ASSIGNMENT # 1

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SAHIWAL CAMPUS

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FA23-BCS-251

SECTION: E

SUBMITTED TO

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Programming Fundamentals

Question # 1

Write a program that input a number and check weather it is even or odd.

```
# include <iostream>
using namespace std;
 int main () {
   int num1;
 cout << " Enter a number " ;
   cin>> num1;
 if (num1 % 2 == 0) {
     cout << " Number is even"; }
 else { cout << " number is odd ; }
     return 0;  }
```

Question # 2

Write a program that input 10 numbers and count even and odd numbers.

```
# include <iostream>
 using namespace std;
 int main () {
   int  even = 0;
   int  odd = 0;
    int  num;
```

```
for (int i = 1 ; i ≤ 10 ; i++) {
    cout << " Enter number " << i << ":";
    cin>> num ;
if (num % 2 == 0){   even ++ }
else{ odd ++ }
    }
    cout << " Even numbers are" << even ;
    cout << " odd numbers are" << odd;
        return 0; }
```

Question # 3

Write a program that input three angles of triangle and check it is right angle, obtuse or acute triangle.

```
# include <iostream>
using namespace std;
int main () {
int num1 , num 2 , num 3, sum ;
cout << " Enter 1st angle \n " ;
cin >> num 1 ;
cout << " Enter 2nd angle \n " ;
cin >> num 2 ;
cout << " Enter 3rd angle \n " ;
cin >> num 3 ;
```

```
sum = num1 + num2 + num3
if (num1 == 90 || num2 == 90 || num3 == 90){
  cout << " The triangle is right angle"; }
if (num1 > 90 && num2 > 90 && num3 > 90){
  cout << " The triang is obtuse"; }
if (num1 < 90 && num2 < 90 && num3 < 90){
  cout << " The triang is Acute"; }
      return 0; }
```

Question # 4 Write a program that input 3 numbers and check that they are consecutive or not. like 23, 24, 25 are consecutive but 22, 24, 25 are not.

```
# include <iostream>
  using namespace std;
  int main () {
  int num1, num2, num3;
  cout << " Enter 1st number\n";
  cin >> num1;
  cout << " Enter 2nd number\n";
  cin >> num2;
  cout << " Enter 3rd number\n";
  cin >> num3;
```

```
if (num1 + 1 == num2 && num2+1 == num3){
   cout << "Numbers are consecutive"; }
else { cout << "Numbers are not consecutive;}
   return 0; }
```

Q# 5 Write a program that input 3 angles of a triangle and check weather it is valid triangle or not. A triangle is valid if sum of 2 sides is greater than 3rd side.

```
# include <iostream>
using namespace std;
int main () {
int num1, num2, num3;
cout << "Enter 1st angle of triangle \n";
cin >> num1;
cout << "Enter 2nd angle\n";
cin>>num2;
cout << "Enter 3rd angle \n";
cin>>num3;
if (num1 + num2 > num3 && num2 + num3 >
   num1 && num3+ num1 > num2 ) {
   cout << "Triangle is valid"; }
else { cout << "Triangle is not valid"; }
   return 0; }
```

Q# 6 Write a program that inputs 5 numbers and check which one is maximum.

```
# include <iostream>
using namespace std;
int main () {
int num1, num2, num3, num4, num5, max;
cout << " Enter 5 numbers \n";
cin >> num1;
cin >> num2;
cin >> num3;
cin >> num4;
cin >> num5;
max = num1;
if (num2 > max) { max = num2; }
if (num3 > max) { max = num3; }
if (num4 > max) { max = num4; }
if (num5 > max) { max = num5; }
cout << " The maximum number is " << max;
return 0; }
```

Q# 7 Write a program which can calculate BMI (Body Mass Index)

```
# include <iostream>
using namespace std;
int main () {
int num 1 , num 3, num 4;
float num 2;
cout << "Enter your weight in kg \n";
cin >> num 1;
cout << "Enter your height in meters \n";
cin >> num 2;
num 3 = num 2 * num 2;
num 4 = num 1 / num 3; // BMI value
cout << "your BMI value is" << num 4;
if (num 4 < 18.5) {
cout << "you are underweight"; }
if (num 4 > 18.5 && num 4 < 24.9) {
cout << "you are healthy"; }
if (num 4 >= 25 && num 4 < 29.9) {
cout << "you are overweight"; }
if (num 4 > 30) { cout << "you are obese"; }
return 0; }
```

Q # 8 Write a program which suggest the shopkepper change.

```
# include <iostream>
using namespace std;
int main () {
```

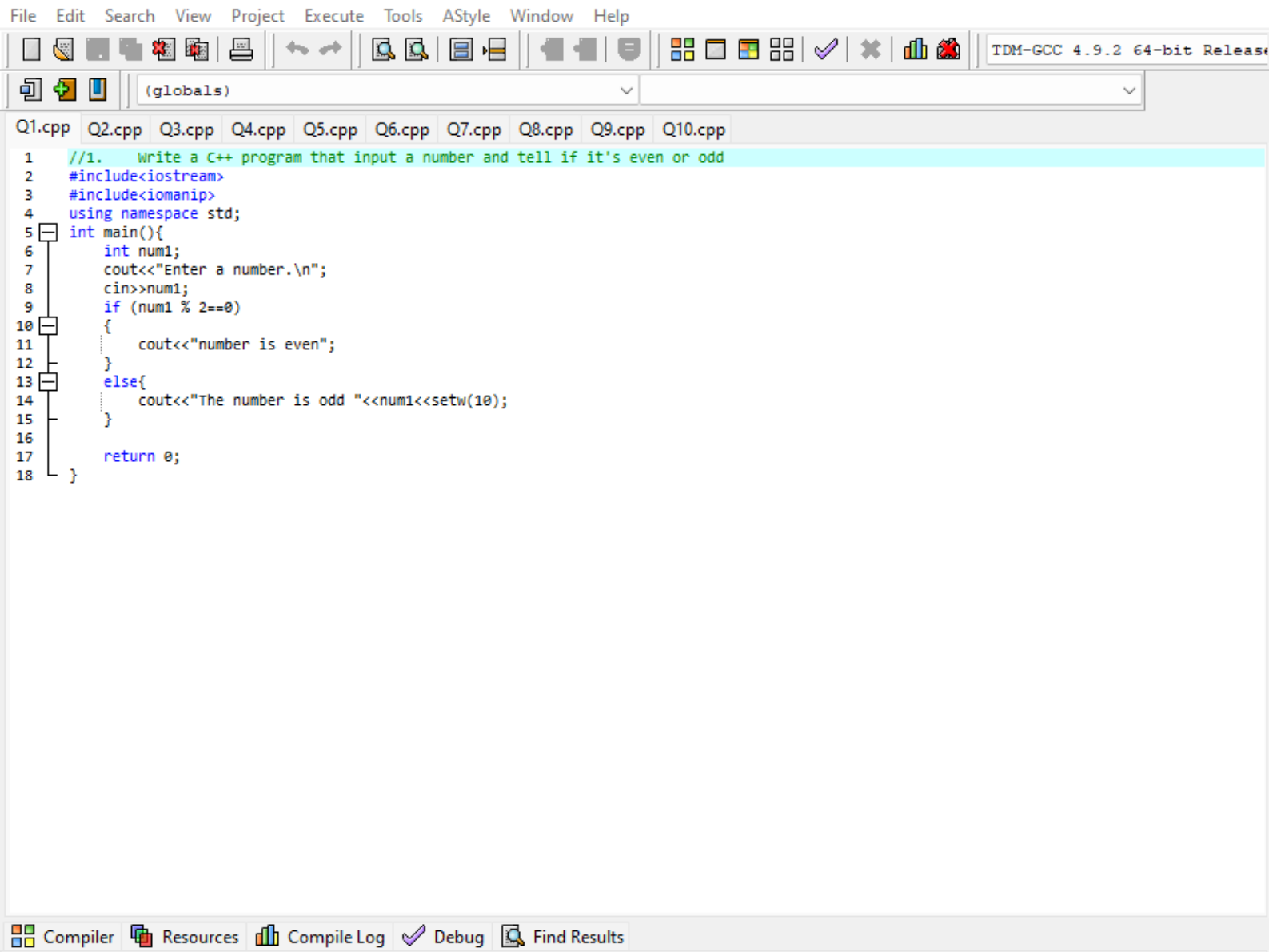
```
int amount, thousand, five hundred, hundred, fifty, ten,
    five, two one;
cout << "Enter the received amount";
cin >> amount;
thousand = amount /1000;
amount %= 1000;
five hundred = amount /500;
amount %= 500;
hundred= amount /100;
amount %= 100
fifty = amount /50;
amount %= 50;
ten = amount /10;
amount %= 10;
five = amount/5;
amount %= 5;
two = amount /2;
amount %= 2;
cout << "In change to be given :";
if (thousand) { cout << thousand << "Notes of 1000"; }
if (five hundred) { cout << five hundred << "Notes of 500"; }
if (hundred) { cout << hundred << "Notes of hundred"; }
if (fifty) { cout << fifty << "Notes of fifty"; }
if (ten) { cout << ten << "Notes of ten"; }
if (two) { cout << Two << "coins of two"; }
    return 0; }
```

