

CLASS WORK PROGRAMMS-2

1. Write a program to enter the marks of a student in four subjects. Then calculate the total and aggregate, display the grade obtained by the student. If the student scores an aggregate greater than 75%, then the grade is Distinction. If aggregate is $60 \geq$ and < 75 , then the grade is First Division. If aggregate is $50 \geq$ and < 60 , then the grade is Second Division. If aggregate is $40 \geq$ and < 50 , then the grade is Third Division. Else the grade is Fail.

Sample Input & Output:

Enter the marks in python: 90

Enter the marks in c programming: 91

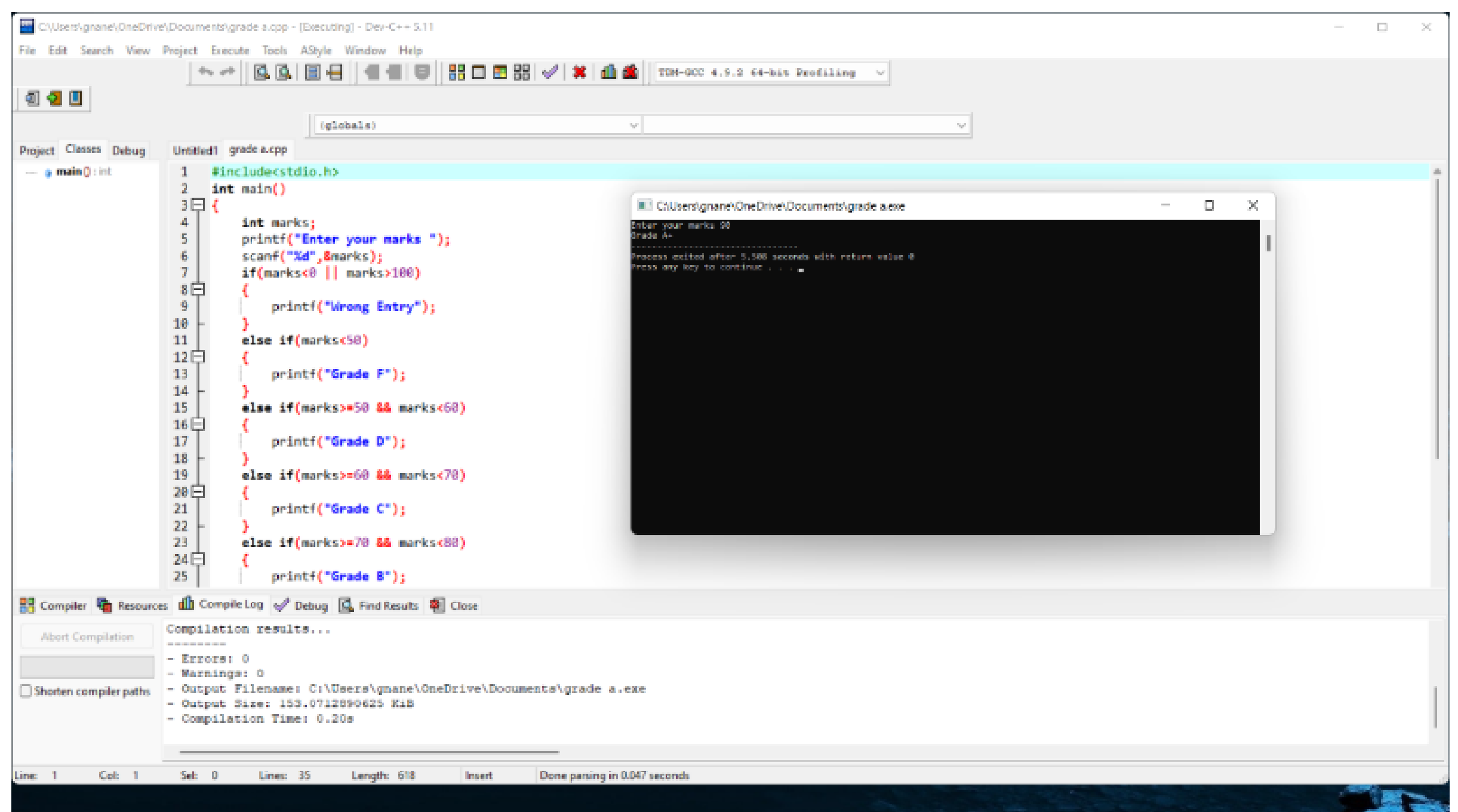
Enter the marks in Mathematics: 92

Enter the marks in Physics: 93

Total= 366

Aggregate = 91.5

DISTINCTION



2. Mr. Johnson would like to know how many As, Bs, Cs, Ds, and Fs his students received on a test. He has n students who took the test. He would like to enter the student number and the number grade for the test for each student using structure. Develop the solution to print out each student's student number, number grade and the total number of As, Bs, Cs, Ds, and Fs.

His grading scale is as follows: 90– 100 is an A, 78– 89 is a B, 65– 77 is a C, 50– 64 is a D, and below 50 is an F.

Sample Input :

Enter No.Students: 1

Enter student 1 Number , Grade : 2001, A

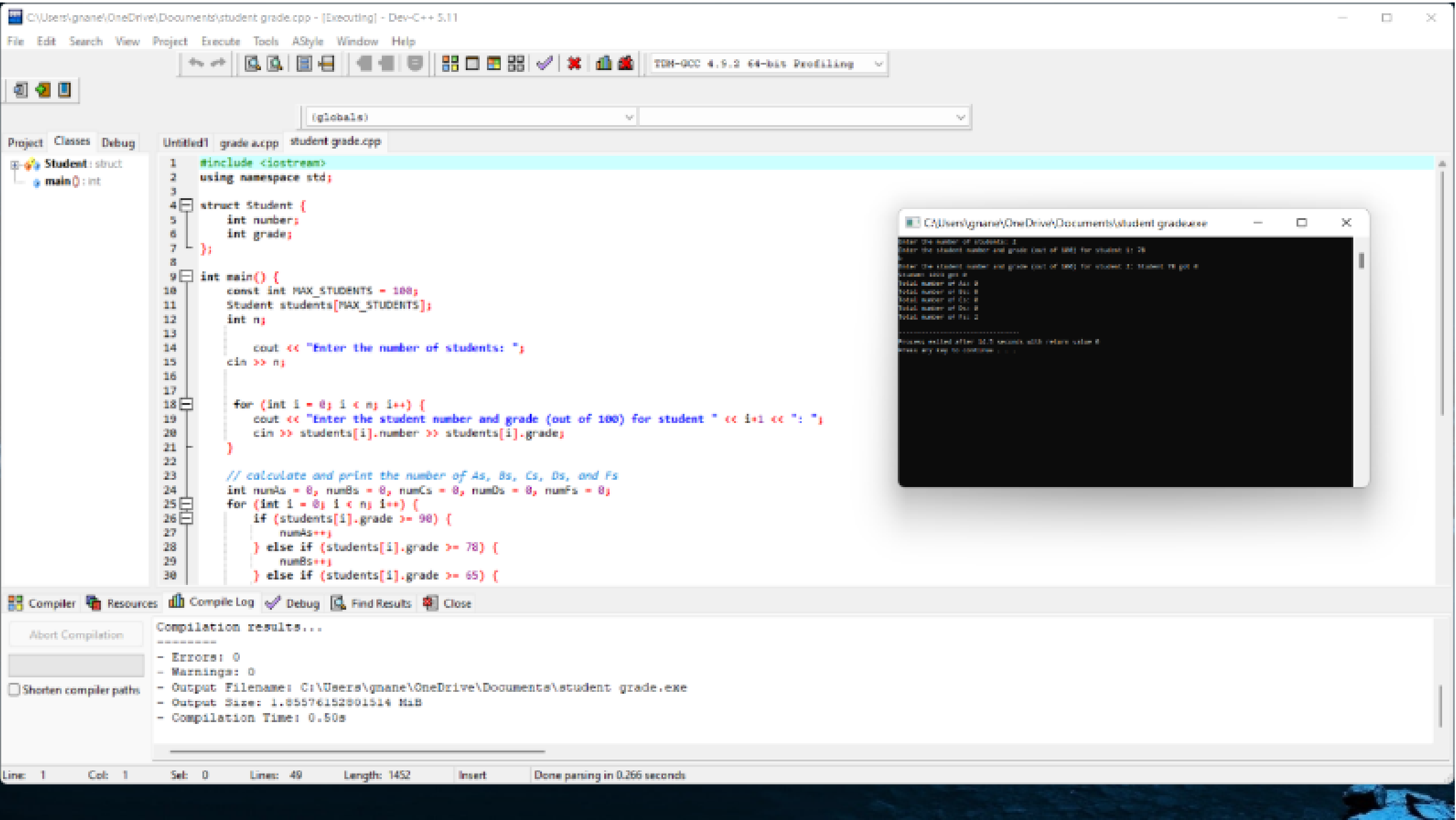
Sample Output:

Student 1 details:

