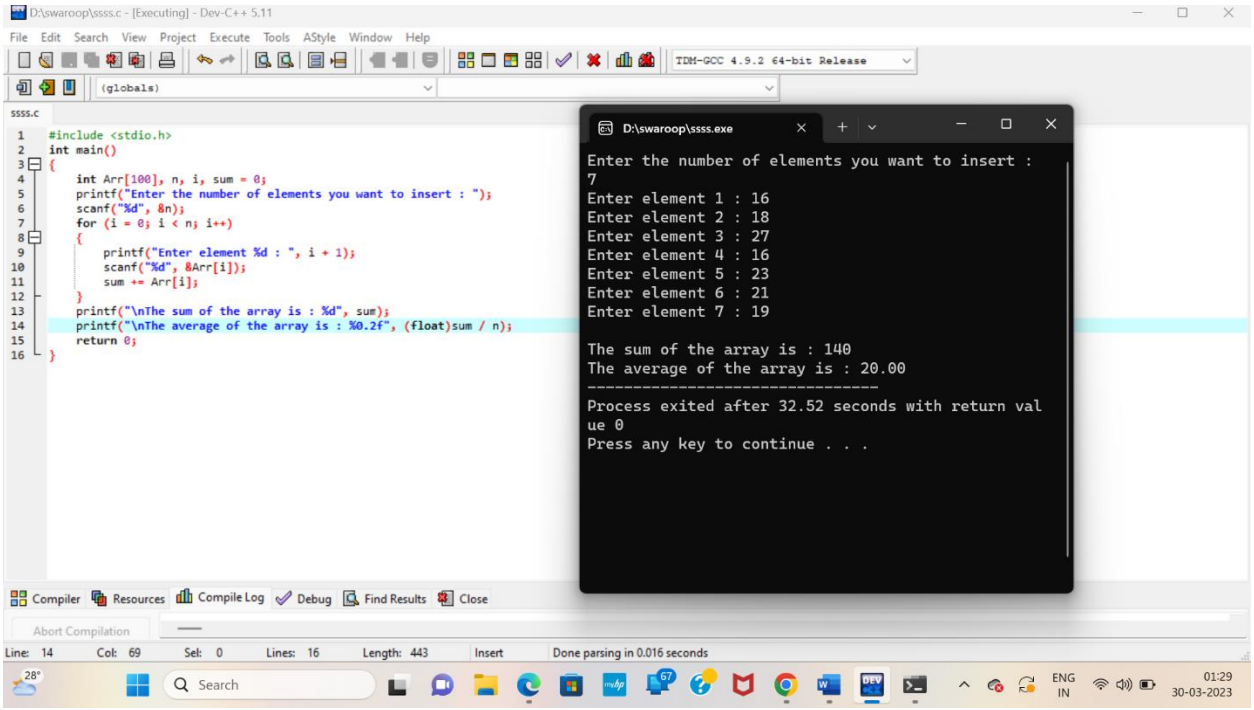
**Sample Input:**

Array of elements = {16, 18, 27, 16, 23, 21, 19}

**Sample Output:**

Sum = 140

Average = 20



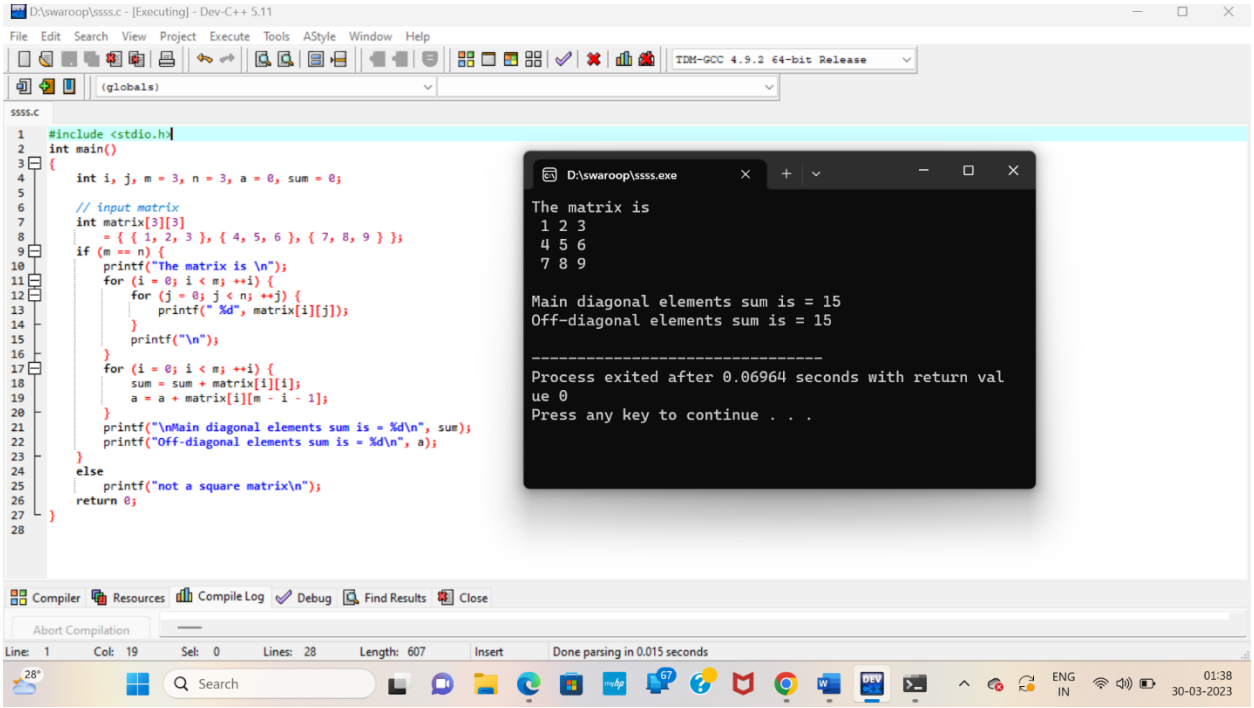
13. Write a Program to display the diagonal elements in a matrix array and also find the sum of them.