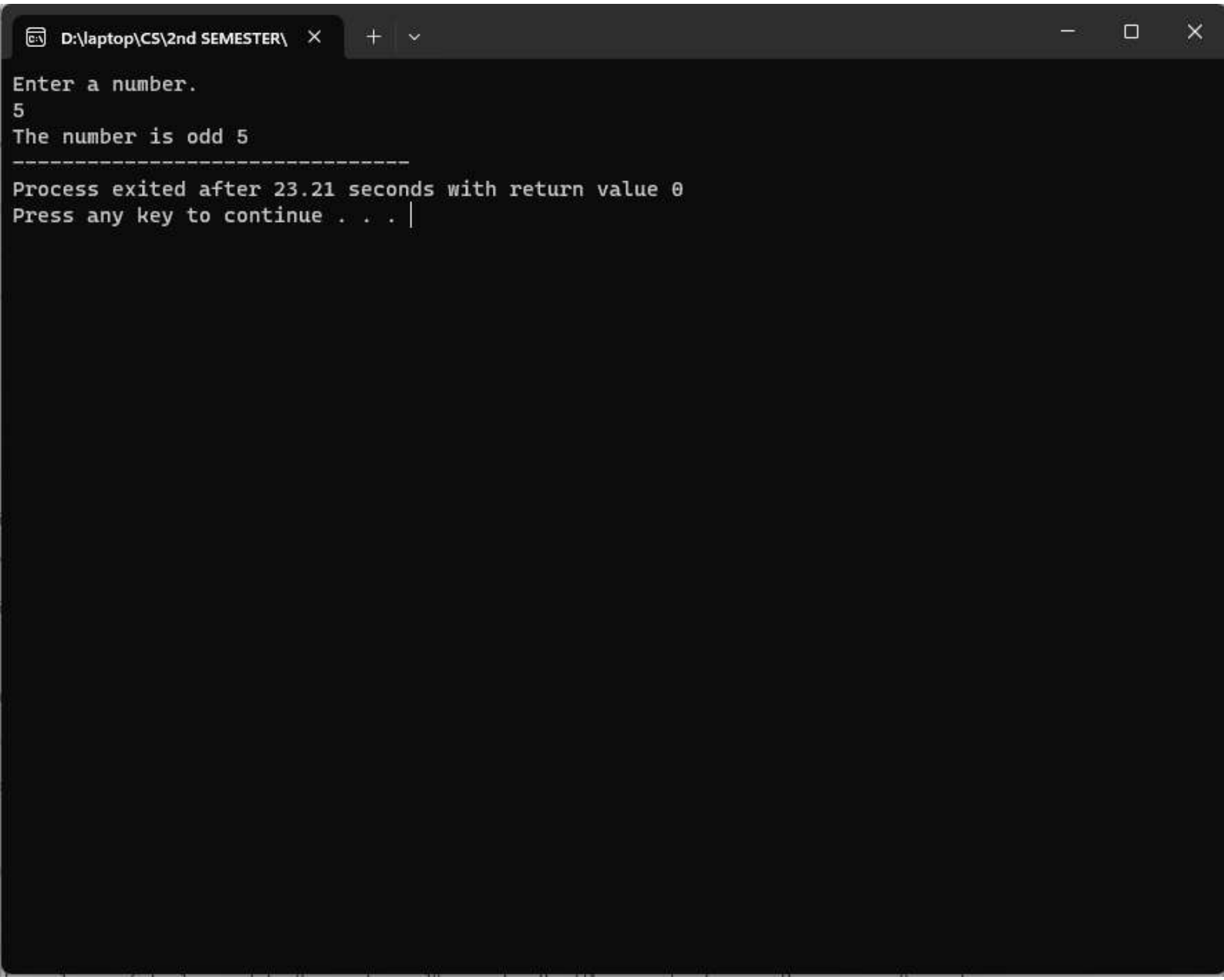
Q# 9 write a program to calculate electricity bill.

```
# include <iostream>
using namespace std;
int main () {
double units ;
cout << " Enter total electricity units consumed";
cin >> units;
double totalbill= 0;
if (units <= 50) { total bill = units x 0.50 ; }
if (units <=150){ total bill = 50x0.50 +(unit -50) x 0.75;}
if (units <= 250) { total bill = 50x0.50+ 100 x0.75 +
   (units- 150) x 1. 20 ; }
if(units
else ( total bill = 50 x0.50+ 100x0.75 + 100x1.20 +
     units - 250x 1.50 ;
totalbill += 0.20 x total bill ;
cout << " Total Electricity bill : Rs " << totalbill;
return 0; }
```

Q # 10 Grade calculator of a subject.

```
# include <iostream>
using namespace std;
int main() {
int num;
cout << " Enter your marks obtained";
cin >> num;
if (num >= 85) { cout << "your grade is A (4.00)":}
if (num > 80 && num < 85) {
  cout << "your grade is A- (3.66)";}
if (num >= 71 && num <= 80) {
   cout << " you grade is B+ (3.33)";}
if (num >= 68 || num <= 70 {
  cout << " your grade is B- (2.66)";}
if (num >= 64 || num <= 67){
cout << " your grade is c+ (2.33)"; }
if (num >=61 || num <= 63){
cout << " your grade is c (2.00);}
if (num >= 54 || num <= 57) {
   cout << " your grade is (1.66); }
if (num >= 50 || num <= 53) {
   cout << " your grade is D (1.00)"; }
if (num < 50) {
   cout << " your grade is F"; }
    return 0; }
```


File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Q1.cpp Q2.cpp Q3.cpp Q4.cpp Q5.cpp Q6.cpp Q7.cpp Q8.cpp Q9.cpp Q10.cpp
1 //1. Write a C++ program that input a number and tell if it's even or odd
2 #include<iostream>
3 #include<iomanip>
4 using namespace std;
5 int main(){
6 int num1;
7 cout<<"Enter a number.\n";
8 cin>>num1;
9 if (num1 % 2==0)
10 {
11 cout<<"number is even";
12 }
13 else{
14 cout<<"The number is odd "<<num1<<setw(10);
15 }
16
17 return 0;
18 }
Compiler Resources Compile Log Debug Find Results