Number : 2001

Grade : A

Total no. A: 1, B:0, c=0, D=0, F=0,



3. Write a program to print n prime numbers then find the nth Prime number

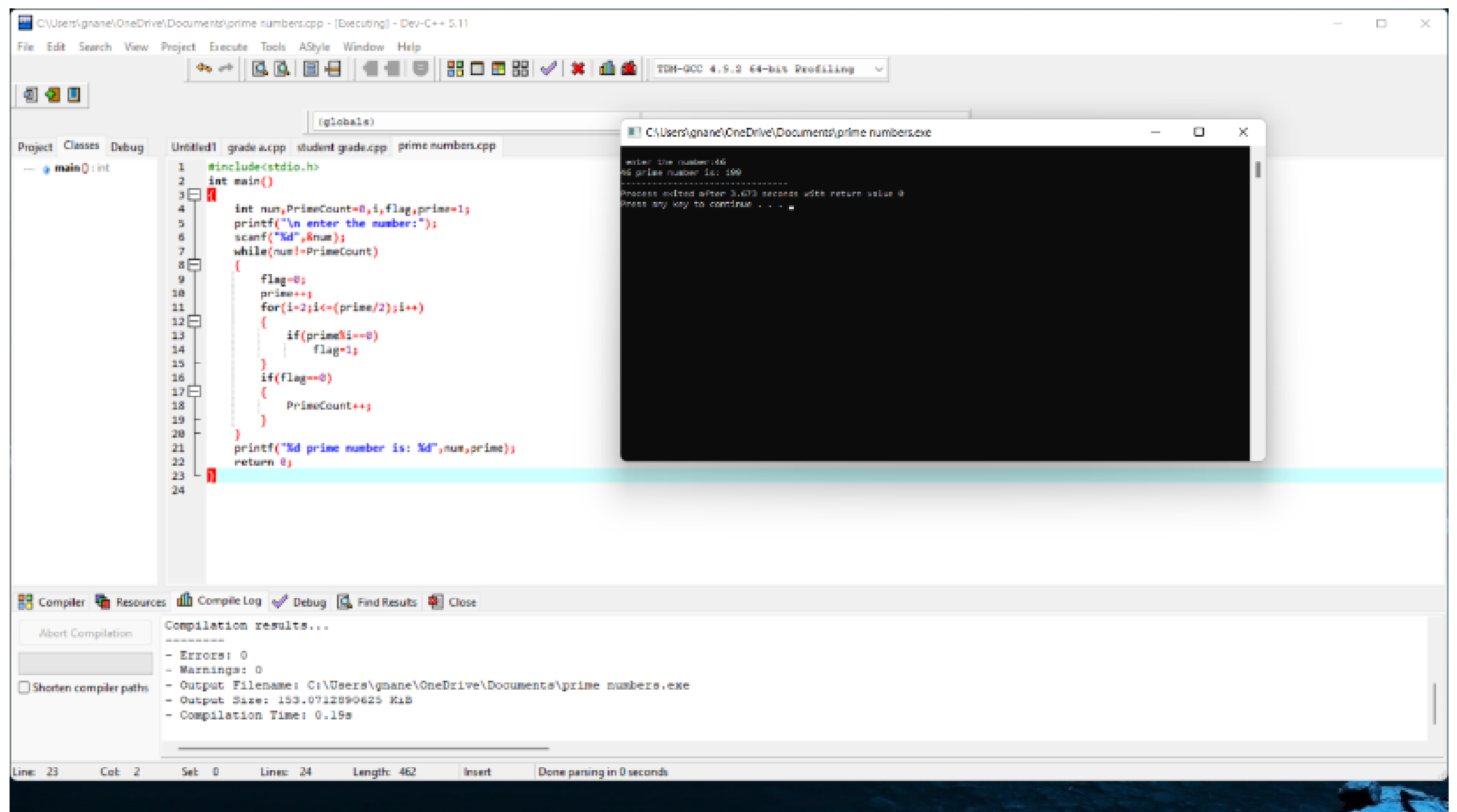
Sample Input:

N = 3

Sample Output:

3rd Prime number is 5

3 prime numbers after 5 are: 7, 11, 13



The screenshot shows the Dev-C++ IDE with a C program to find prime numbers. The code is in 'prime numbers.cpp' and the output window shows the execution results.

```
1 #include<stdio.h>
2 int main()
3 {
4     int num,PrimeCount=0,i,flag,prime=1;
5     printf("\n enter the number:");
6     scanf("%d",&num);
7     while(num!=PrimeCount)
8     {
9         flag=0;
10        prime++;
11        for(i=2;i<=(prime/2);i++)
12        {
13            if(prime%i==0)
14                flag=1;
15        }
16        if(flag==0)
17        {
18            PrimeCount++;
19        }
20    }
21    printf("\n prime number is: %d",num,prime);
22    return 0;
23 }
```

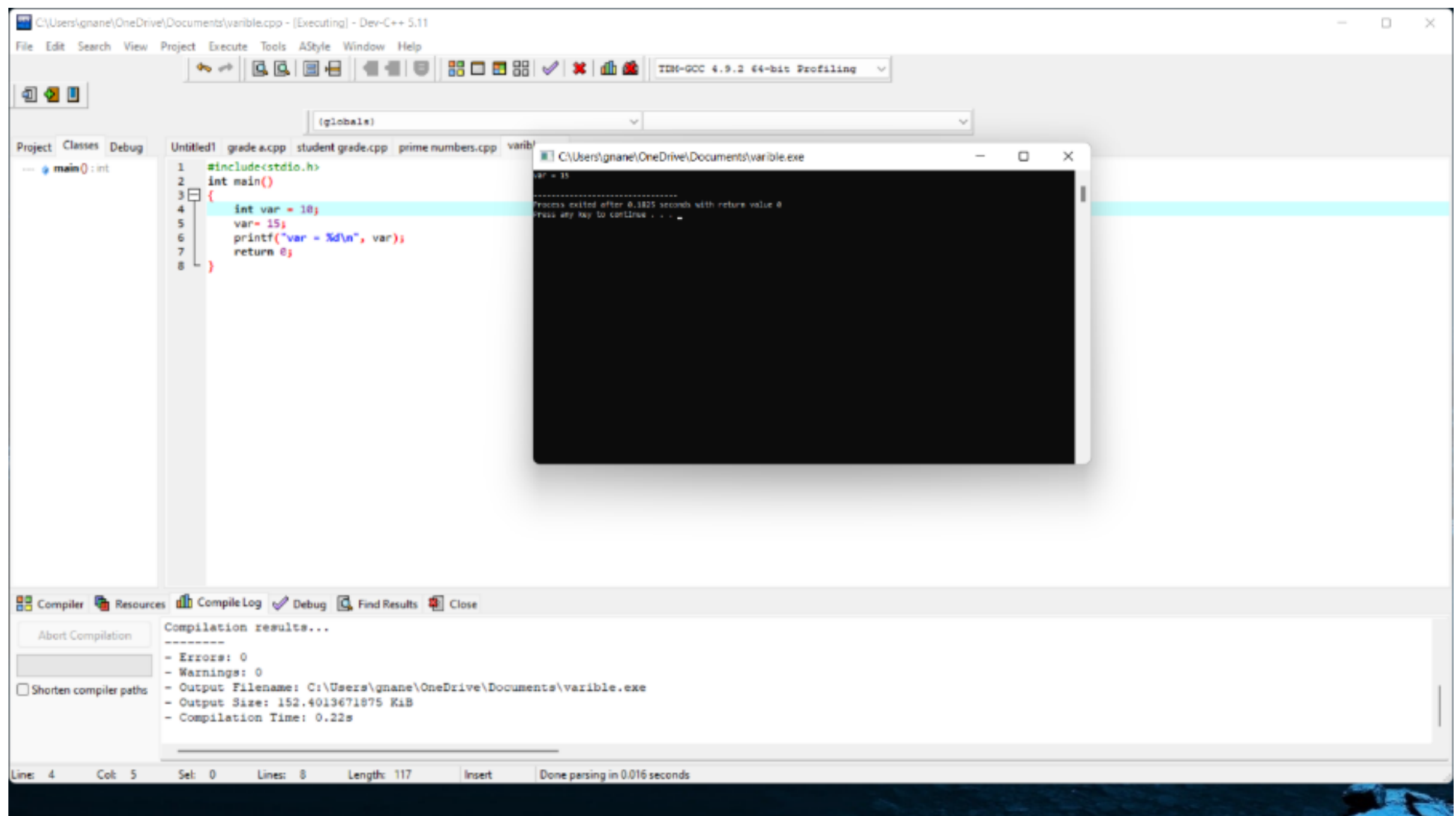
Output window (C:\Users\gnane\OneDrive\Documents\prime numbers.exe):

```
enter the number:46
46 prime number is: 189
Process exited after 3.673 seconds with return value 0
Press any key to continue . . .
```

Compilation results:

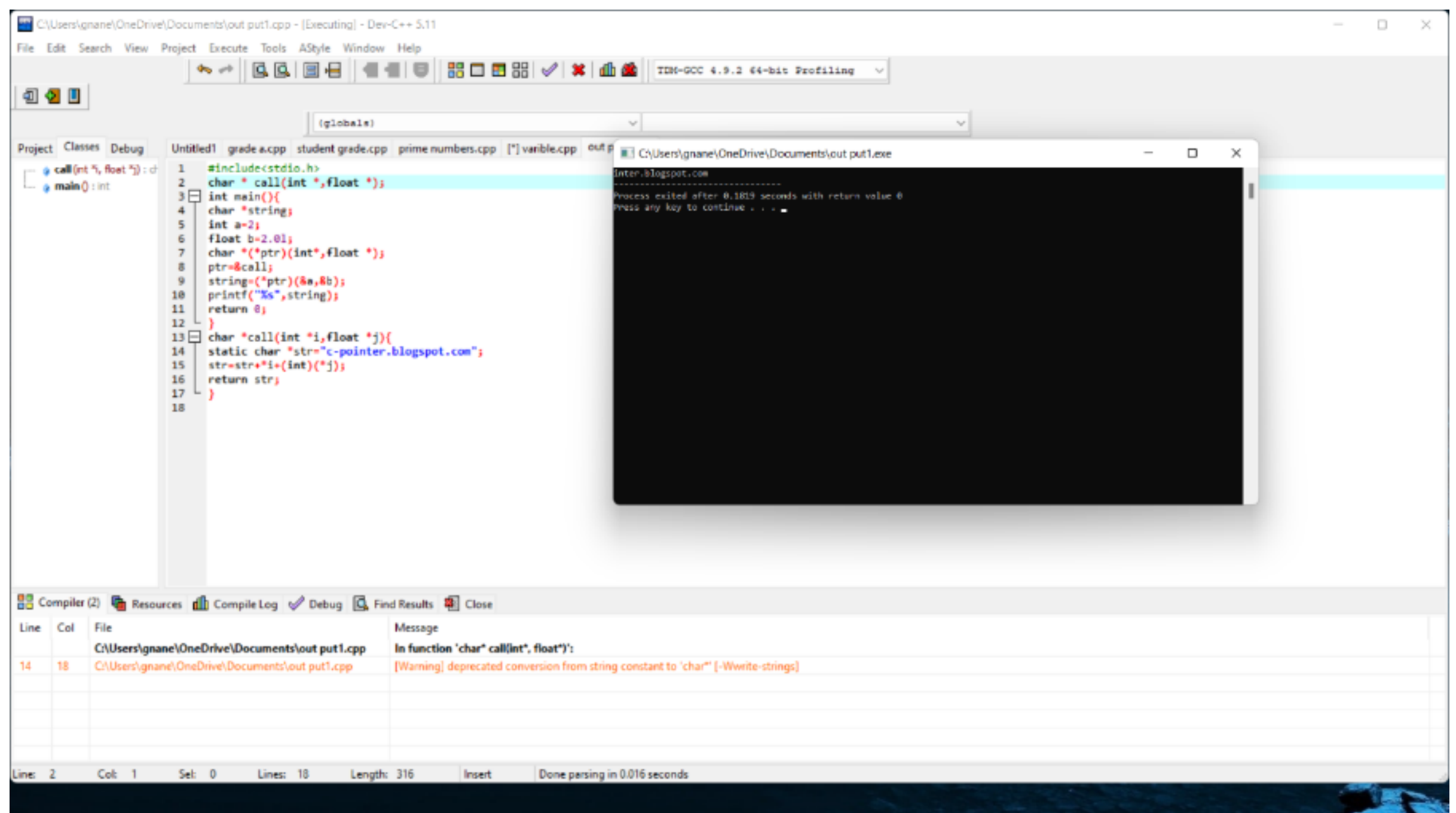
```
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\gnane\OneDrive\Documents\prime numbers.exe
- Output Size: 153.0712890625 KiB
- Compilation Time: 0.19s
```