**Sample input:**

1 2 3
4 5 6
7 8 9

**Output:**

Diagonal Elements are 1 5 9
Sum of diagonal elements = 15



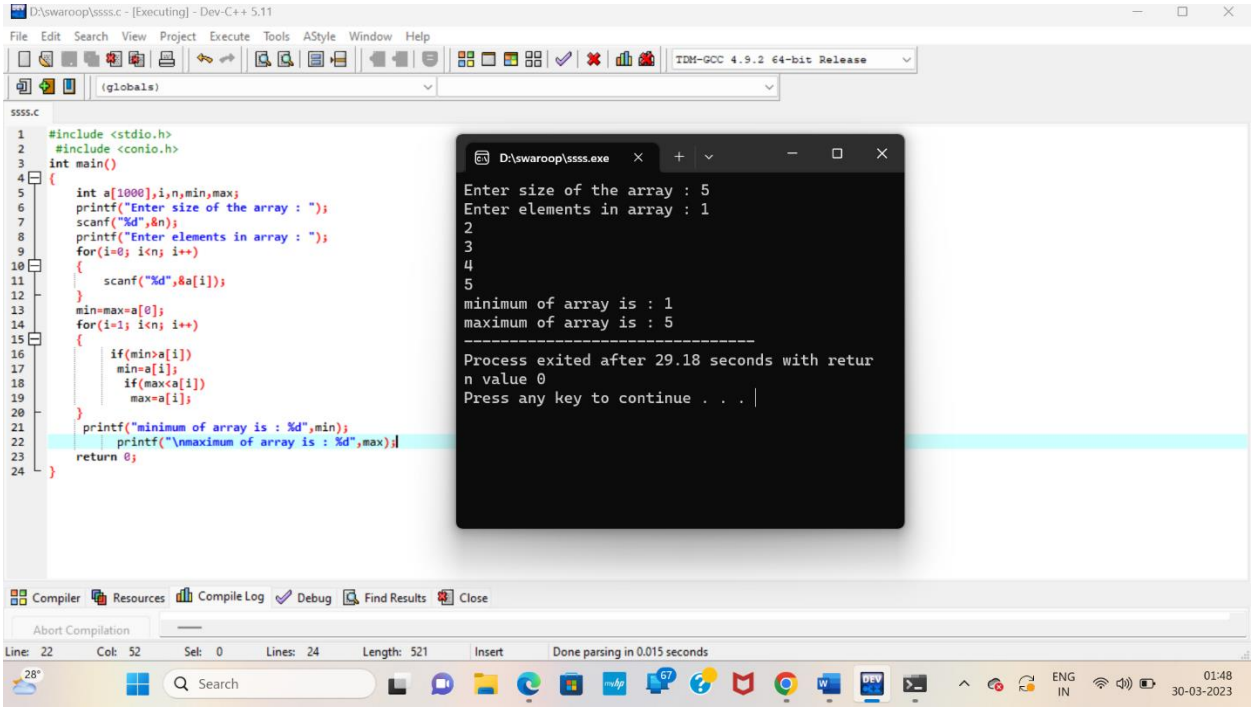
14. Write a Program to find the Maximum and Minimum value in a given array of numbers.