D:\laptop\CS\2nd SEMESTER\
Enter a number.
5
The number is odd 5

Process exited after 23.21 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

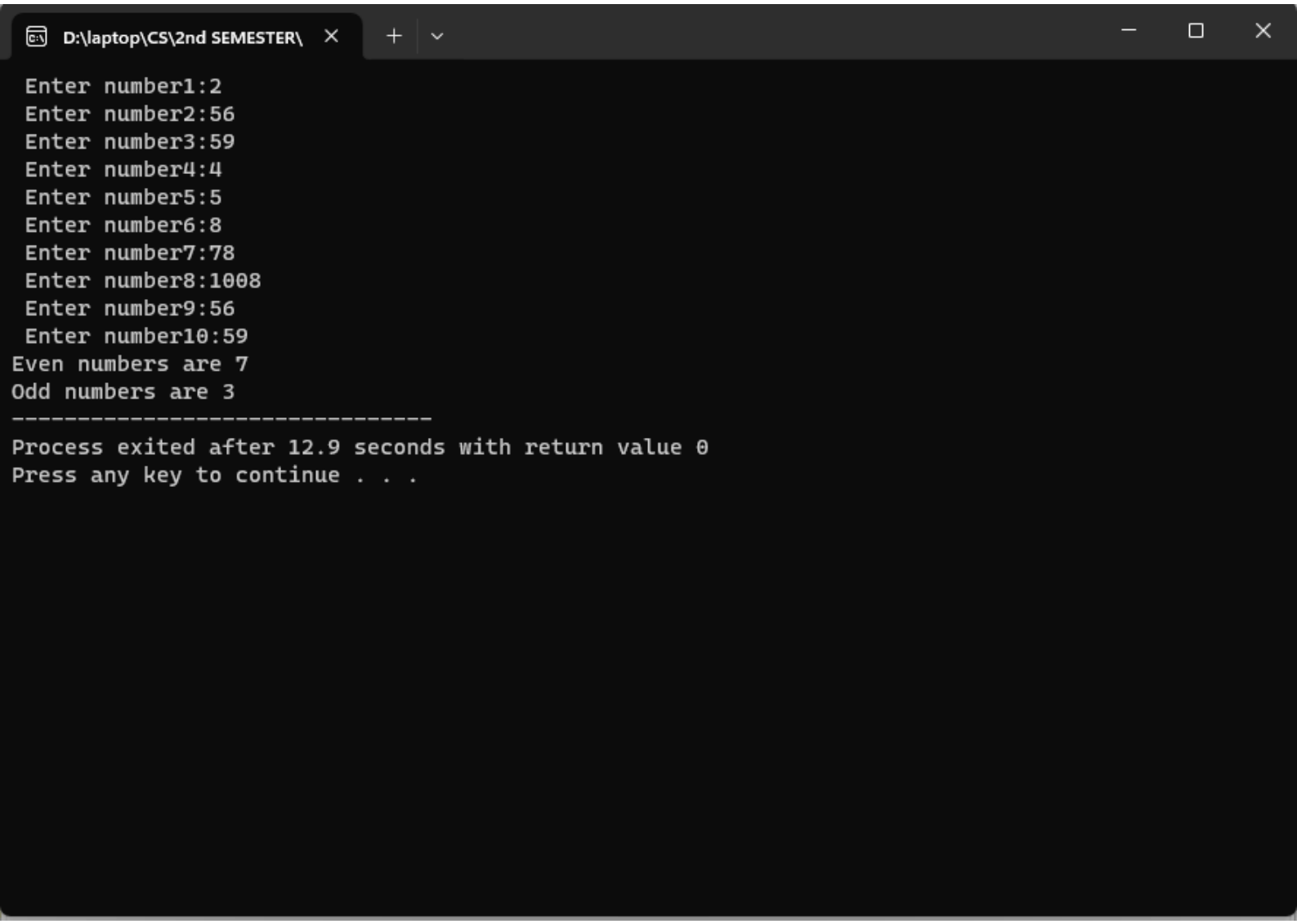
TDM-GCC 4.9.2 64-bit Release

(globals)

Q1.cpp | Q2.cpp | Q3.cpp | Q4.cpp | Q5.cpp | Q6.cpp | Q7.cpp | Q8.cpp | Q9.cpp | Q10.cpp

```cpp

//2.    Write a program that input 10 numbers and counts even and odd numbers out of them
#include <iostream>
using namespace std;
int main(){
    int even=0;
    int odd=0;
    int num;
    for ( int i = 1; i <= 10; ++i){

    cout<<" Enter number"<<i<<":";
    cin>>num;
    if (num %2 == 0){
      even++;}

    else {
       odd++;
    }
}
    cout<<"Even numbers are "<<even;
    cout<<"\nOdd numbers are "<<odd;

    return 0;
}

```

Line: 1 Col: 1 Sel: 0 Lines: 25 Length: 425 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter number1:2
Enter number2:56
Enter number3:59
Enter number4:4
Enter number5:5
Enter number6:8
Enter number7:78
Enter number8:1008
Enter number9:56
Enter number10:59
Even numbers are 7
Odd numbers are 3

Process exited after 12.9 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

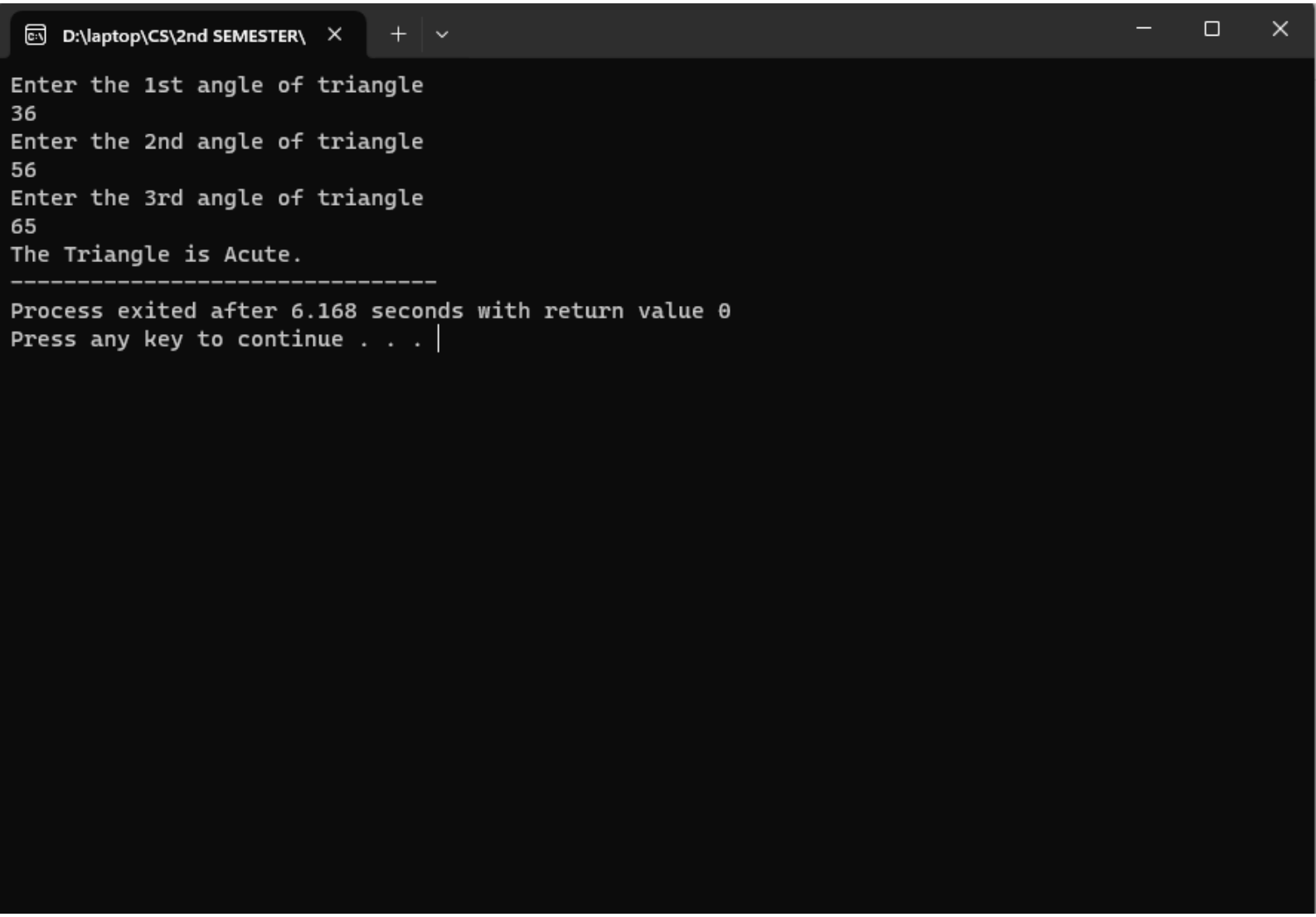
TDM-GCC 4.9.2 64-bit Releas

(globals)

Q1.cpp Q2.cpp Q3.cpp Q4.cpp Q5.cpp Q6.cpp Q7.cpp Q8.cpp Q9.cpp Q10.cpp

```cpp
//3.    Write a C++ program to input 3 angles and check whether the triangle is Acute (All angles are less than 90°),
//   Right Triangle (one angle is 90°) or Obtuse triangle(Has an angle more than 90°).
#include<iostream>
using namespace std;
int main(){
    int num1,num2,num3,sum;
    cout<<"Enter the 1st angle of triangle\n";
    cin>>num1;
    cout<<"Enter the 2nd angle of triangle\n";
    cin>>num2;
    cout<<"Enter the 3rd angle of triangle\n";
    cin>>num3;
    sum = num1+num2+num3;
    if (num1 == 90 || num2 == 90 || num3 == 90)
    {
        cout<<"Triangle is Right angle triangle.";
    }
    if (num1 > 90 && num2 > 90 && num3 > 90){
        cout<<"The Triangle is Obtuse.";
    }
    if(num1 < 90 && num2 < 90 && num3 < 90){
        cout<<"The Triangle is Acute.";
    }

    return 0;
}
```

Line: 1 Col: 1 Sel: 0 Lines: 26 Length: 768 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter the 1st angle of triangle
36
Enter the 2nd angle of triangle
56
Enter the 3rd angle of triangle
65
The Triangle is Acute.

