**Fundamentals of Programming**

# Lab Report 01

**1st SEMESTER**


**Session: ME-15** **Section: C**

**ABDUL RAFEH**

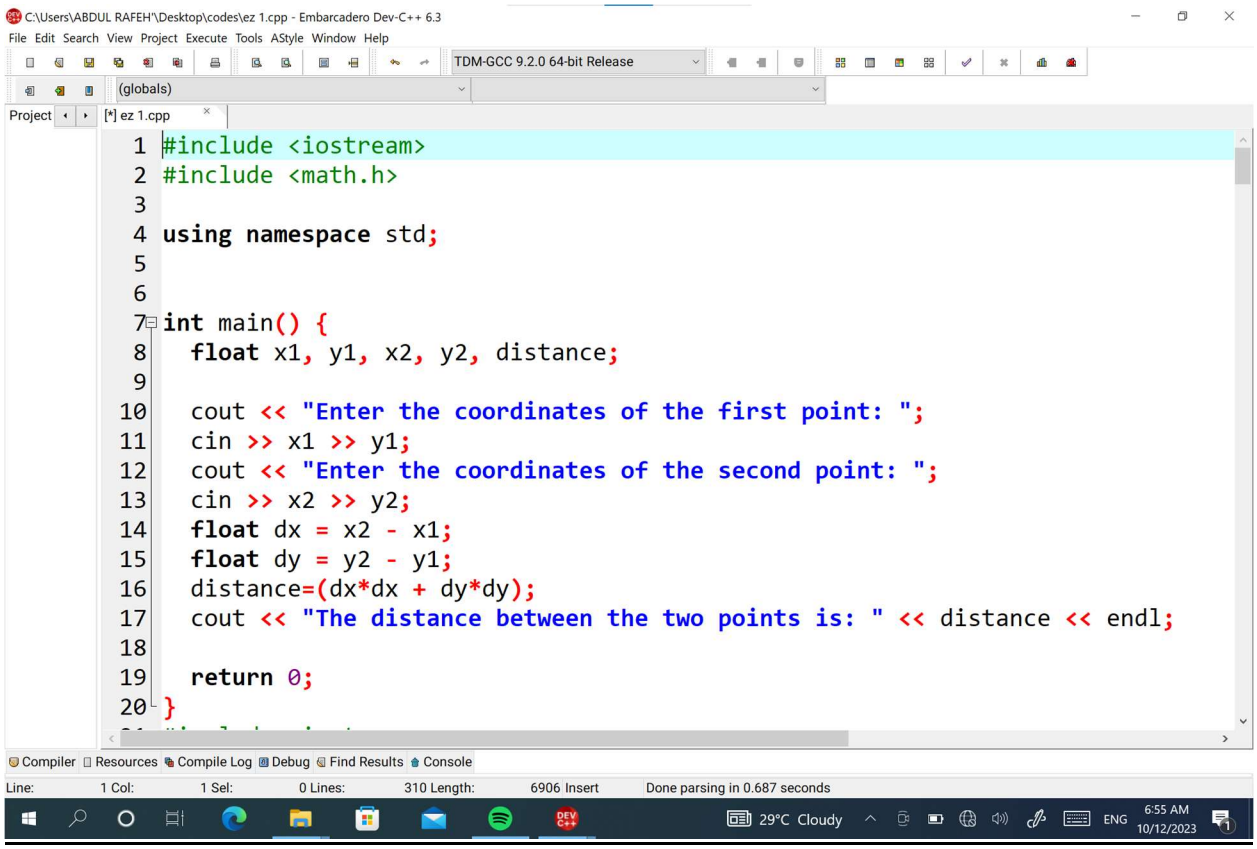