**Sample Input:**

Enter no. of elements in an array 5
Enter the elements:
1 2 3 4 5

**Output:**

Maximum of an array 5
Minimum of an array 1



15. Write a program to print the number of vowels in the given statement?

**Sample Input:**

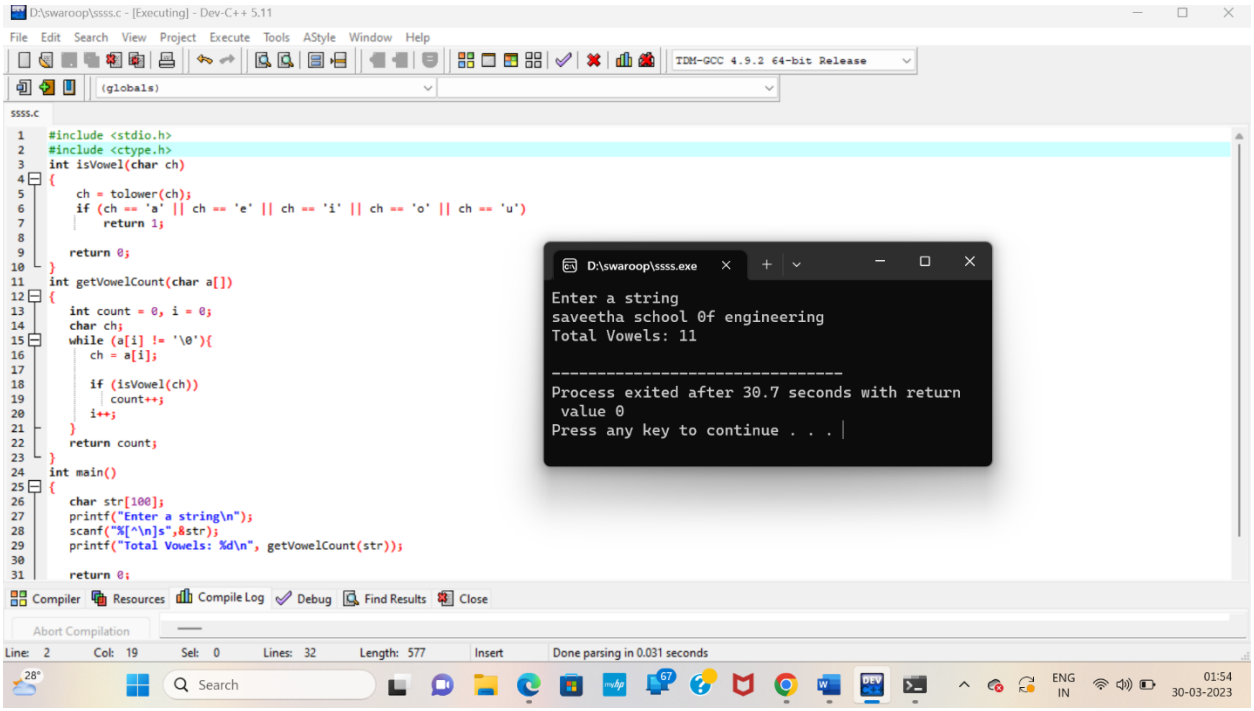
Saveetha School of Engineering

**Sample Output:**

Number of vowels = 12

**Test cases:**

1. India is my country
2. All are my brothers and sisters
3. Why dry sky
4. Shy Try Cry
5. EDUCATION



16. Write a C program that accepts a string and checks whether a given string is a palindrome or not.

**Example 1:**

**Input:** String = “ABEEBA”

**Output:** ABEEBA is a Palindrome

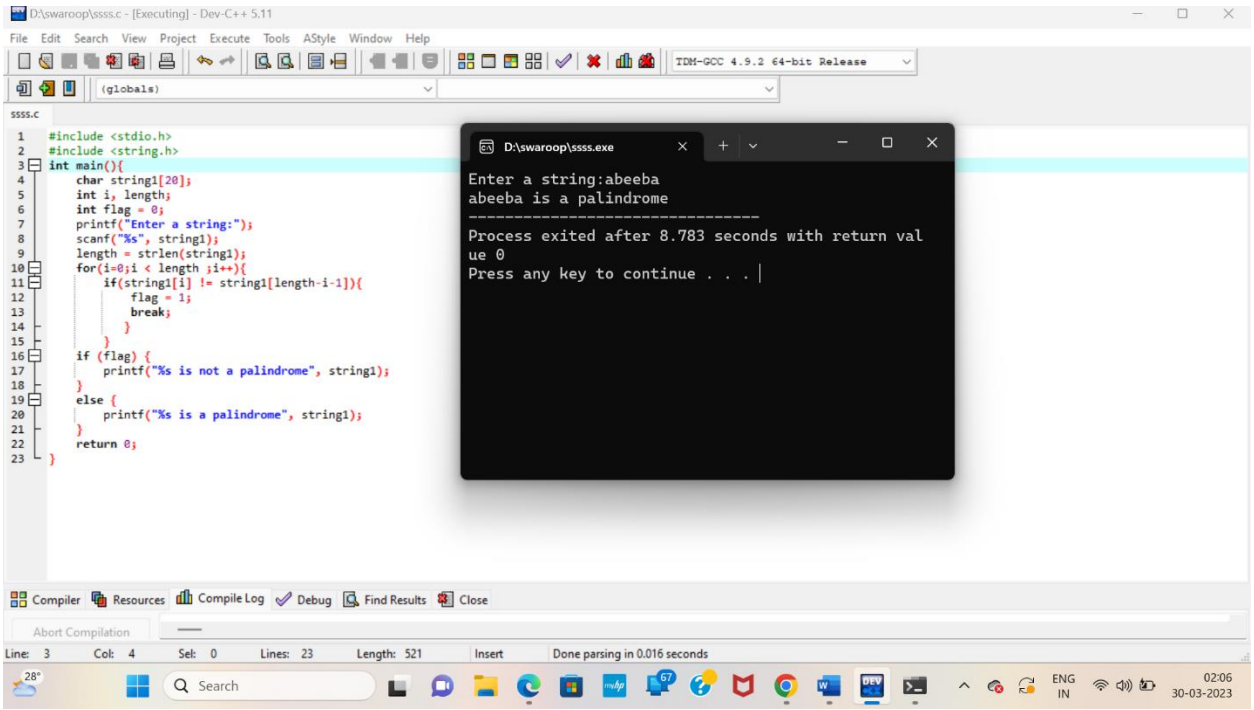
**Explanation:** The reverse of the given string is equal to the (ABEEBA) is equal to the given string. Therefore, the given string is a palindromic string.

**Example 2:**

**Input:** String = “SANFOUNDRY”

**Output:** SANFOUNDRY is not a Palindrome

**Explanation:** The reverse of the given string is equal to the (YRDNUOFNAS) which is not equal to the given string. Therefore, the given string is not a palindromic string.