4. Write a c program to modify the constant variable in c.?



5. What will be output if you will execute following code?

```
char * call(int *,float *);
int main(){
    char *string;
    int a=2;
    float b=2.0l;
    char *(*ptr)(int*,float *);
    ptr=&call;
    string=(*ptr>(&a,&b);
    printf("%s",string);
    return 0;
}
char *call(int *i,float *j){
    static char *str="c-pointer.blogspot.com";
    str=str+*i+(int)(*j);
    return str;
}
```

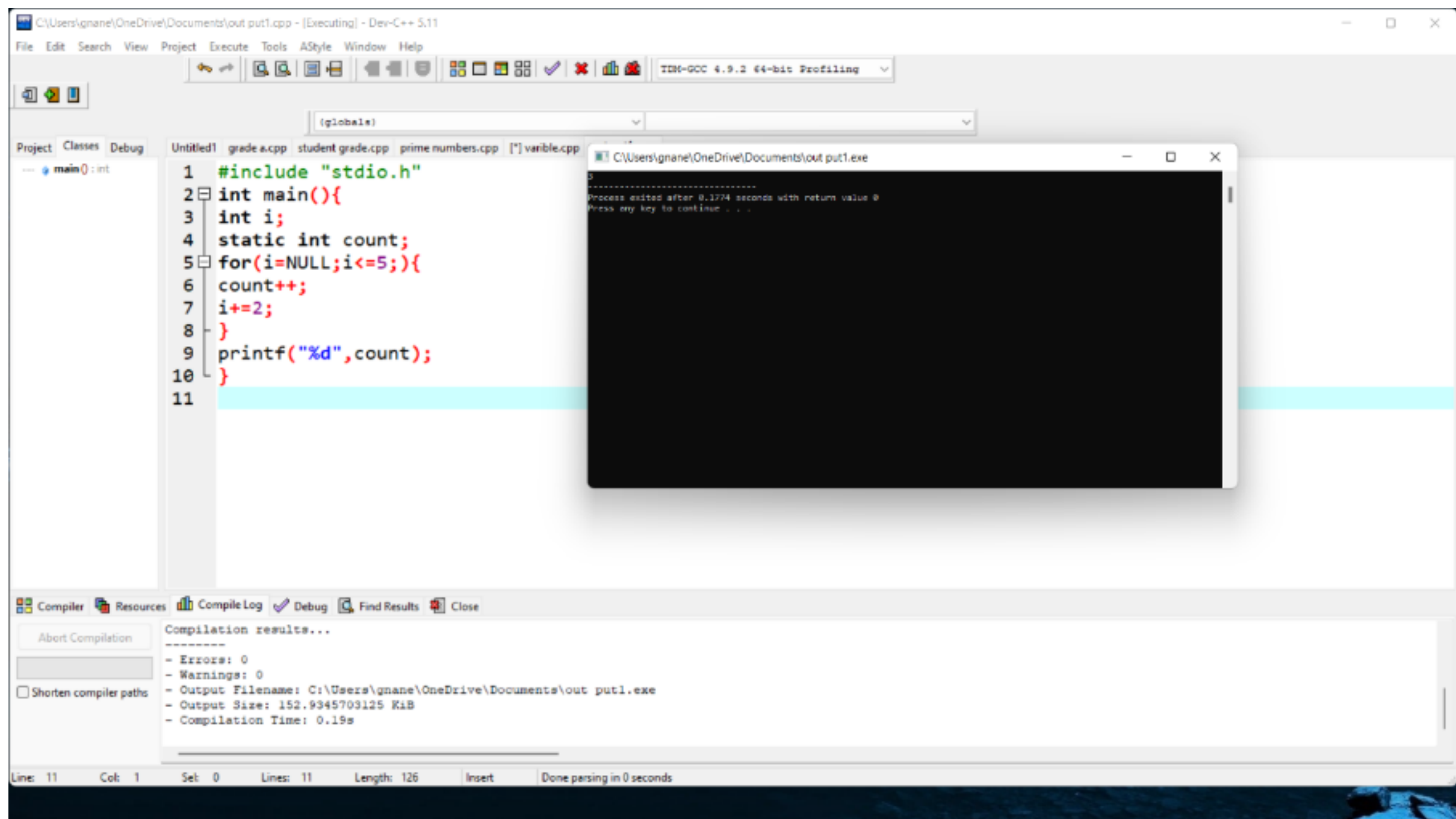


6.What will be the output of following c program?

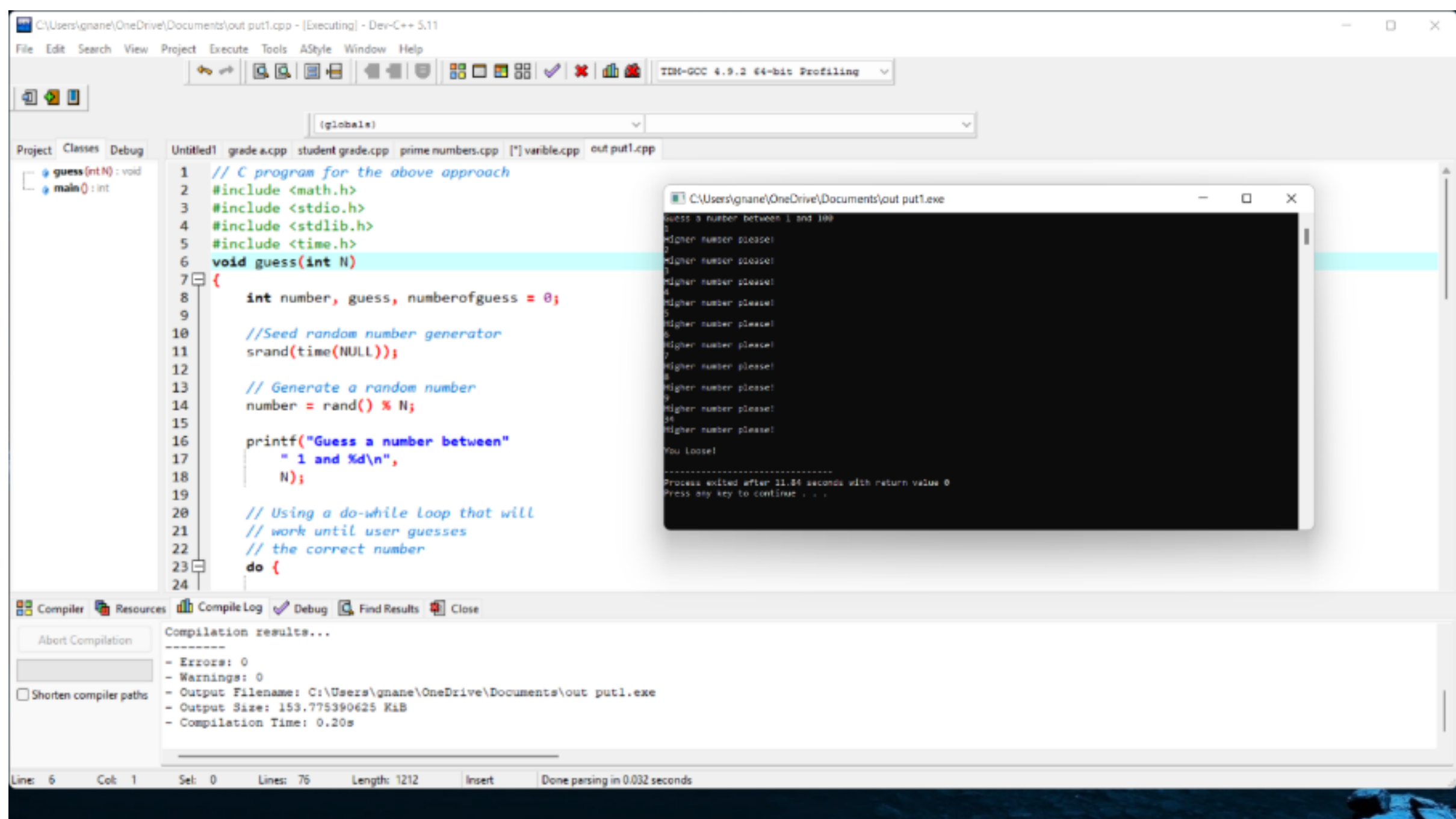
```

#include "stdio.h"
int main(){
    int i;
    static int count;
    for(i=NULL;i<=5;){
        count++;
        i+=2;
    }
    printf("%d",count);
}

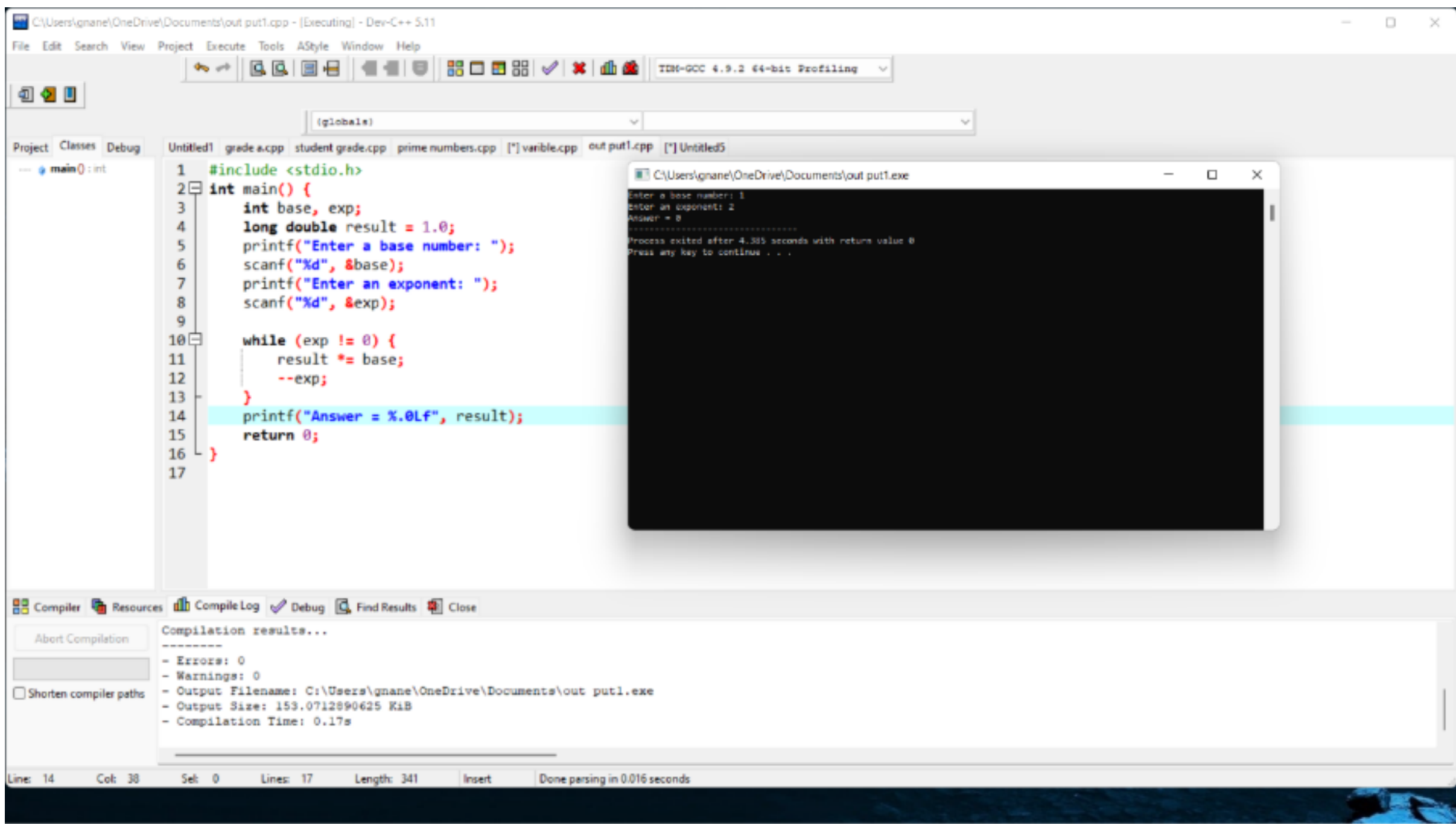
```