Process exited after 6.168 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

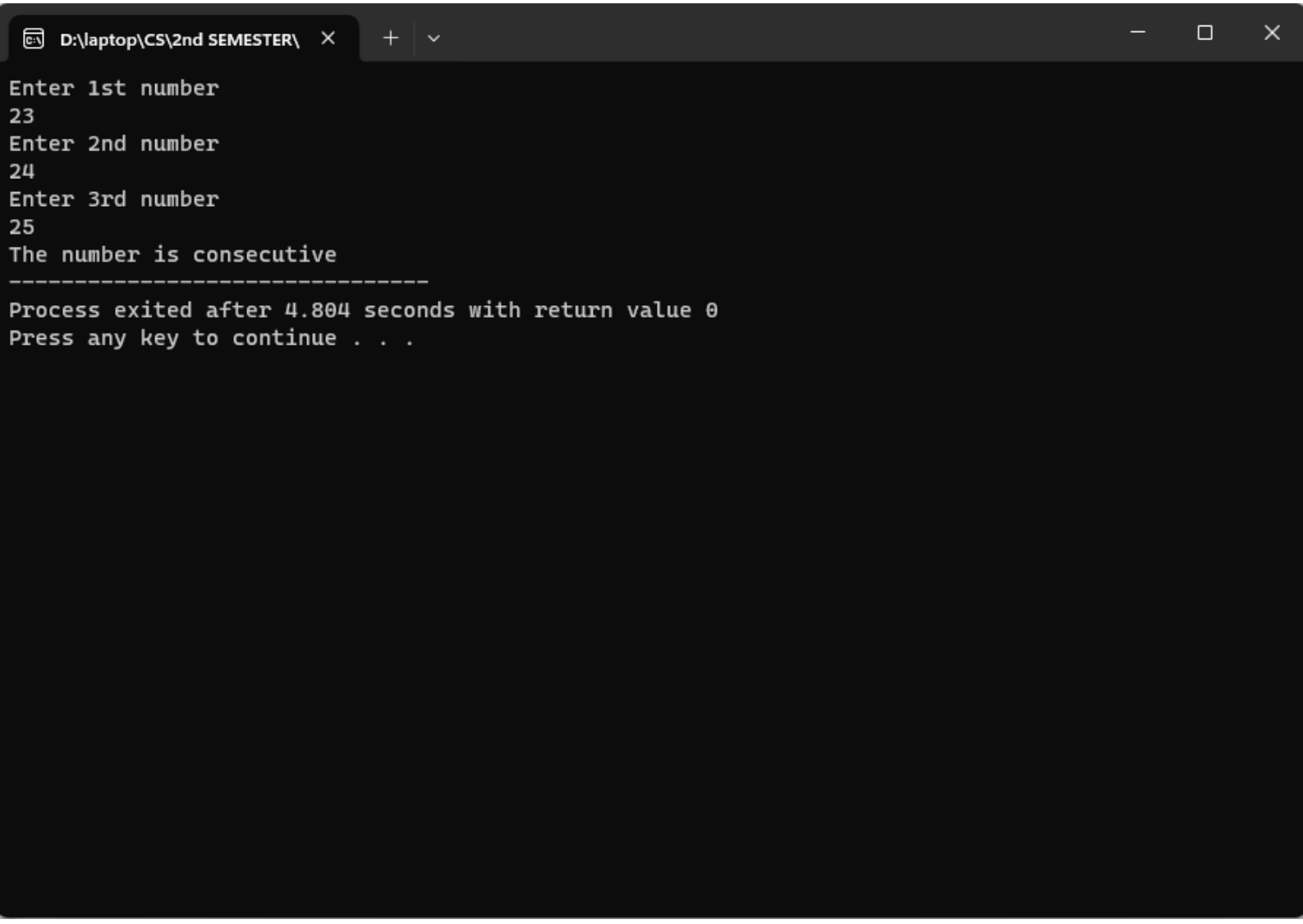
TDM-GCC 4.9.2 64-bit Release

(globals)

Q1.cpp | Q2.cpp | Q3.cpp | Q4.cpp | Q5.cpp | Q6.cpp | Q7.cpp | Q8.cpp | Q9.cpp | Q10.cpp

```cpp
/*4.    Write a program that input 3 numbers tell if these numbers are consecutive or not.
(like 34,35,36 are consecutive but 23,25,26 are not because there should be 24 after 23 to be consecutive).*/
#include<iostream>
using namespace std;
int main(){
    int num1, num2, num3;
    cout<<"Enter 1st number\n";
    cin>>num1;
    cout<<"Enter 2nd number\n";
    cin>>num2;
    cout<<"Enter 3rd number\n";
    cin>>num3;
    if (num1 + 1 == num2 && num2 + 1 == num3)
    {
        cout<<"The number is consecutive ";
        }
    else
    {
        cout<<"The number is not consecutive";
    }

    return 0;
}
```

Line: 1 Col: 1 Sel: 0 Lines: 23 Length: 584 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter 1st number
23
Enter 2nd number
24
Enter 3rd number
25
The number is consecutive