17. Write a C program that takes two strings as input and concatenates them.

**Problem Solution**

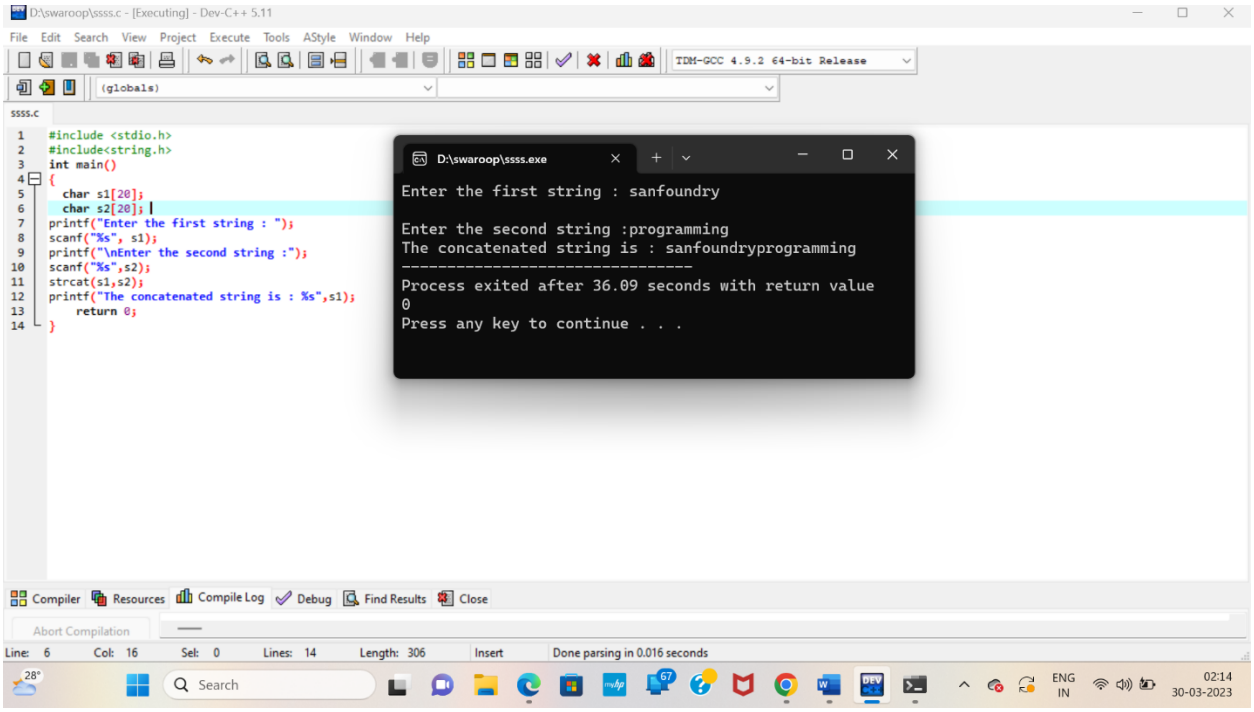
1. Take the two strings as input.
2. Concatenate the second string to the first string.
3. Print the concatenated string.

**Input:**

Enter the first string: “Sanfoundry”
Enter the second string: “Programming”

**Output:**

Concatenated string = SanfoundryProgramming



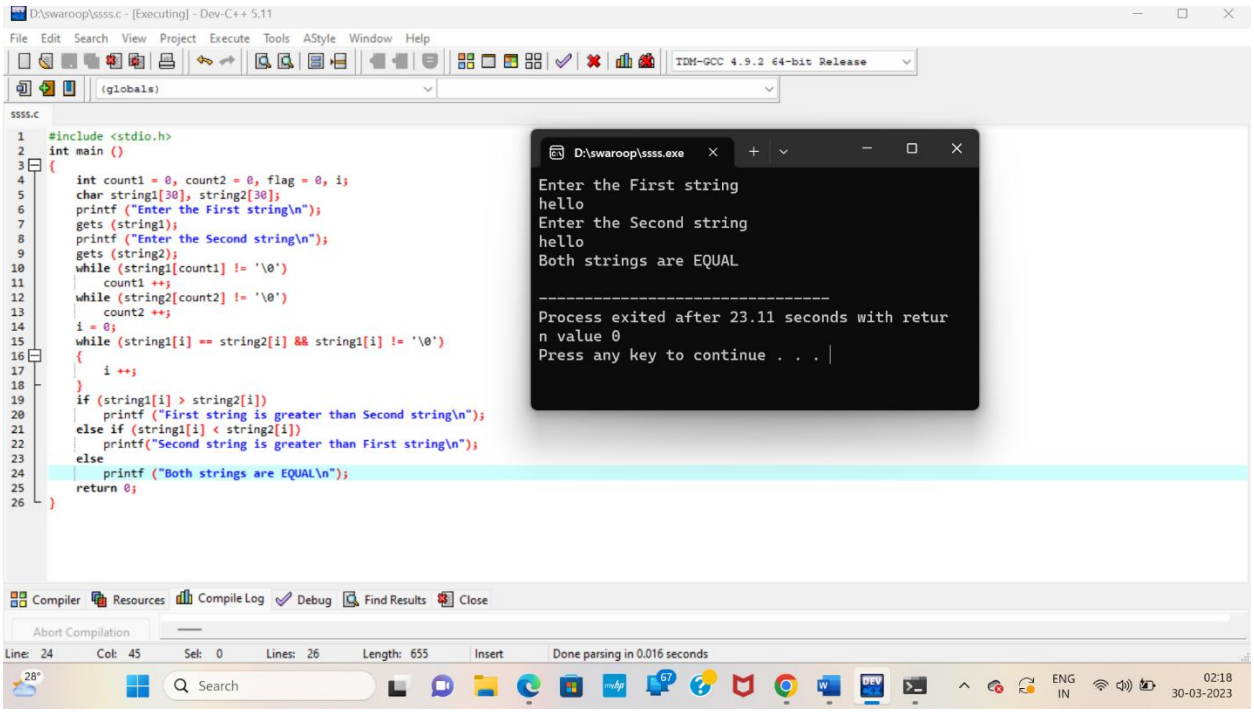
18. Write a C Program to compare two strings.
String is a sequence of characters terminated by the special character '\0'. Strings can be compared with or without using the string function.

**Example:**

String1="Hello" String2="Hello" Both string are equal
String1="Hello" String2="Hell" String1 is greater
String1="Hello" String2="Helz" String2 is greater

**Problem Solution**

1. Take two strings as input.
2. Compare the two strings and display the result whether both are equal, or first string is greater than the second or the first string is less than the second string.
3. Exit.



19. Write a C Program to remove all characters in second string which are present in first string.

**Problem Description**

C Program removes all characters from second string which were present in the first string.