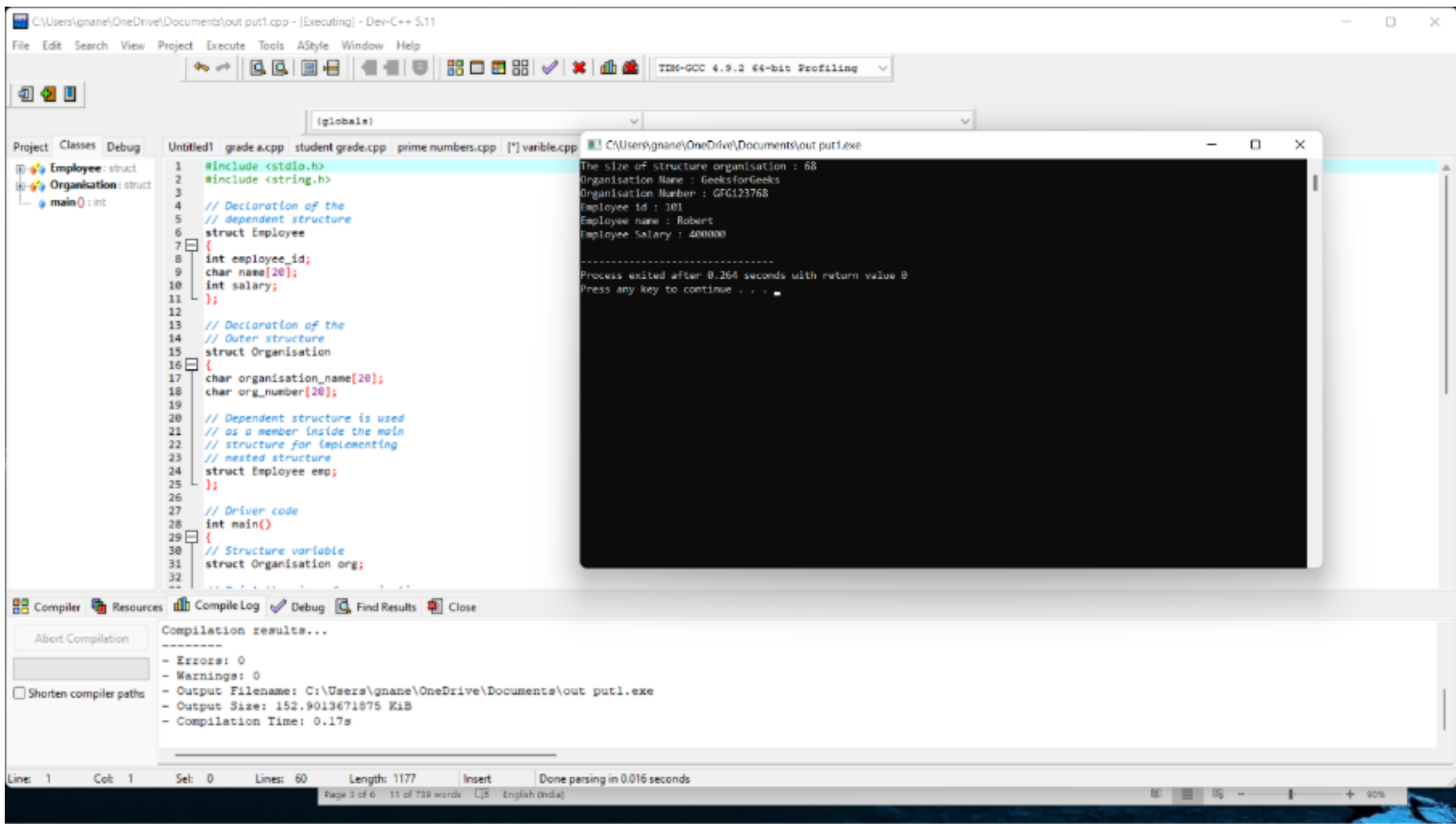
7. Write a program to guessing a number by the user against computer generated one using do while loop



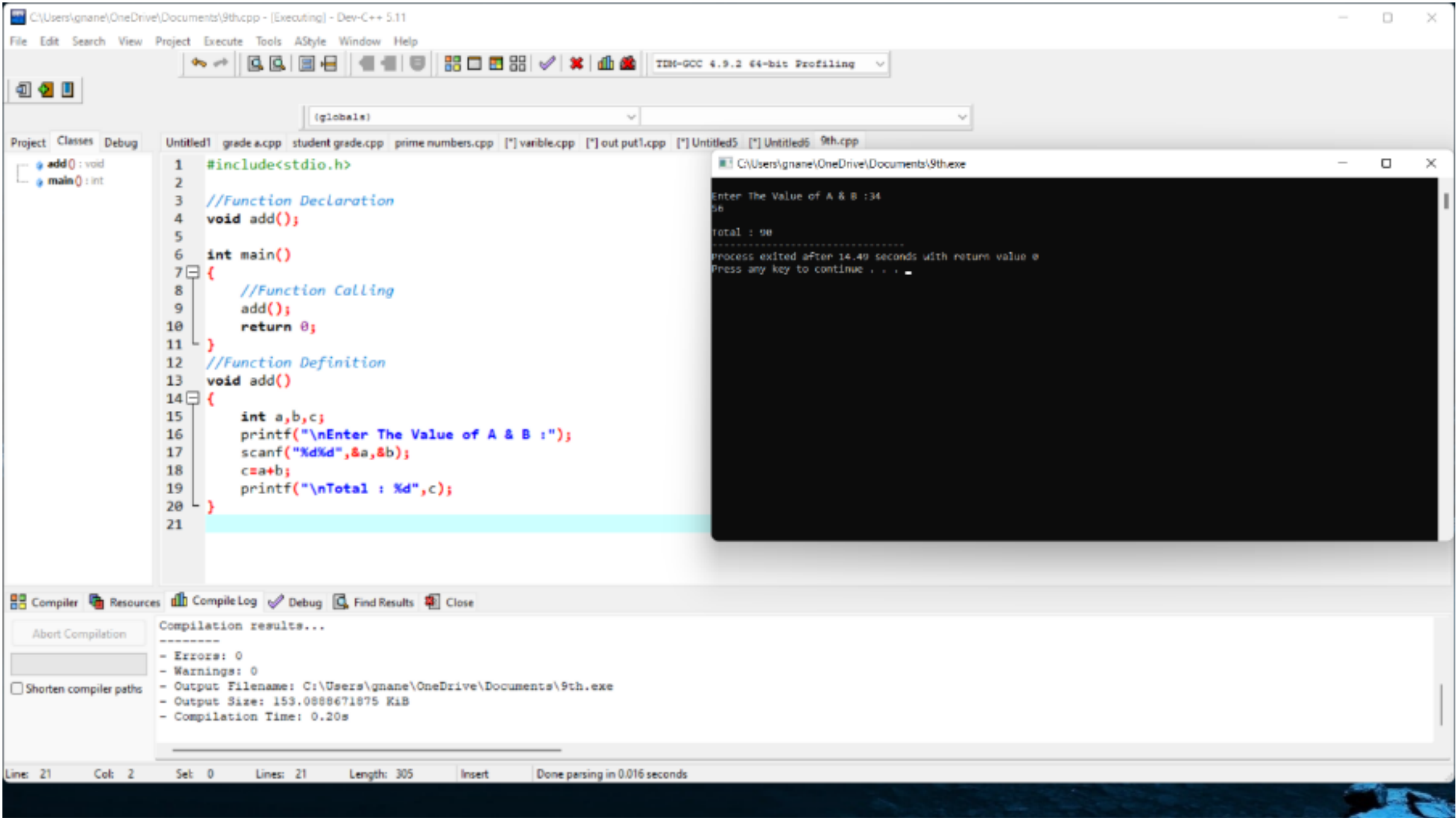
8.To write a C code to implement a function to compute power of a value