Process exited after 4.804 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

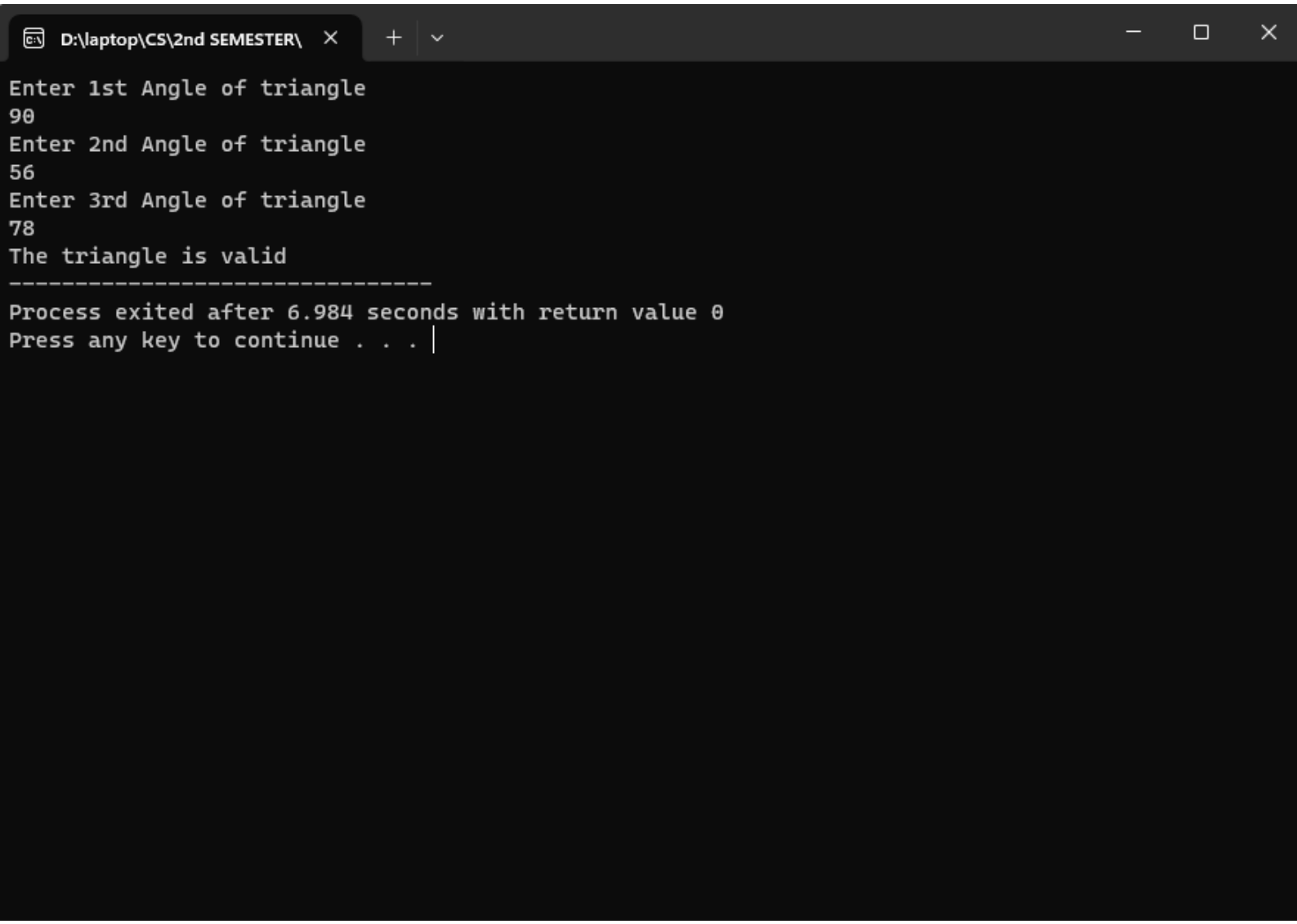
TDM-GCC 4.9.2 64-bit Release

(globals)

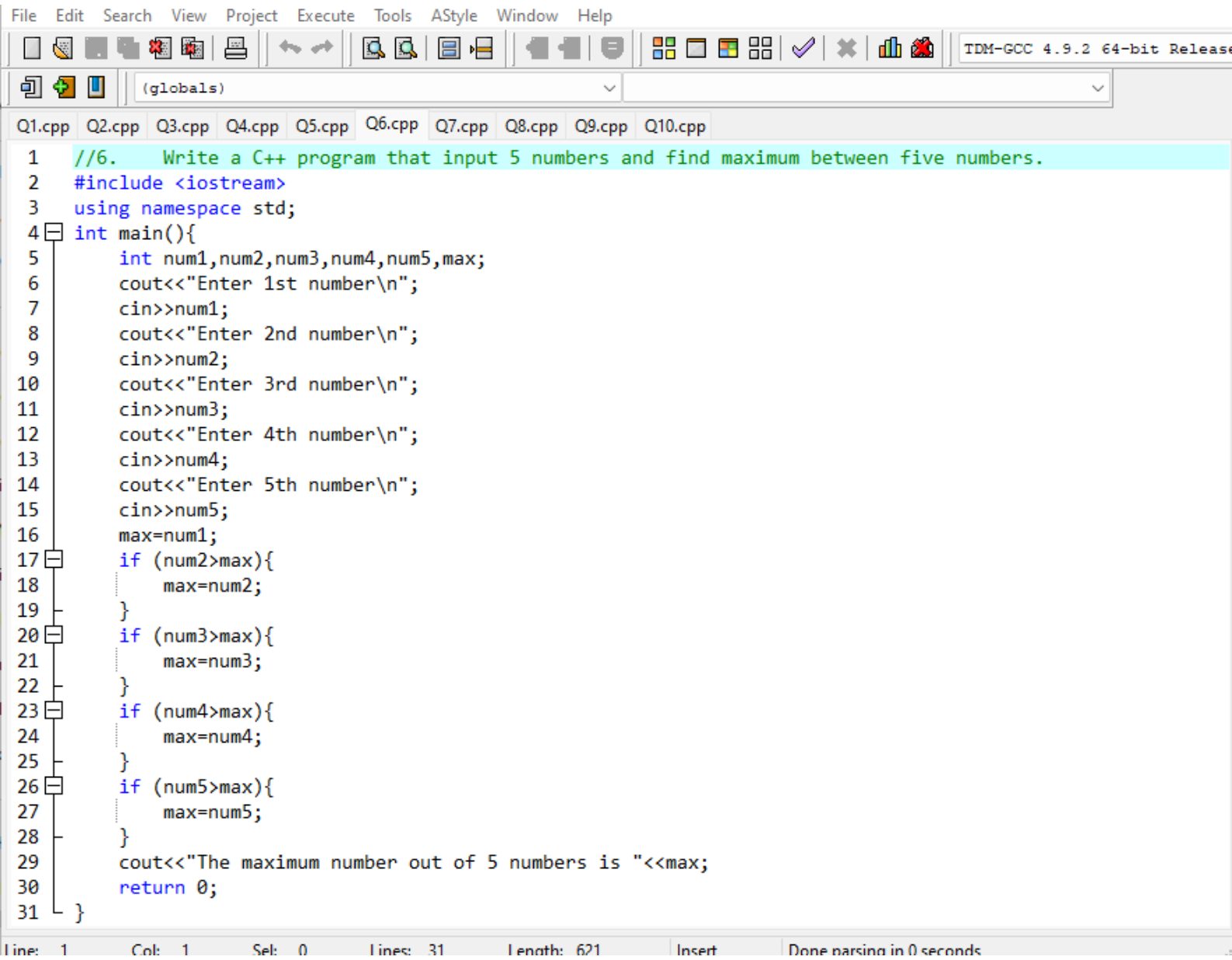
Q1.cpp | Q2.cpp | Q3.cpp | Q4.cpp | Q5.cpp | Q6.cpp | Q7.cpp | Q8.cpp | Q9.cpp | Q10.cpp

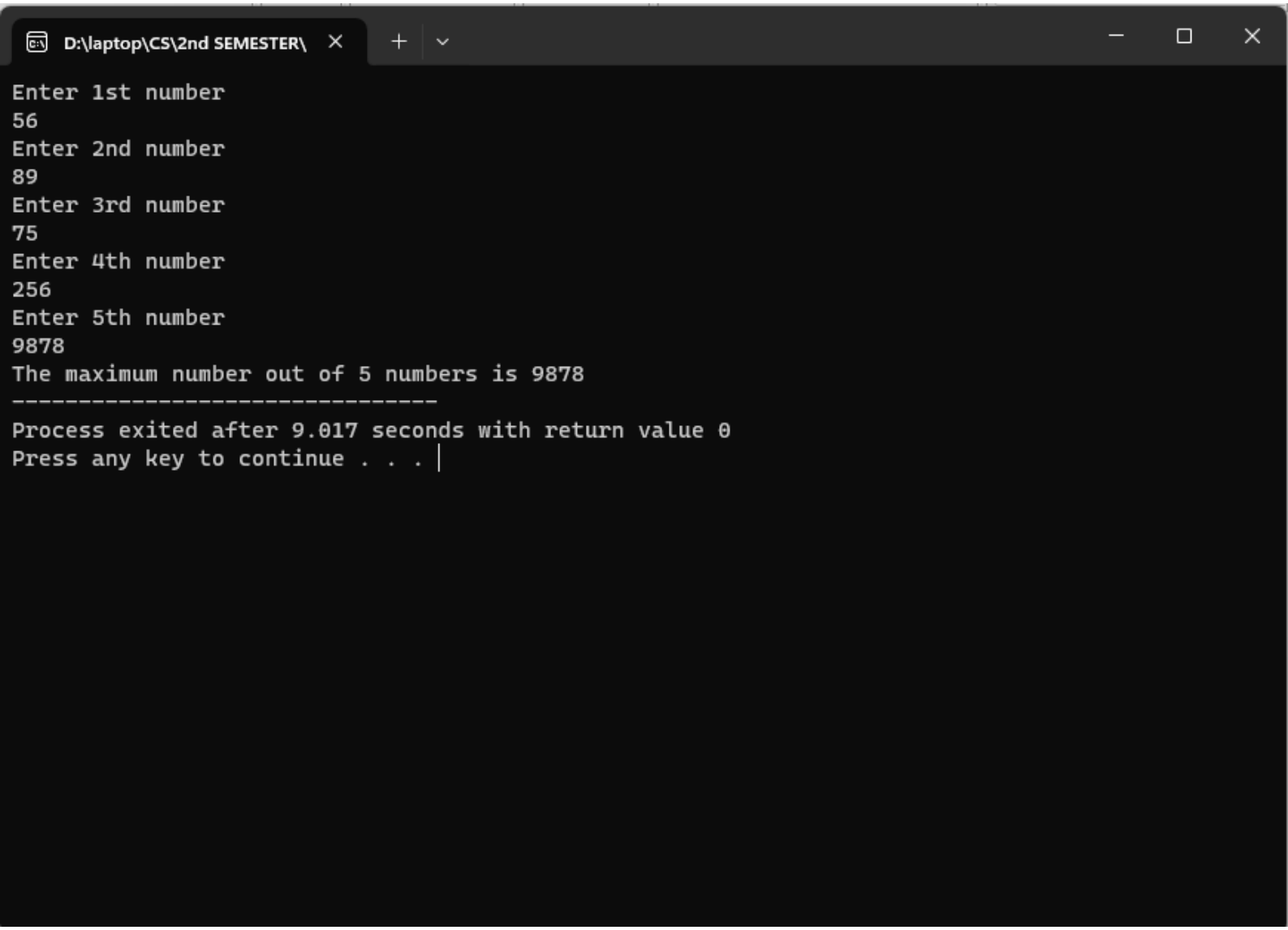
```cpp
/*5.    Write a C program to input all sides of a triangle and check whether triangle is valid or not. A triangle is invalid if you find ar
2 sides whose sum is less then third side, otherwise valid.*/
#include <iostream>
using namespace std;
int main(){
int num1, num2, num3;
    cout<<"Enter 1st Angle of triangle\n";
    cin>>num1;
    cout<<"Enter 2nd Angle of triangle\n";
    cin>>num2;
    cout<<"Enter 3rd Angle of triangle\n";
    cin>>num3;
    if (num1+num2 > num3 && num2+num3 > num1 && num1+num3 > num2){
        cout<<"The triangle is valid";
    }
    else {
        cout<<"The triangle is invalid";
    }
    return 0;
}
```