**Problem Solution**

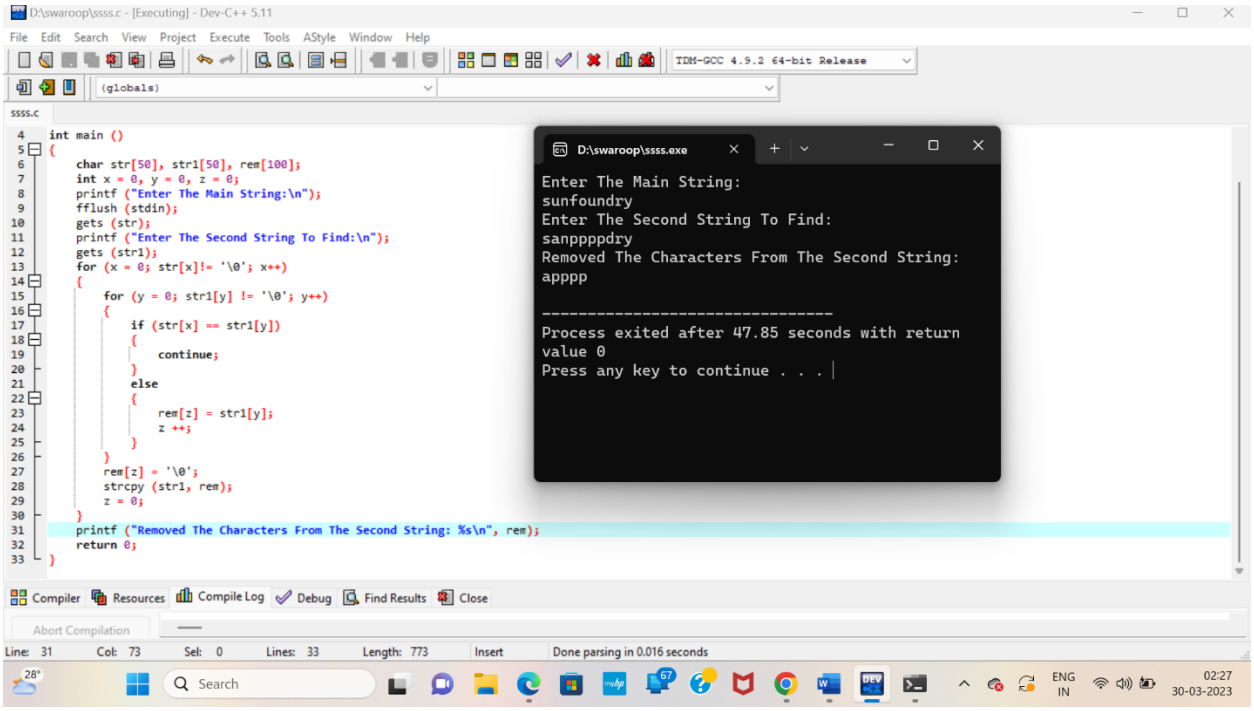
Take input from the user and perform string operations as shown in the program below.

**Test case 1** – Here, the First & Second string are different.

Enter the First string:
Programming
Enter the Second string:
Computer
On removing characters from second string we get: Cpute

**Test case 2** – Here, the First & Second string are having some common letters.

Enter the First string:
sanfoundry
Enter the Second string:
sanppppdry
On removing characters from second string we get: pppp




20. This is a C Program to replace all the characters by lowercase.

**Problem Description**

This is a C Program to replace all the characters by lowercase.

**Problem Solution**

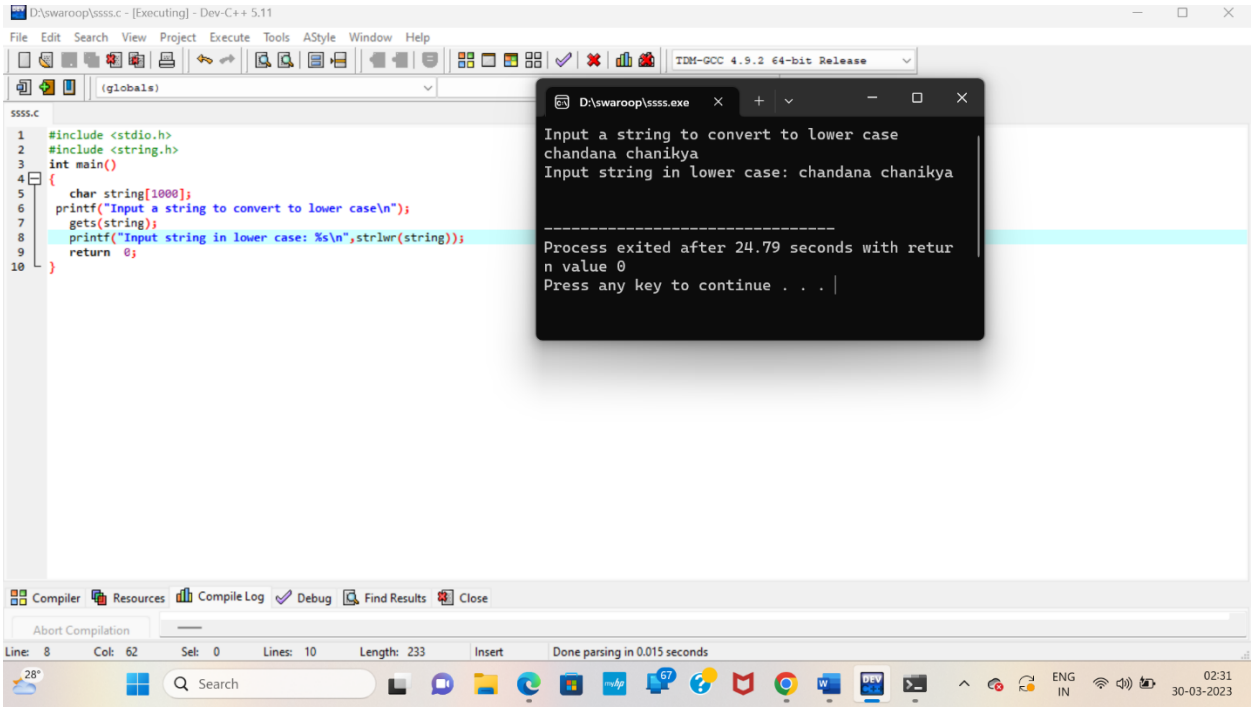
1. Take a string as input.
2. Use string function strlwr to replace all the characters by lowercase.