**417648**

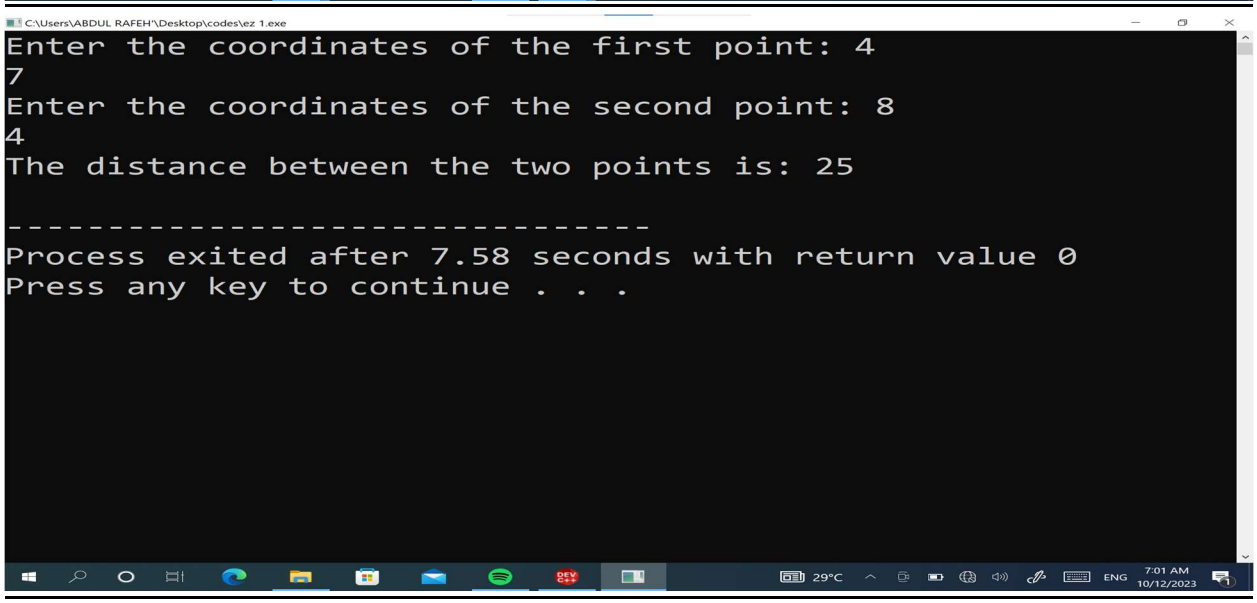
**School of Mechanical and Manufacturing Engineering**

# MANUAL 1

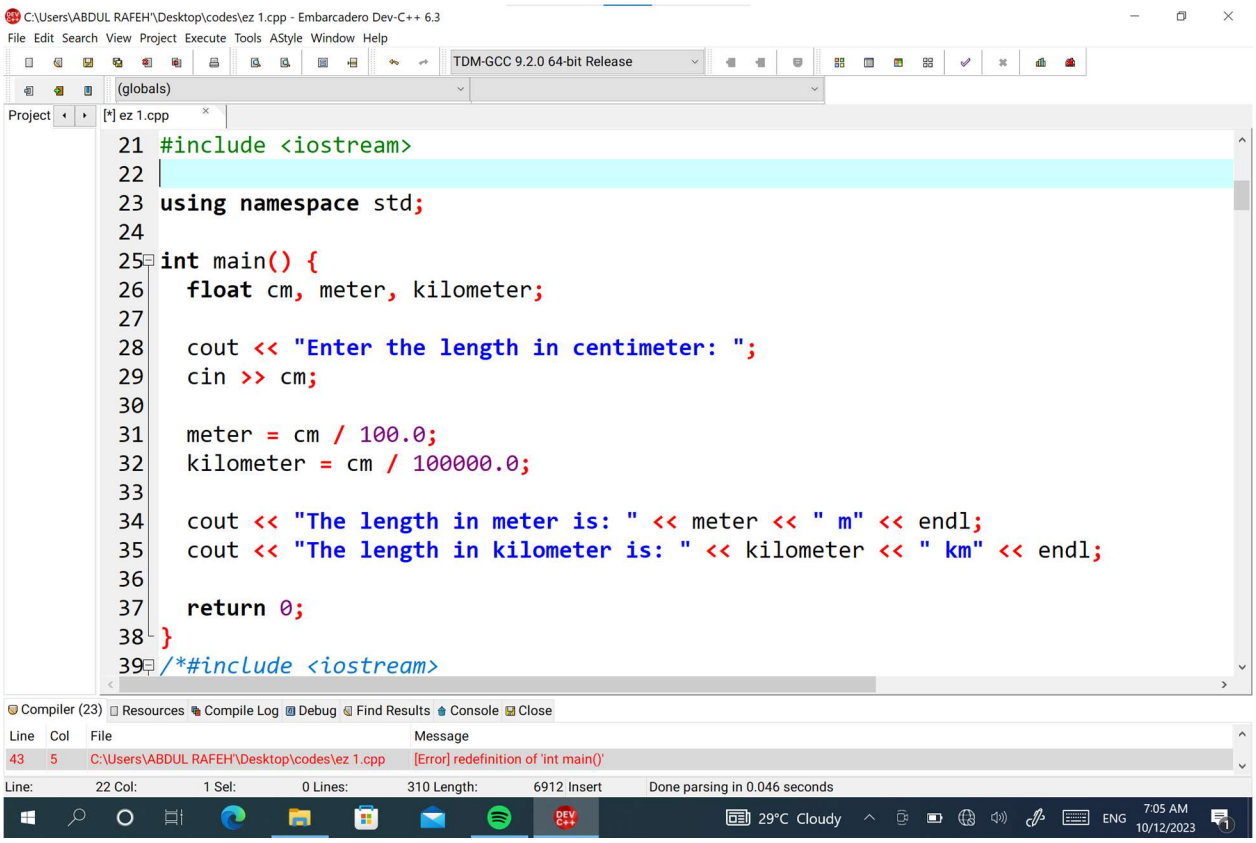
## LAB TASK:

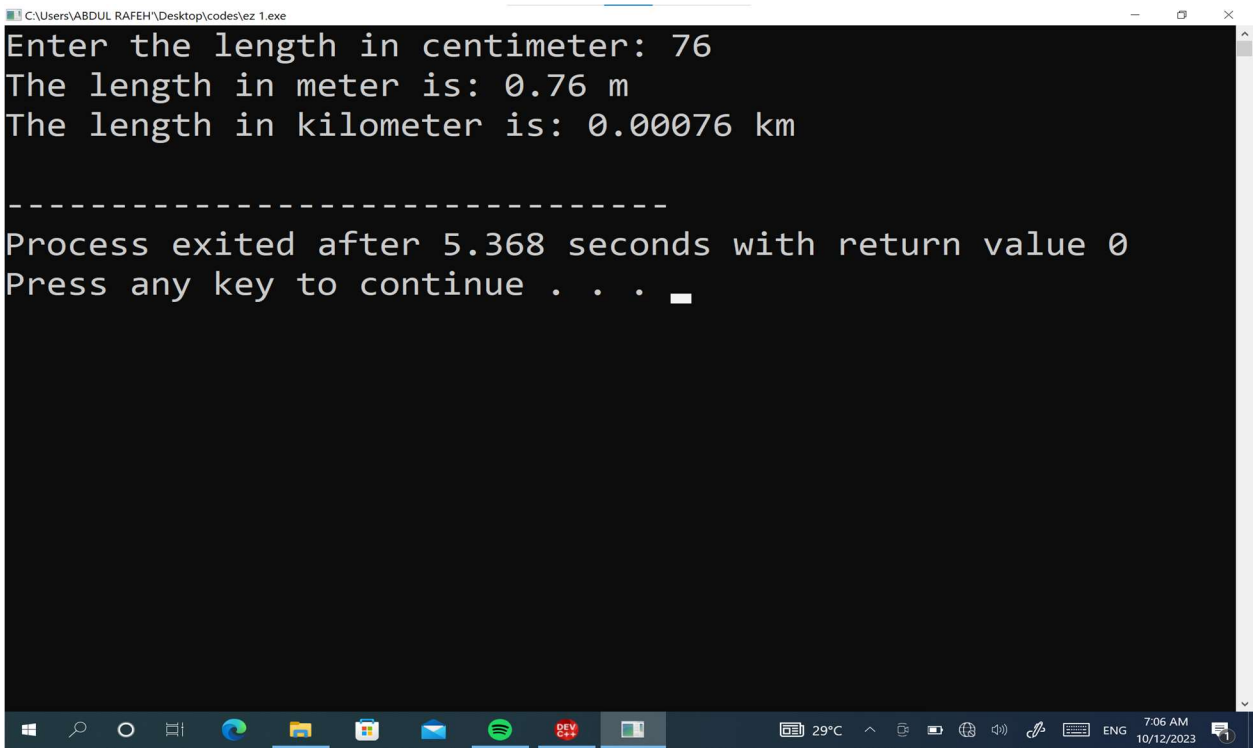
1. **Write a program in C++ to convert temperature in Fahrenheit to Celsius.**