Line: 1 Col: 1 Sel: 0 Lines: 20 Length: 611 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter 1st Angle of triangle
90
Enter 2nd Angle of triangle
56
Enter 3rd Angle of triangle
78
The triangle is valid

Process exited after 6.984 seconds with return value 0
Press any key to continue . . .


File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Q1.cpp Q2.cpp Q3.cpp Q4.cpp Q5.cpp Q6.cpp Q7.cpp Q8.cpp Q9.cpp Q10.cpp
1 //6. Write a C++ program that input 5 numbers and find maximum between five numbers.
2 #include <iostream>
3 using namespace std;
4 int main(){
5 int num1,num2,num3,num4,num5,max;
6 cout<<"Enter 1st number\n";
7 cin>>num1;
8 cout<<"Enter 2nd number\n";
9 cin>>num2;
10 cout<<"Enter 3rd number\n";
11 cin>>num3;
12 cout<<"Enter 4th number\n";
13 cin>>num4;
14 cout<<"Enter 5th number\n";
15 cin>>num5;
16 max=num1;
17 if (num2>max){
18 max=num2;
19 }
20 if (num3>max){
21 max=num3;
22 }
23 if (num4>max){
24 max=num4;
25 }
26 if (num5>max){
27 max=num5;
28 }
29 cout<<"The maximum number out of 5 numbers is "<<max;
30 return 0;
31 }
Line: 1 Col: 1 Sel: 0 Lines: 31 Length: 621 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter 1st number
56
Enter 2nd number
89
Enter 3rd number
75
Enter 4th number
256
Enter 5th number
9878
The maximum number out of 5 numbers is 9878

Process exited after 9.017 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

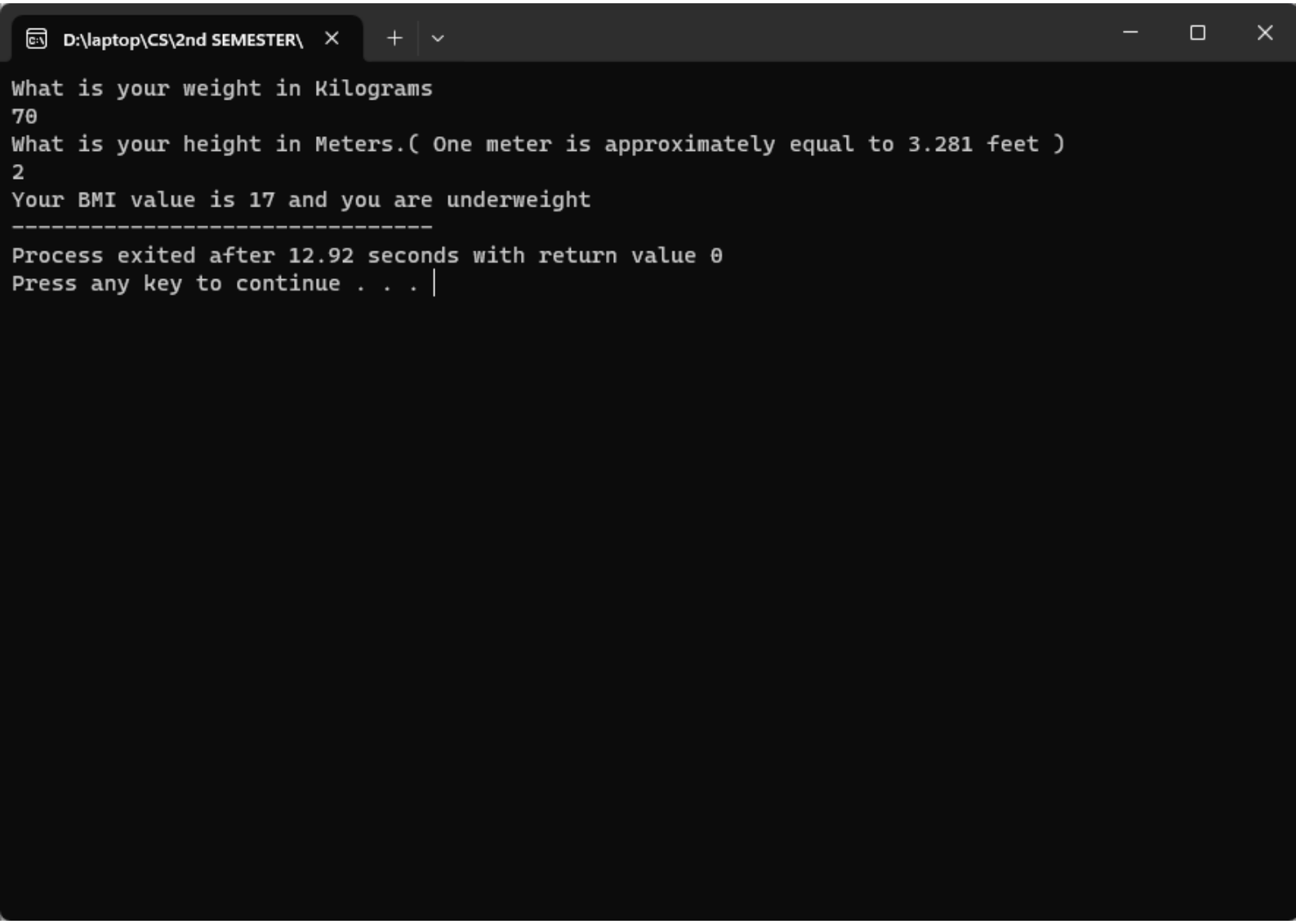
TDM-GCC 4.9.2 64-bit Release

(globals)

Q1.cpp | Q2.cpp | Q3.cpp | Q4.cpp | Q5.cpp | Q6.cpp | Q7.cpp | Q8.cpp | Q9.cpp | Q10.cpp

```cpp
#include<iostream>
using namespace std;
int main(){
    int num1,num3,num4;
    float num2;
    cout<<"What is your weight in Kilograms\n";
    cin>>num1;
    cout<<"What is your height in Meters.( One meter is approximately equal to 3.281 feet )\n";
    cin>>num2;
    num3 = num2*num2;
    num4=num1/num3;
    cout<<"Your BMI value is "<<num4;
    if (num4 < 18.5){
        cout<<" and you are underweight";
    }
        if (num4 > 18.5 && num4 < 24.9){
        cout<<" and you are healthy";
    }
        if (num4 >= 25 && num4 < 29.9){
        cout<<" and you are overweight";
        }
            if (num4 >= 30){
        cout<<" and you are obese";}

    return 0;
}
```

Line: 1 Col: 1 Sel: 0 Lines: 26 Length: 612 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
What is your weight in Kilograms
70
What is your height in Meters.(One meter is approximately equal to 3.281 feet)
2
Your BMI value is 17 and you are underweight