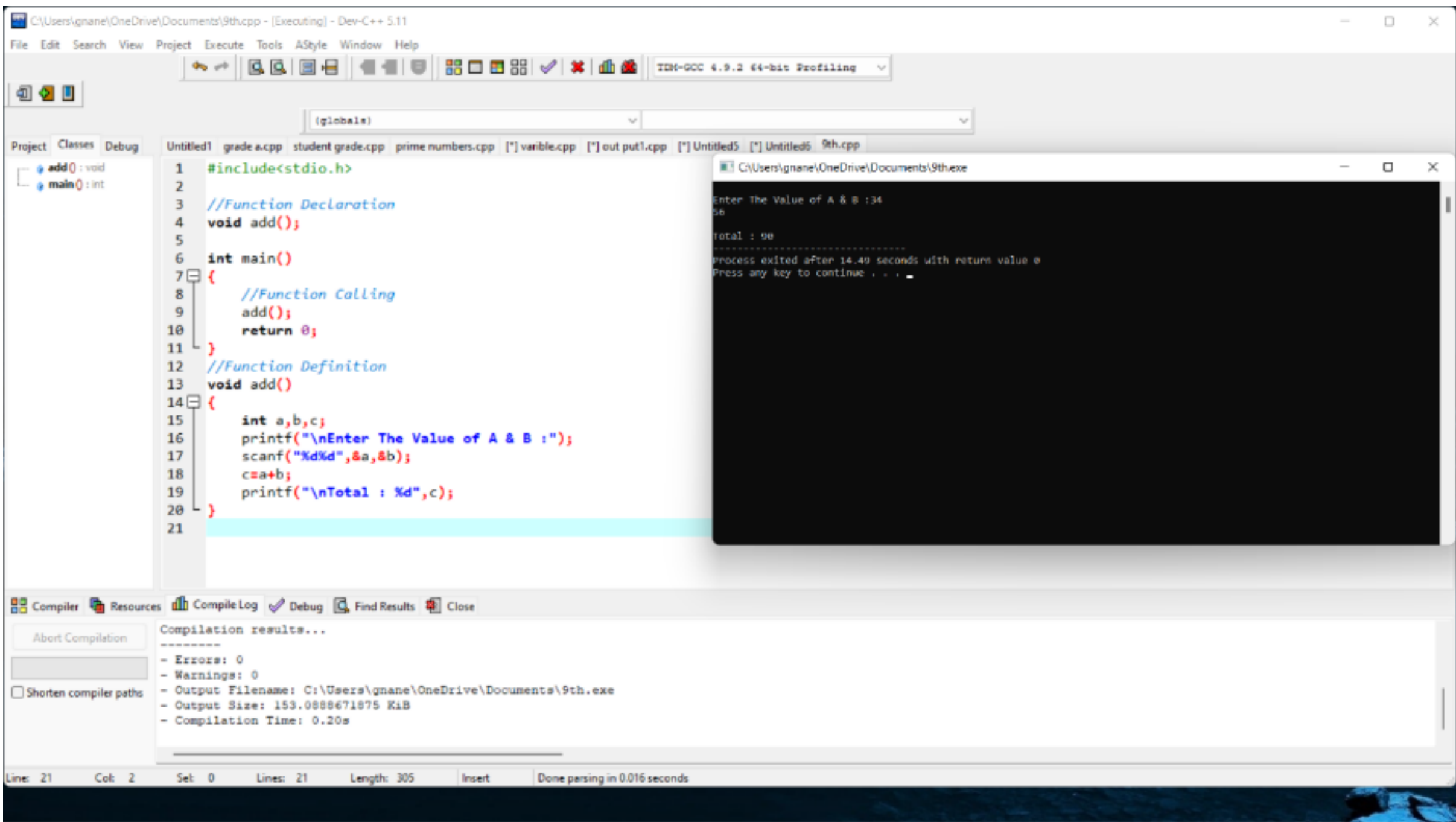
9.To write a C code to implement Nested Structure concept



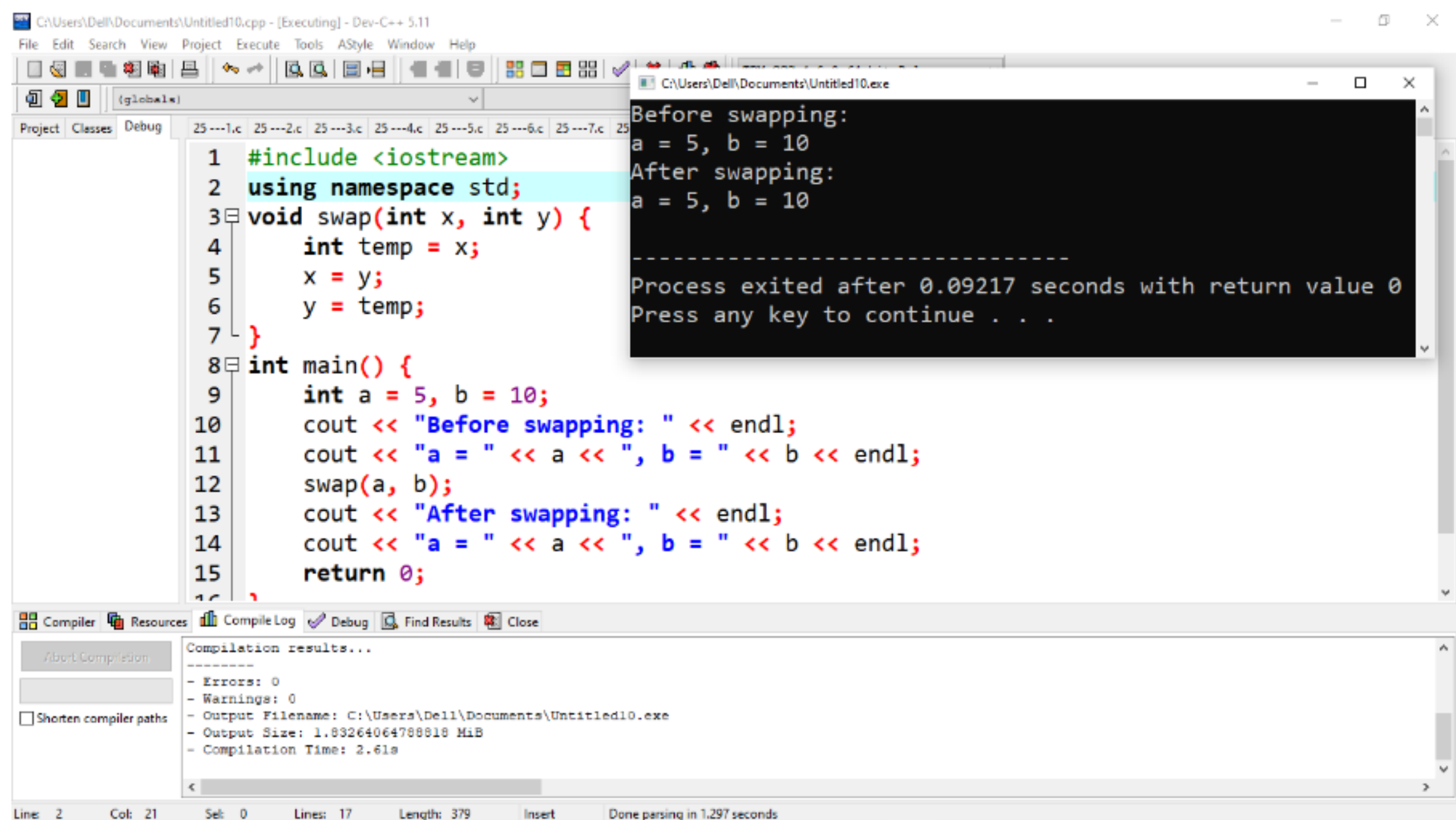
10. Program to add two numbers using Function with no arguments and no return value



11. Program to add two numbers using Function with arguments and with return value



12. Program to swap two numbers using call by value



The screenshot shows a C++ IDE with a source code editor and a console window. The source code implements a swap function using call by value. The console output shows the state of variables 'a' and 'b' before and after the swap function is called, demonstrating that the values remain unchanged in the main function.

```
1 #include <iostream>
2 using namespace std;
3 void swap(int x, int y) {
4     int temp = x;
5     x = y;
6     y = temp;
7 }
8 int main() {
9     int a = 5, b = 10;
10    cout << "Before swapping: " << endl;
11    cout << "a = " << a << ", b = " << b << endl;
12    swap(a, b);
13    cout << "After swapping: " << endl;
14    cout << "a = " << a << ", b = " << b << endl;
15    return 0;
16 }
```