**Input a string to convert to lower case**

CHANDANA chanikya
rAVELLA

**Input string in lower case:**

chandana chanikya
ravella




21. Reverse a String in C: Reversing a string means replacing the last element in the first position and vice versa and doing it for all characters in a string. For example, the first character is swapped with the last character, the second character is swapped with the second last character and so on.

A string whose reverse string is the same as the original string is called a palindrome.

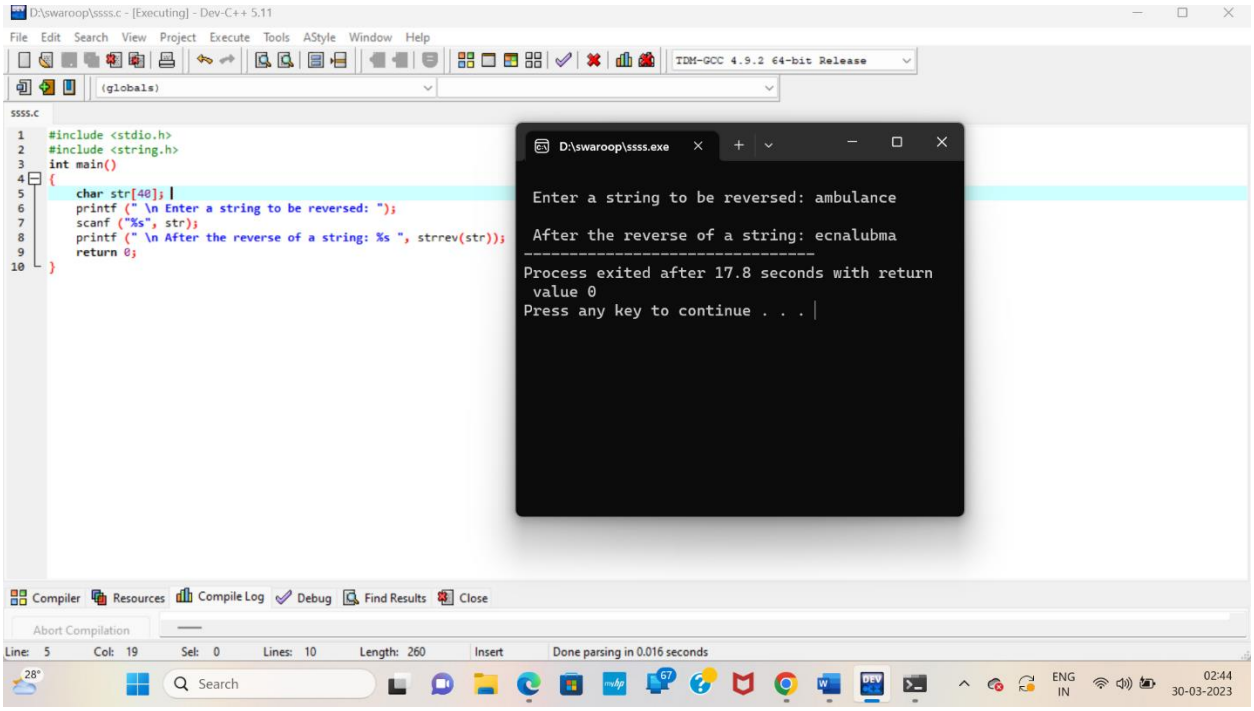
**Examples:**

**Input string:** “hello”

**Reversed String:** “olleh”

**Input string:** “Sanfoundry C Programming”

**Reversed string:** “gnimmargorP C yrdnuofnaS”




22. Write a C program to find length of a string using loop. How to find length of a string without using in-built library function strlen() in C programming. Effective way to find length of a string without using strlen() function. How to find length of a string using strlen() string function.

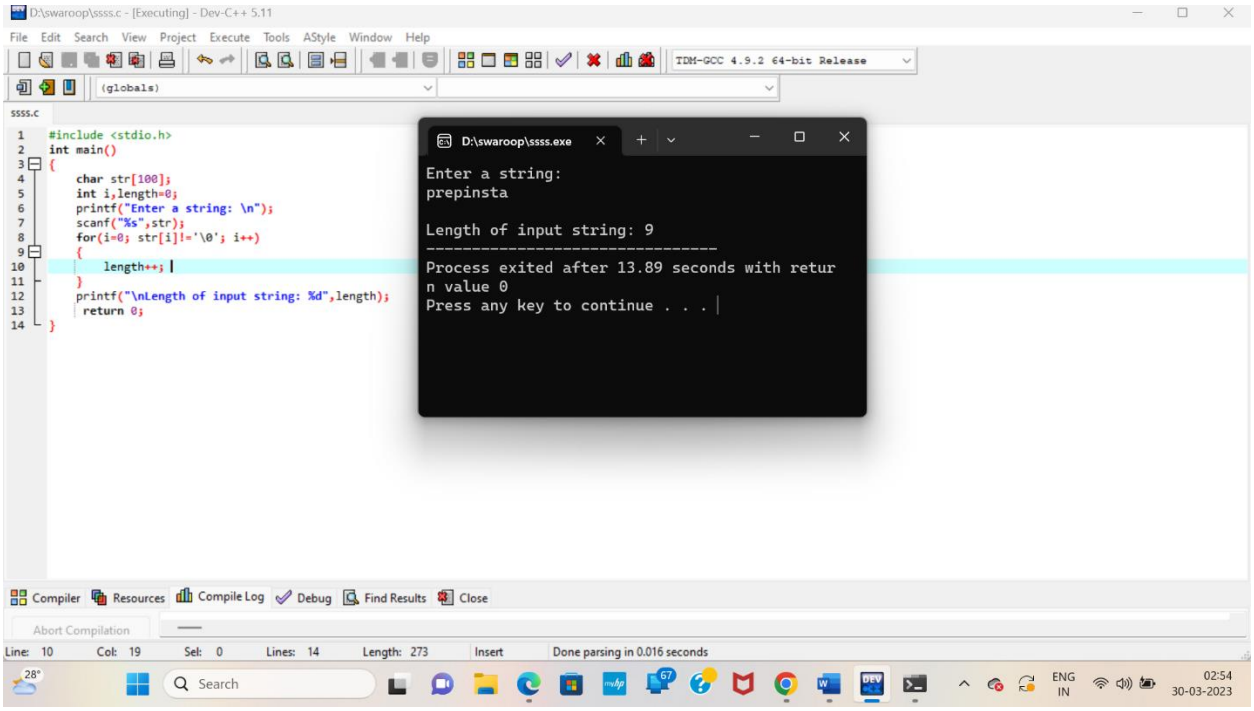
**Example**

**Input**

Input string: I love programming. I love Codeforwin.