Process exited after 12.92 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

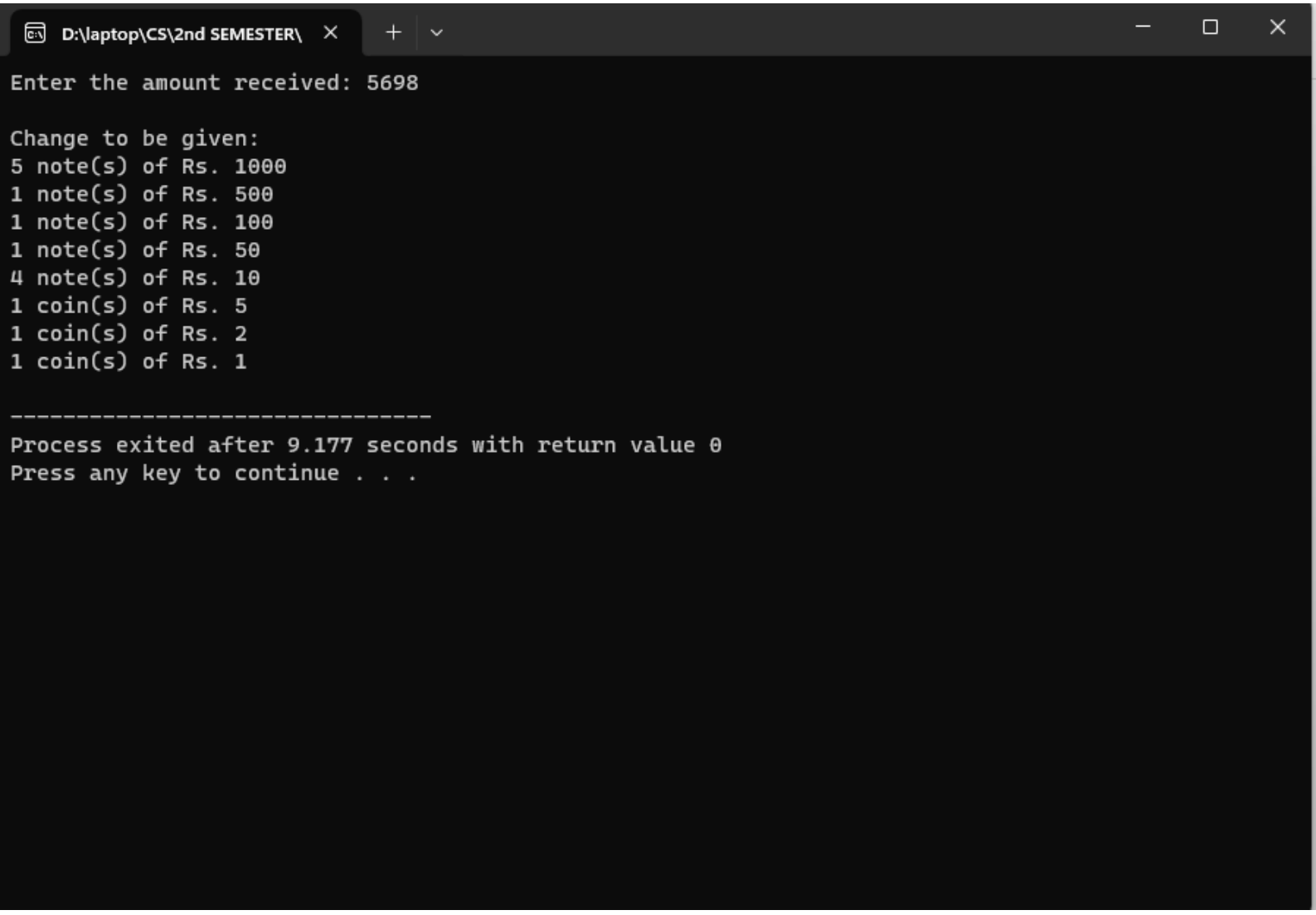
TDM-GCC 4.9.2 64-bit Release

(globals)

Q1.cpp Q2.cpp Q3.cpp Q4.cpp Q5.cpp Q6.cpp Q7.cpp Q8.cpp Q9.cpp Q10.cpp

```cpp
/*8.    Write a C++ program to suggest change for the shopkeeper. It must show count total number of
by user considering notes of 1000, 500, 100, 50, 10 and coins of 5, 2, 1 .
Like in 1738, its 1 note of thousand, 1 note of 500, 2 notes of 100, 3 notes of 10, 1 coin of 5, 1 co

#include <iostream>
using namespace std;
int main() {
    int amount, thousand, fiveHundred, hundred, fifty, ten, five, two, one;
    cout << "Enter the amount received: ";
    cin >> amount;
    // Calculate notes and coins
    thousand = amount / 1000;
    amount %= 1000; // Remaining amount
    fiveHundred = amount / 500;
    amount %= 500;
    hundred = amount / 100;
    amount %= 100;
    fifty = amount / 50;
    amount %= 50;
    ten = amount / 10;
    amount %= 10;
    five = amount / 5;
    amount %= 5;
    two = amount / 2;
    amount %= 2;
    one = amount;
    // Display notes and coins
    cout << "\nChange to be given:" << endl;
    if (thousand) {
        cout << thousand << " note(s) of Rs. 1000" << endl;
```

Line: 1 Col: 1 Sel: 0 Lines: 55 Length: 1695 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter the amount received: 5698
Change to be given:
5 note(s) of Rs. 1000
1 note(s) of Rs. 500
1 note(s) of Rs. 100
1 note(s) of Rs. 50
4 note(s) of Rs. 10
1 coin(s) of Rs. 5
1 coin(s) of Rs. 2
1 coin(s) of Rs. 1