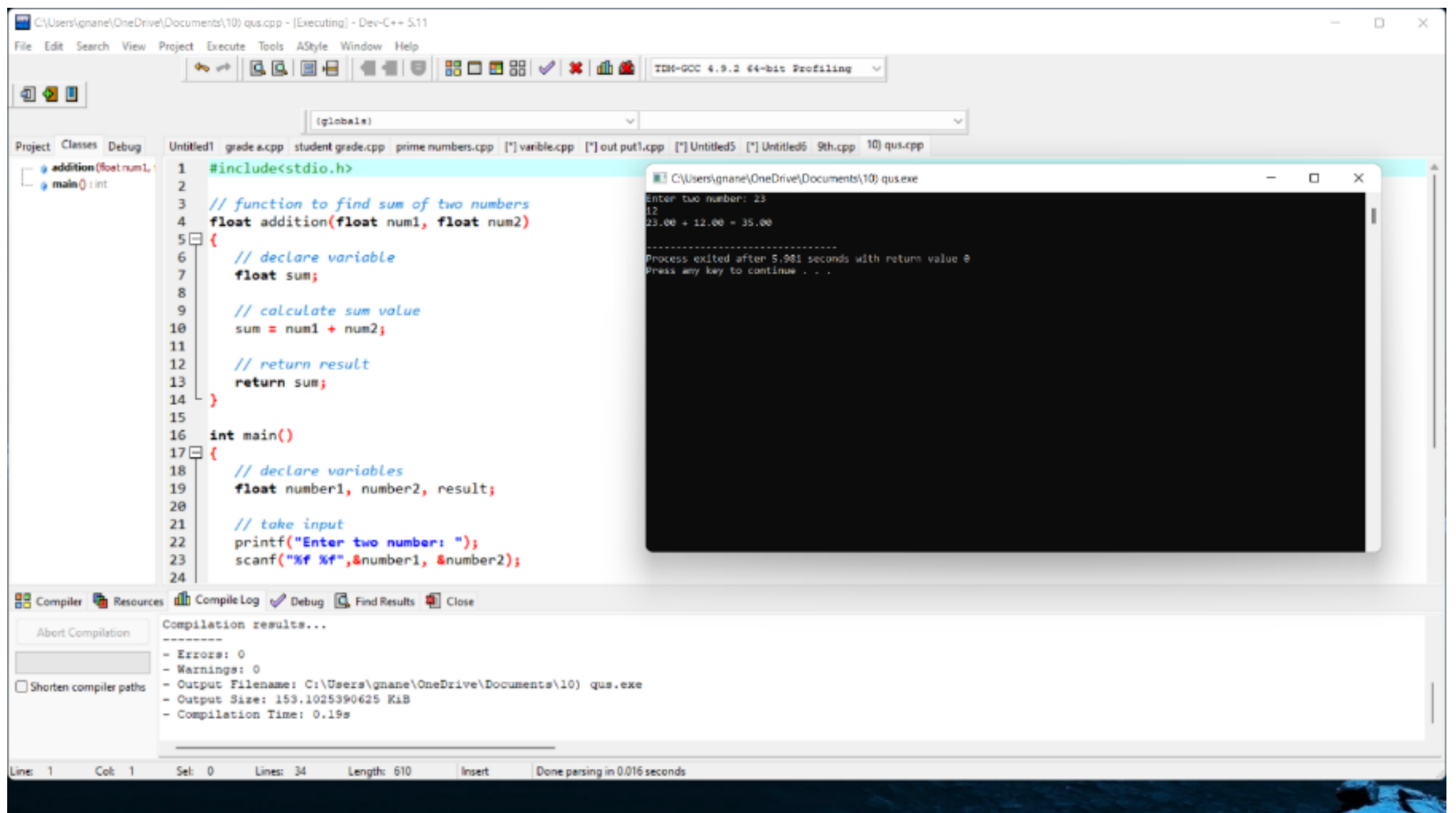
Before swapping:
a = 5, b = 10
After swapping:
a = 5, b = 10

Process exited after 0.09217 seconds with return value 0
Press any key to continue . . .

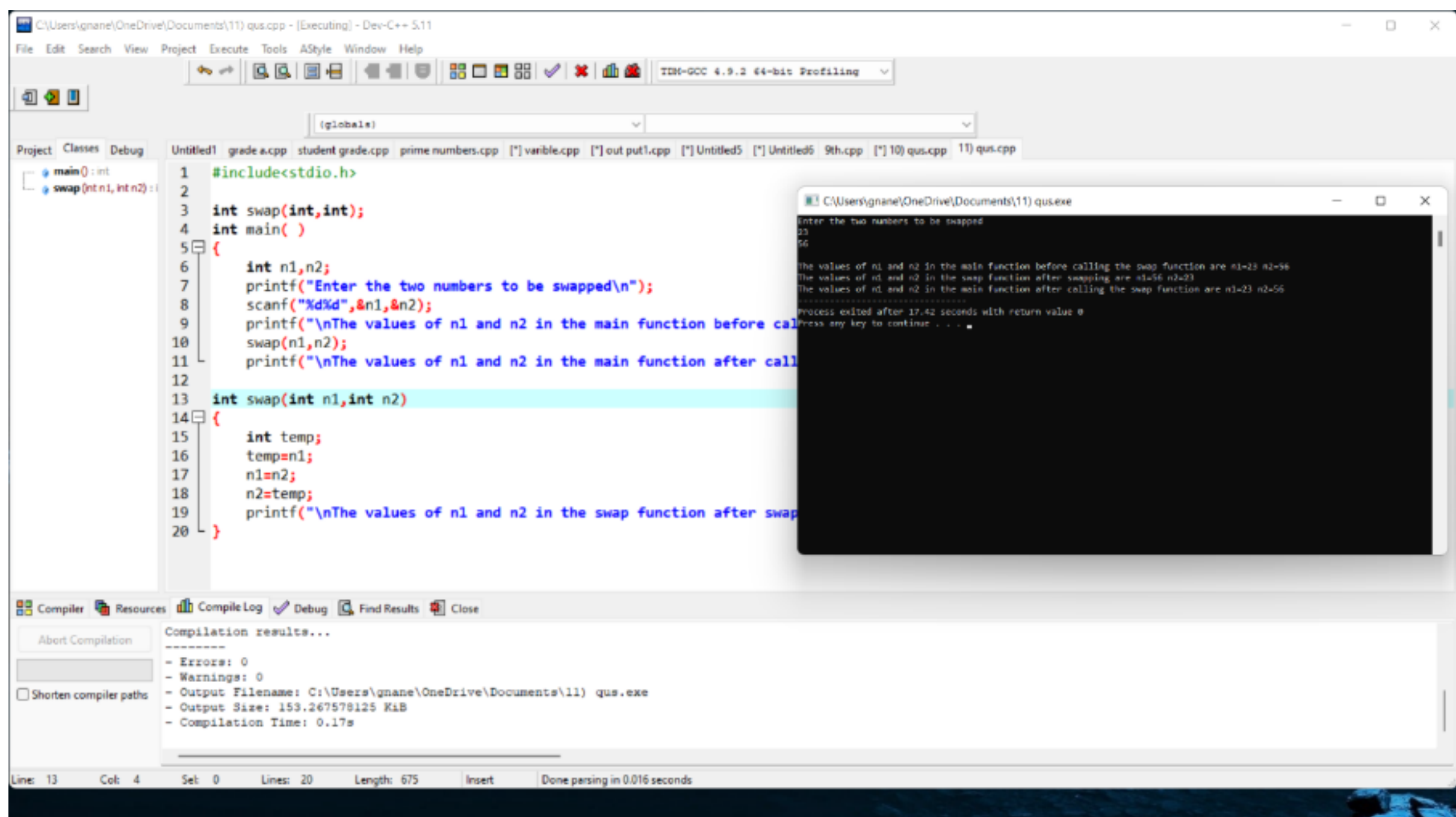
Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\De11\Documents\Untitled10.exe
- Output Size: 1.83264064788818 MiB
- Compilation Time: 2.61s

13. Find out the error and show the output

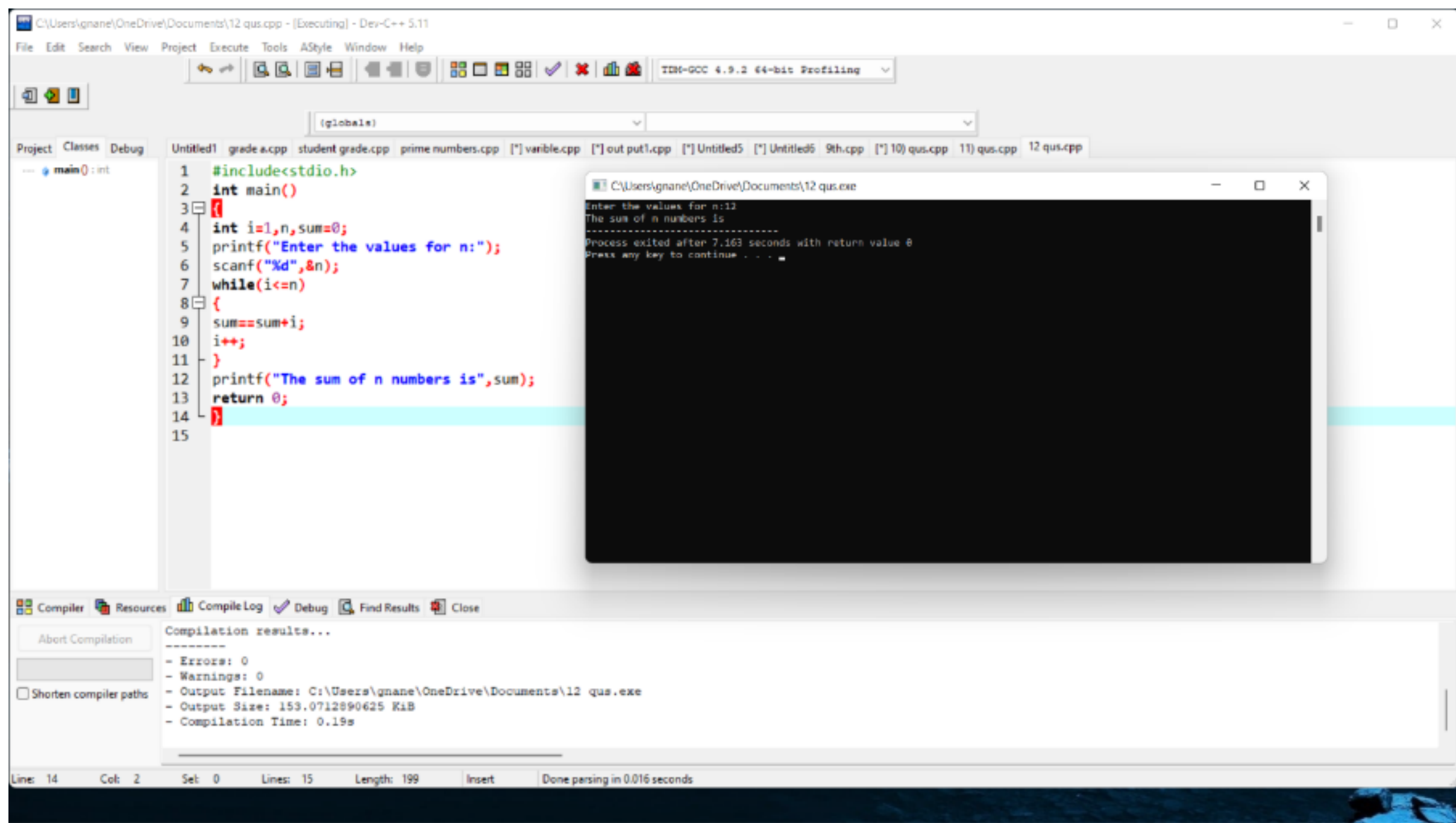
```
main()
{
    int i=1,sum=0;
    clrscr();
    printf(" Enter the values for n:" );
    scanf(" %d" ,n);
    while(i<=n)
    {
        sum==sum+i;
        i++;
    }
    printf(" The sum of n numbers is" ,sum);
}
```