**Output**

Length of string: 38




23. Write a C program to remove all occurrences of a given character from the string using loop. Write a function to remove all occurrences of a character from a string. How to remove all occurrences of a character from the string in C programming. Logic to remove all occurrences of a character from a given string in C program.

**Example**

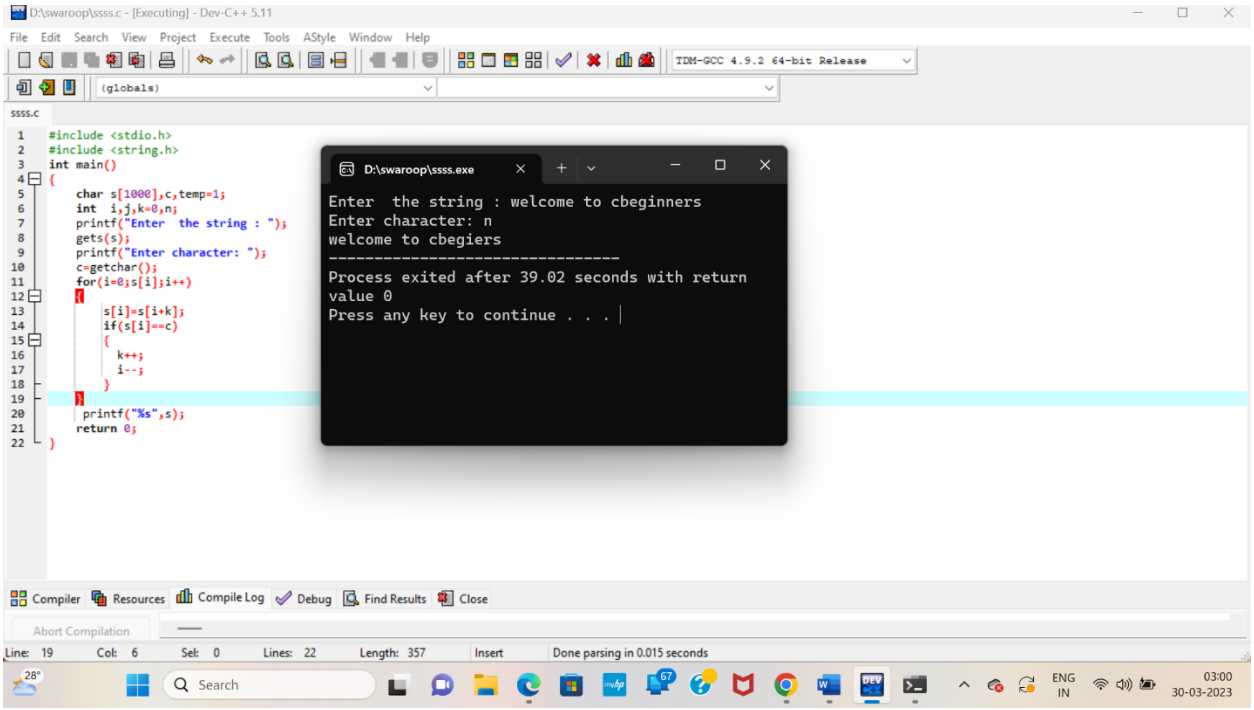
**Input**

Input string : I Love Programming. I Love Codeforwin.

Input character to remove : 'I'

**Output**

String after removing all 'I' : Love Programming. Love Codeforwin.




24. Write a C program to remove extra spaces, blanks from a string. How to remove extra blank spaces, blanks from a given string using functions in C programming. Logic to remove extra white space characters from a string in C.