Process exited after 9.177 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

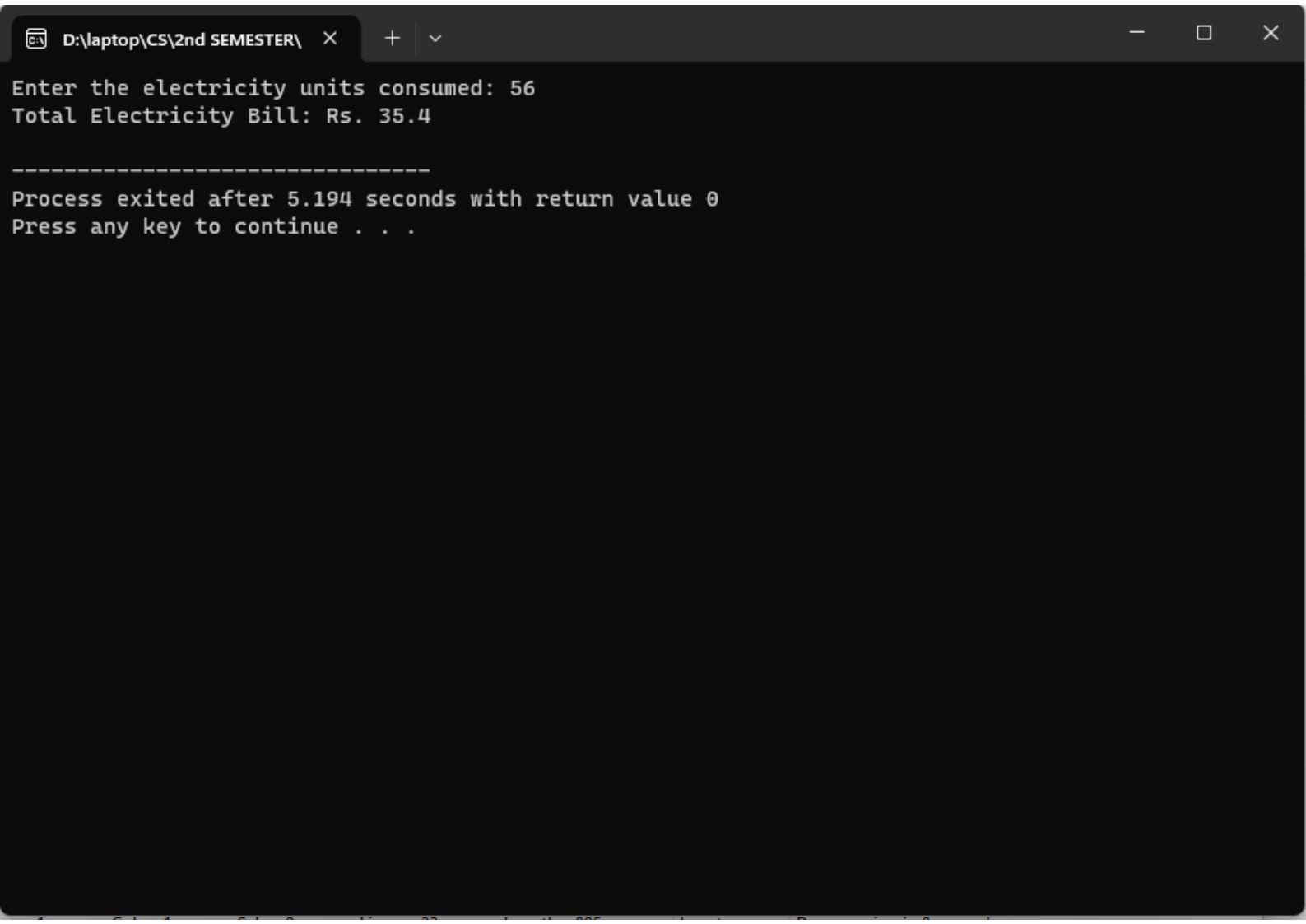
TDM-GCC 4.9.2 64-bit Releas

(globals)

Q1.cpp | Q2.cpp | Q3.cpp | Q4.cpp | Q5.cpp | Q6.cpp | Q7.cpp | Q8.cpp | Q9.cpp | Q10.cpp

```cpp
#include<iostream>
using namespace std;
int main(){
    // Input electricity units
    double units;
    cout << "Enter the electricity units consumed: ";
    cin >> units;

    // Calculate total electricity bill
    double totalBill = 0;

    if (units <= 50) {
        totalBill = units * 0.50;
    } else if (units <= 150) {
        totalBill = 50 * 0.50 + (units - 50) * 0.75;
    } else if (units <= 250) {
        totalBill = 50 * 0.50 + 100 * 0.75 + (units - 150) * 1.20;
    } else {
        totalBill = 50 * 0.50 + 100 * 0.75 + 100 * 1.20 + (units - 250) * 1.50;
    }

    // Add surcharge of 20%
    totalBill += 0.20 * totalBill;

    // Display the total electricity bill
    cout << "Total Electricity Bill: Rs. " << totalBill << endl;

    return 0;
}
```

Line: 1 Col: 1 Sel: 0 Lines: 33 Length: 805 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter the electricity units consumed: 56
Total Electricity Bill: Rs. 35.4

Process exited after 5.194 seconds with return value 0
Press any key to continue . . .

File Edit Search View Project Execute Tools AStyle Window Help

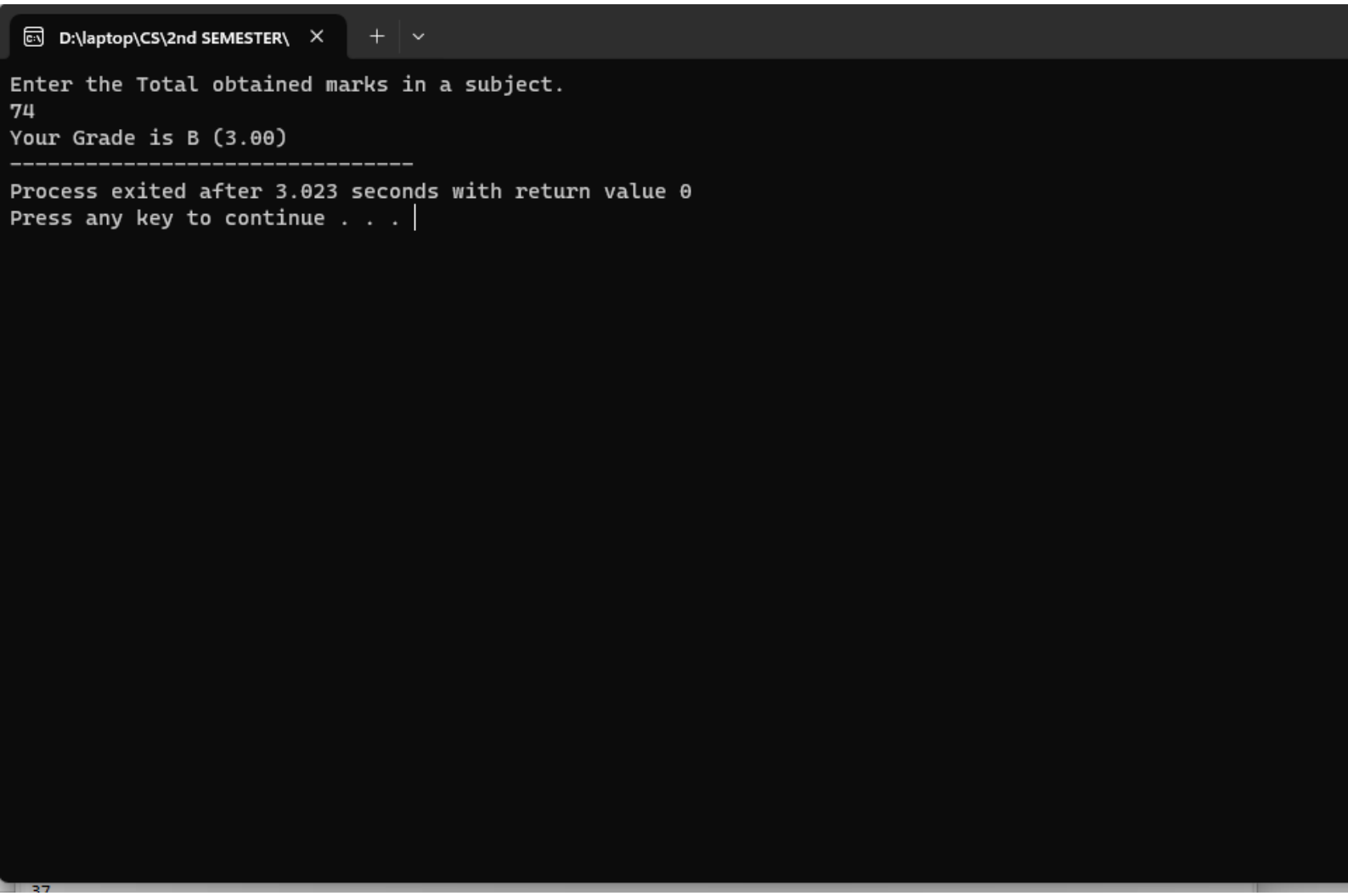
TDM-GCC 4.9.2 64-bit Release

(globals)

Q1.cpp Q2.cpp Q3.cpp Q4.cpp Q5.cpp Q6.cpp Q7.cpp Q8.cpp Q9.cpp Q10.cpp

```cpp
#include<iostream>
using namespace std;
int main(){
    int num;
    cout<<"Enter the Total obtained marks in a subject. \n";
    cin>>num;
    if (num>=85){
        cout<<"Your Grade is A (4.00)";
    }
    if (num>80 && num<85){
        cout<<"Your Grade is A- (3.66)";
    }
    if(num>75 && num<=80){
        cout<<"Your Grade is B+ (3.33)";
    }
    if(num>=71 && num<=74){
        cout<<"Your Grade is B (3.00)";
    }
        if(num>=68 && num<=70){
        cout<<"Your Grade is B- (2.66)";
        }
        if(num>=64 && num<=67){
        cout<<"Your Grade is C+ (2.33)";}
        if(num>=61 && num<=63){
        cout<<"Your Grade is C (2.00)";}
        if(num>=58 && num<=60){
        cout<<"Your Grade is C- (1.66)";}
        if(num>=54 && num<=57){
        cout<<"Your Grade is D+ (1.30)";}
        if(num>=50 && num<=53){
        cout<<"Your Grade is D (1.00)";}
        if(num<50){
        cout<<"Your Grade is F (0.00)";}
    return 0;
}
```

Line: 1 Col: 1 Sel: 0 Lines: 37 Length: 843 Insert Done parsing in 0 seconds


D:\laptop\CS\2nd SEMESTER\
Enter the Total obtained marks in a subject.
74
Your Grade is B (3.00)

Process exited after 3.023 seconds with return value 0
Press any key to continue . . .