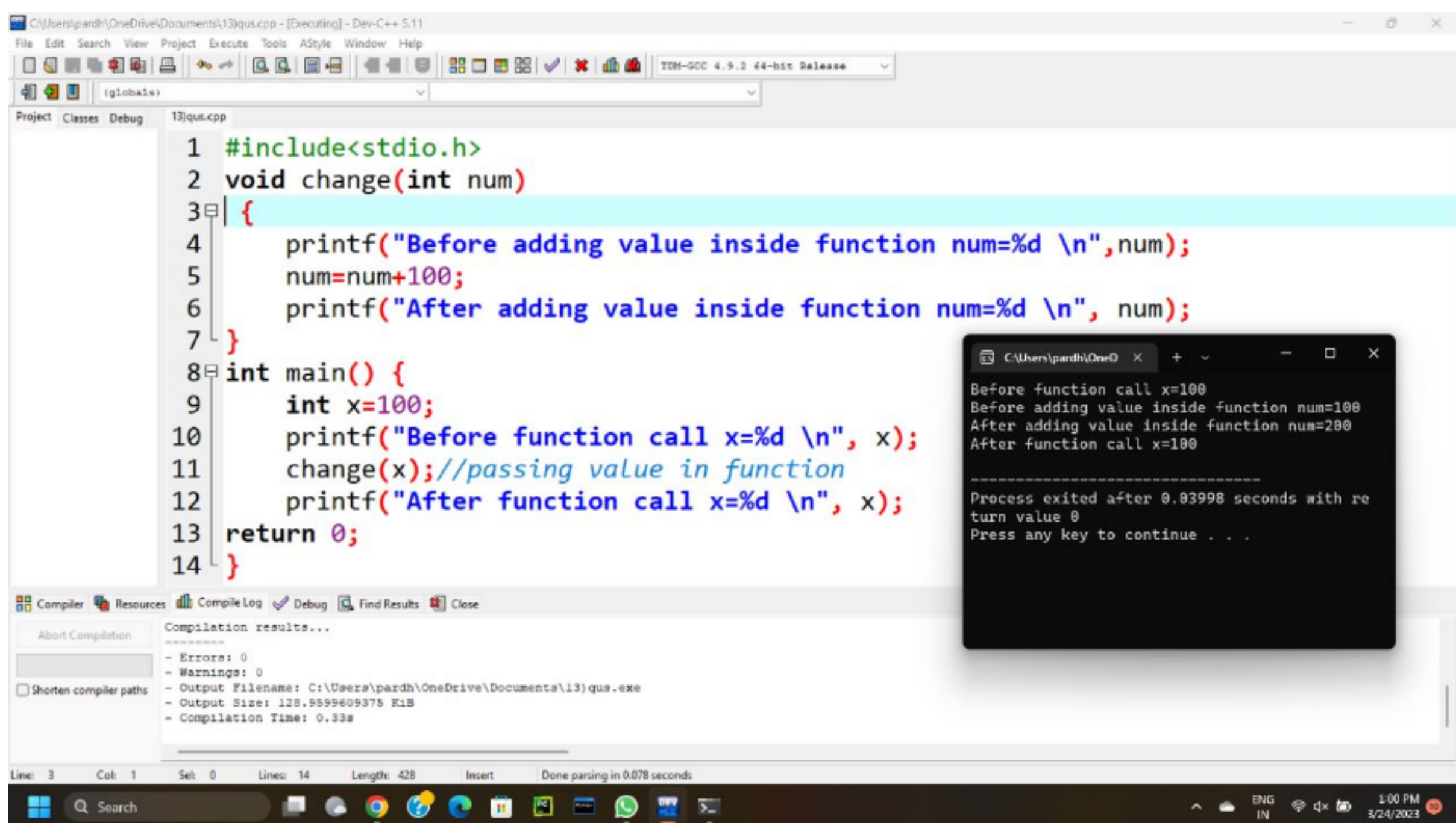
14. Program to swap two numbers using call by reference



15. Write a program for Binary Search using recursive functions



16. Program to find Employee no, name, salary, doj using nested structure



17. Program to find student details using nested structure

The screenshot shows the Dev-C++ IDE with a C++ program for iterative binary search. The code is as follows:

```
1 #include <stdio.h>
2 int iterativeBinarySearch(int array[], int start_index, int end_index, int element) {
3     while (start_index <= end_index) {
4         int middle = start_index + (end_index - start_index) / 2;
5         if (array[middle] == element)
6             return middle;
7         if (array[middle] < element)
8             start_index = middle + 1;
9         else
10            end_index = middle - 1;
11     }
12     return -1;
13 }
14 int main(void) {
15     int array[] = {1, 4, 7, 9, 16, 56, 70};
16     int n = 7;
17     int element = 16;
18     int found_index = iterativeBinarySearch(array, 0, n-1, element);
19     if (found_index == -1) {
20         printf("Element not found in the array ");
21     }
22     else {
23         printf("Element found at index : %d", found_index);
24     }
25     return 0;
26 }
```

The execution output shows:

```
Element found at index : 4
-----
Process exited after 0.0321 seconds with return value 0
Press any key to continue . . .
```

18. Program to store 3 book records in one structure / using array of structure

The screenshot shows the Dev-C++ IDE with a C++ program for storing employee details in a structure. The code is as follows:

```
1 #include <stdio.h>
2
3 /*structure declaration*/
4 struct employee {
5     char name[30];
6     int empId;
7     float salary;
8 };
9
10 int main()
11 {
12     /*declare structure variable*/
13     struct employee emp;
14
15     /*read employee details*/
16     printf("\nEnter details :\n");
17     printf("Name ? :"); gets(emp.name);
18     printf("ID ? :"); scanf("%d", &emp.empId);
19     printf("Salary ? :"); scanf("%f", &emp.salary);
20
21     /*print employee details*/
22     printf("\nEnter detail is:");
23     printf("Name: %s", emp.name);
24     printf("Id: %d", emp.empId);
25     printf("Salary: %f\n", emp.salary);
26 }
```

The execution output shows:

```
Enter details :
Name ? :gnanendra
ID ? :192211158
Salary ? :10000000000

Entered detail is:Name: gnanendraId: 192211158Salary: 10000000000.000000

-----
Process exited after 34.12 seconds with return value 0
Press any key to continue . . .
```

Compilation results:

```
-----
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\pardh\OneDrive\Documents\15\ que.exe
- Output Size: 129.439453125 KiB
- Compilation Time: 0.20s
```

19. Find out the error and show the output

```
void main()
{
    intarr[3][4];
    inti,j,k;
    printf("Enter array element");
    for(i=0;i<3;i++)
    {
        for(j=0; j < 4; j++)
        {
            scanf("%d",arr[i][j]);
        }
    }
    for(i=1; i < 3; i++)
    {
        for(j=0; j < 4; j++)
        {
            printf(" %c" ,arr[i][j]);
        }
    }
    getch();
}
```

The screenshot shows the Dev-C++ IDE with a C++ program in the editor and its output in the console window. The program defines two structures: 'address' and 'student'. The 'student' structure is nested, containing a 'name' array, a 'roll' integer, and an 'address' structure. The 'main' function creates a 'student' variable and prompts the user to enter their name and roll number, followed by street name, house number, and state number. It then prints the student details and the address information. The console output shows the user input: 'gnanendra', '192211158', 'srikalahastri', and '34', followed by the program's output: 'Student detail is: gnanendra 192211158' and 'Address:srikalahastri, House no. -34, state: 0'. The compilation results at the bottom show 0 errors and 0 warnings, with the output file 'qus.exe' and a compilation time of 0.19s.

```
1 #include<stdio.h>
2
3 /* Declaration of structure */
4 struct address
5 {
6     int houseno;
7     char street[20];
8     int stateno;
9 }
10
11 /* Declaration of structure */
12 struct student
13 {
14     char name[30];
15     int roll;
16     struct address adrs; /* Nested structure */
17 }
18
19 int main()
20 {
21     struct student stud;
22
23     printf("Enter name and roll number of student:\n");
24     scanf("%s%d",stud.name, &stud.roll);
25     printf("Enter street name, house number and state number:\n");
26     scanf("%s%d%d",stud.adrs.street, &stud.adrs.houseno, &stud.adrs.stateno);
27     printf("Student detail is:\n");
28     printf("Name: %s\tRoll: %d\n", stud.name, stud.roll);
29     printf("Address:%s, House no. -%d, state: %d",stud.adrs.street, stud.adrs.houseno, stud.adrs.stateno);
30
31     return 0;
32 }
```

```
Enter name and roll number of student:
gnanendra
192211158
Enter street name, house number and state number:
srikalahastri
34
andhar pradesh
Student detail is:
Name: gnanendra Roll: 192211158
Address:srikalahastri, House no. -34, state: 0
-----
Process exited after 73.24 seconds with return value 0
Press any key to continue . . .
```