**Example**

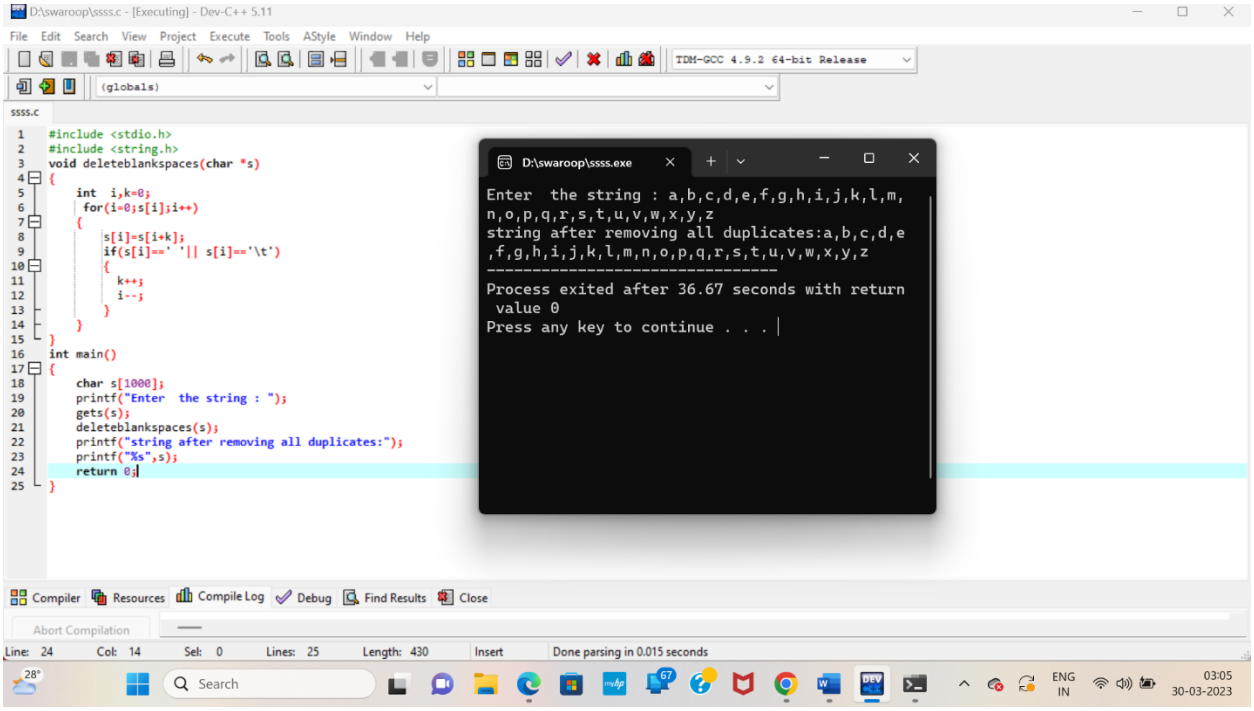
**Input**

Input string: Learn C programming at Codeforwin.

**Output**

String after removing extra blanks:

"Learn C programming at Codeforwin"




25. Write a C program to trim both leading and trailing white space characters in a string using loop. How to remove both leading and trailing white space characters in a string using loop in C programming. Logic to delete all leading and trailing white space characters from a given string in C.

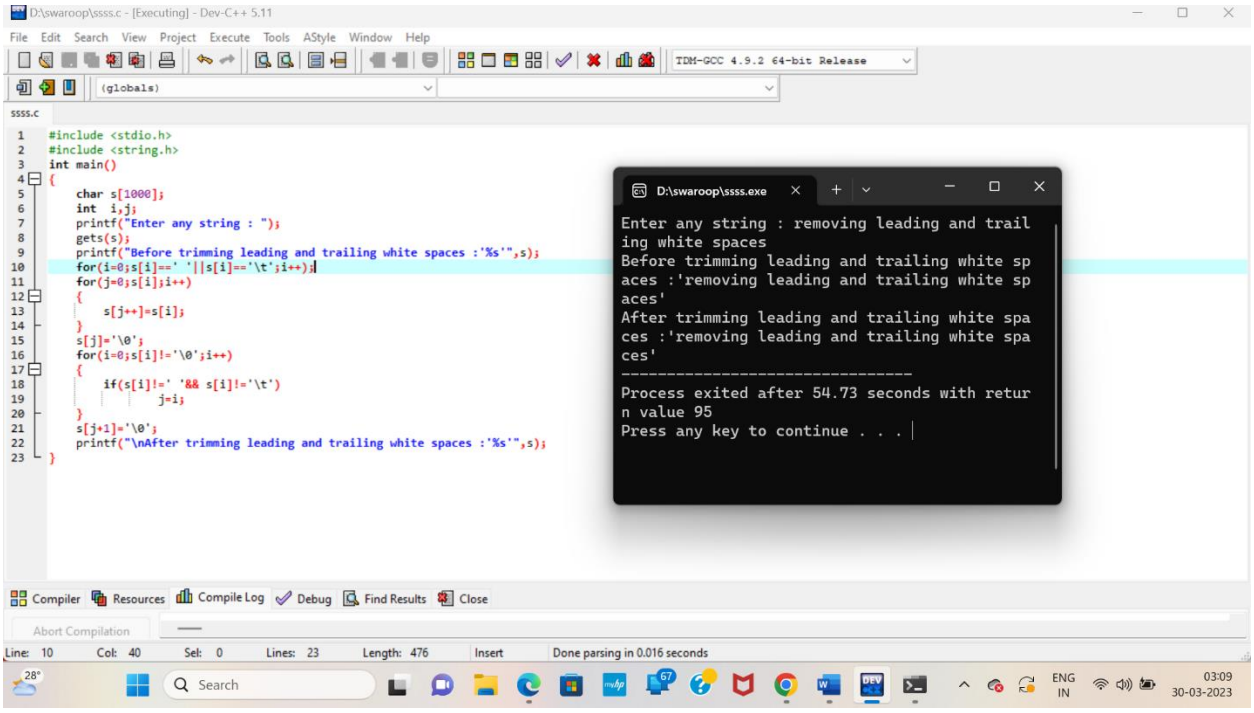
**Example**

**Input**

Input string: "  Lots of leading and trailing spaces.  "

**Output**

String after removing leading and trailing white spaces:
"Lots of leading and trailing spaces."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File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
ssss.c
#include <stdio.h>
#include <string.h>
int main()
{
char s[1000];
int i,j;
printf("Enter any string : ");
gets(s);
printf("Before trimming leading and trailing white spaces :'%s'",s);
for(i=0;s[i]==' '||s[i]=='\t';i++);
for(j=0;s[i];i++)
{
s[j++]=s[i];
}
s[j]='\0';
for(i=0;s[i]!='\0';i++)
{
if(s[i]!=' ' && s[i]!='\t')
j=i;
}
s[j+1]='\0';
printf("\nAfter trimming leading and trailing white spaces :'%s'",s);
}
D:\swaroop\ssss.exe
Enter any string : removing leading and trail
ing white spaces
Before trimming leading and trailing white sp
aces :'removing leading and trailing white sp
aces'
After trimming leading and trailing white spa
ces :'removing leading and trailing white spa
ces'
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Process exited after 54.73 seconds with retur
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Press any key to continue . . .
Compiler Resources Compile Log Debug Find Results Close
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