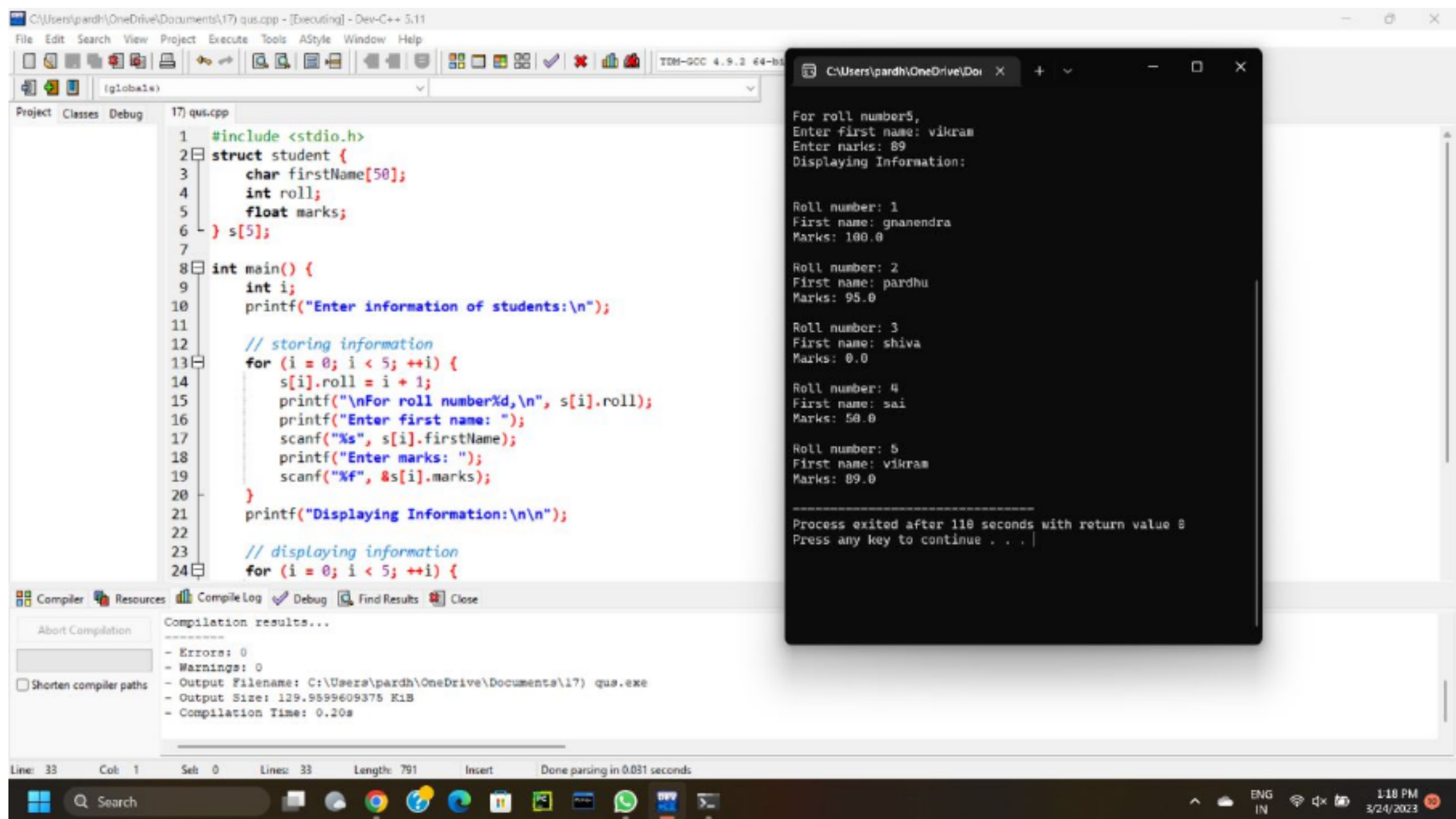
Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\pardh\OneDrive\Documents\16\qus.exe
- Output Size: 128.7705078125 KiB
- Compilation Time: 0.19s

20.Find out the error and show the output

```
void main()
{
    int a[20][20],c[20][20],i,j,r1,c1;
    clrscr();
    printf("\n Enter the number of rows and column of a matrix: \n");
    scanf("%d",&r1,&c1);
    printf("Enter the elements of matrix :");
    for(i=0;i<r1;i++)
    {
        for(j=0;j<r1;j++)
            scanf("%d",&a[i][j]);
    }
    printf("The elements of matrix are :");

    for(i=0;i<r1;i++)
    {
        Printf {" \n" );
        for(j=0;j<c1;j++)
            printf("\t%d",&a[i][j]);
    }
    printf("\n Transpose Matrix is\n");
    for(i=0;i<r1;i++)
    {
        printf("\n");
        for(j=0;j<c2;j++)
        {
            c[i][j]=a[j][i]; /* inverse rows and column */
            printf("%d\t",c[i][j]);
        }
    }
    getch();
}
```

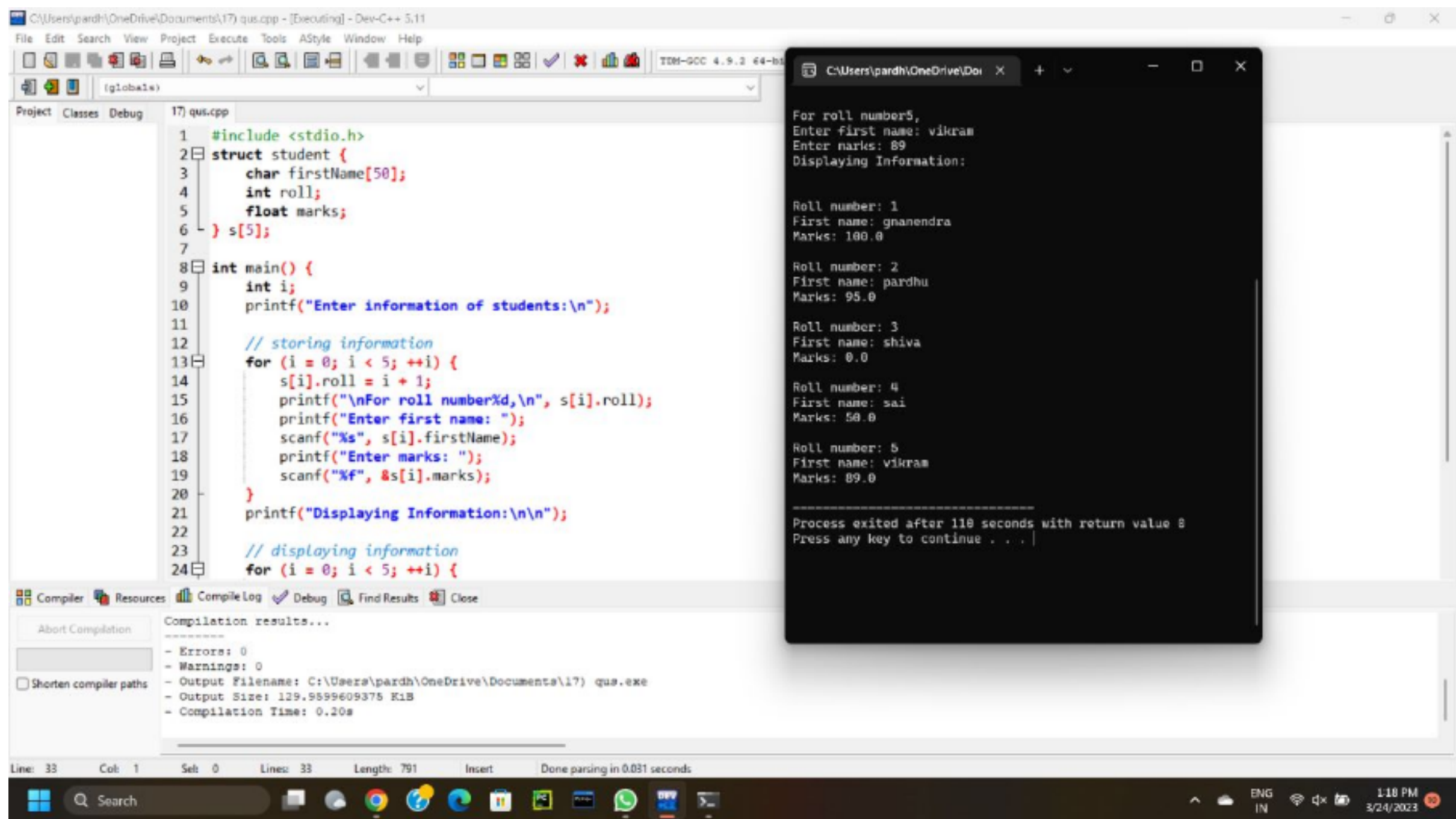


21. Find out the error and show the output

```

void main()
{
    char str[50];
    int i, length = 0;
    clrscr();
    printf("\nEnter the String: ");
    get(str);
    for(i=0; str[i]!='\0'; i++)
    {
        length++;
    }
    printf("\nThe length of the string is %d.", length);
    getch();
}

```



22. Find out the error and show the output

```

void main()
{
    char str1[30],str2[30];
    printf("Enter first string: ");
    gets(str1);
    printf("Enter second string: ");
    get(str2);
    if(strcmp(str1,str2)=0)
    {
        print("Both strings are equal");
    }
    else
        printf("Strings are unequal");
}

```