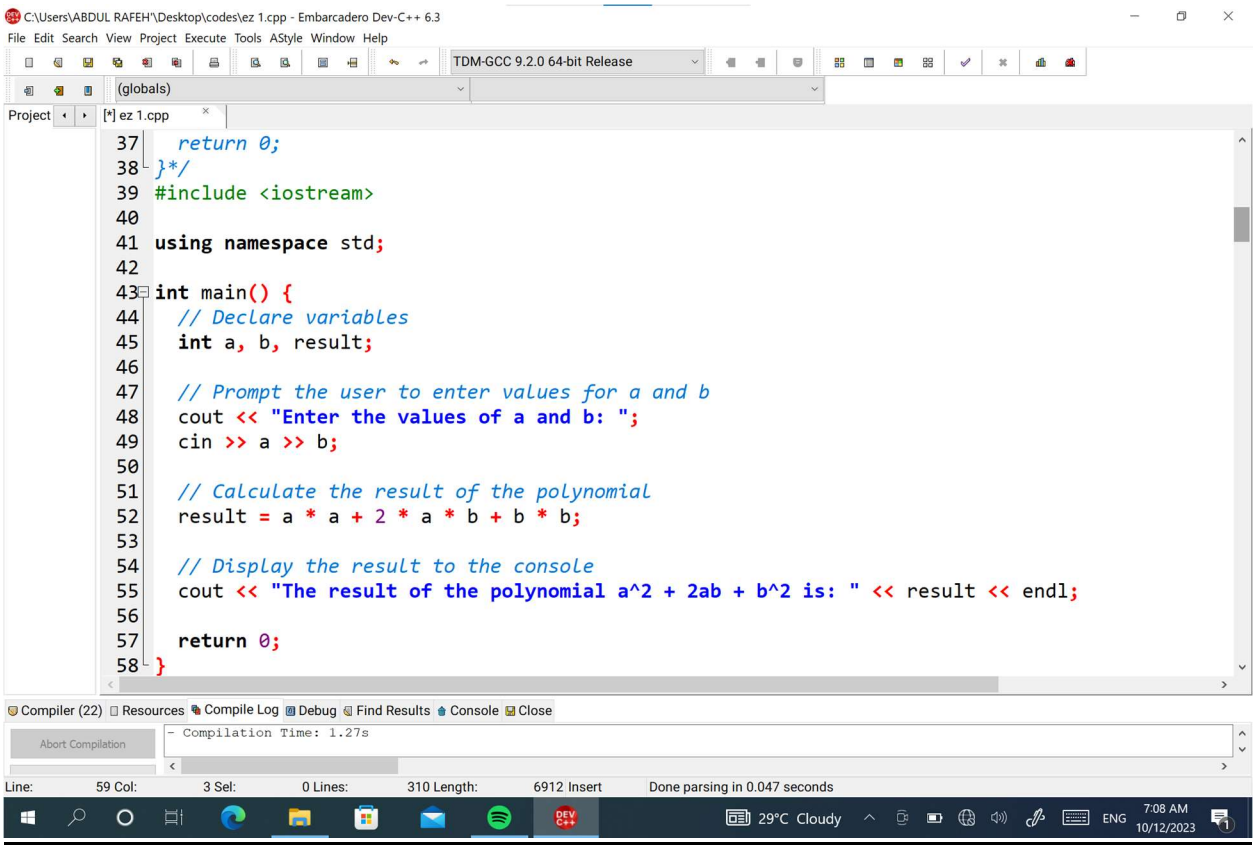



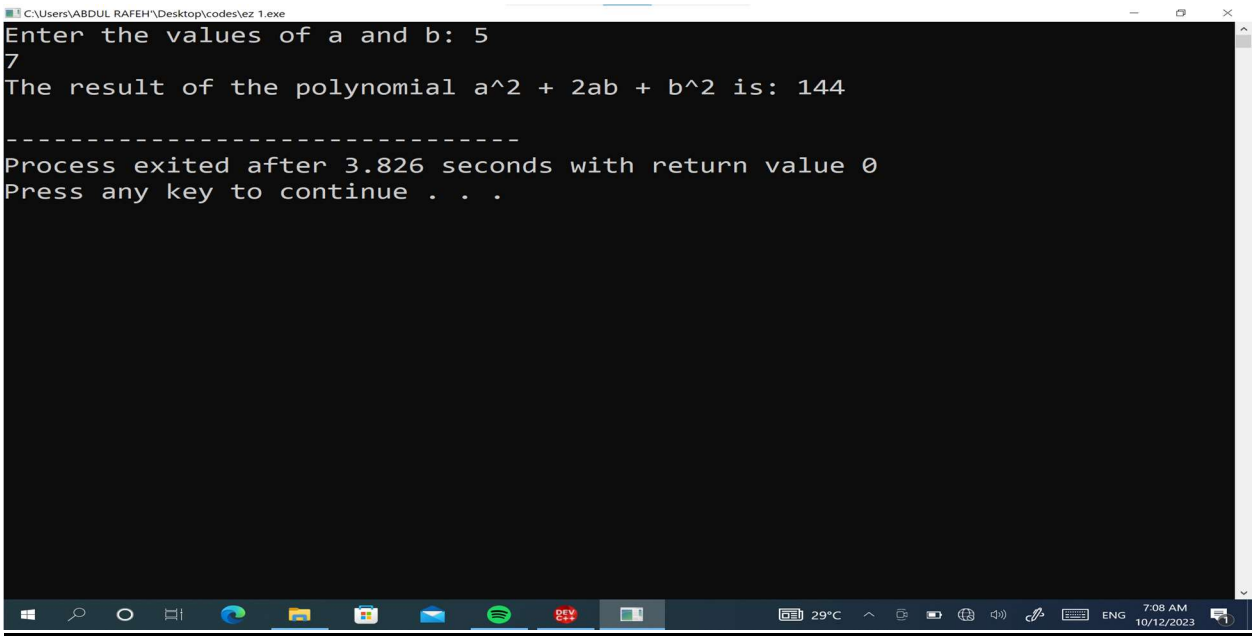
## 2. Write a code in C++ to take length from user in centimeter and convert it into meter and kilometer



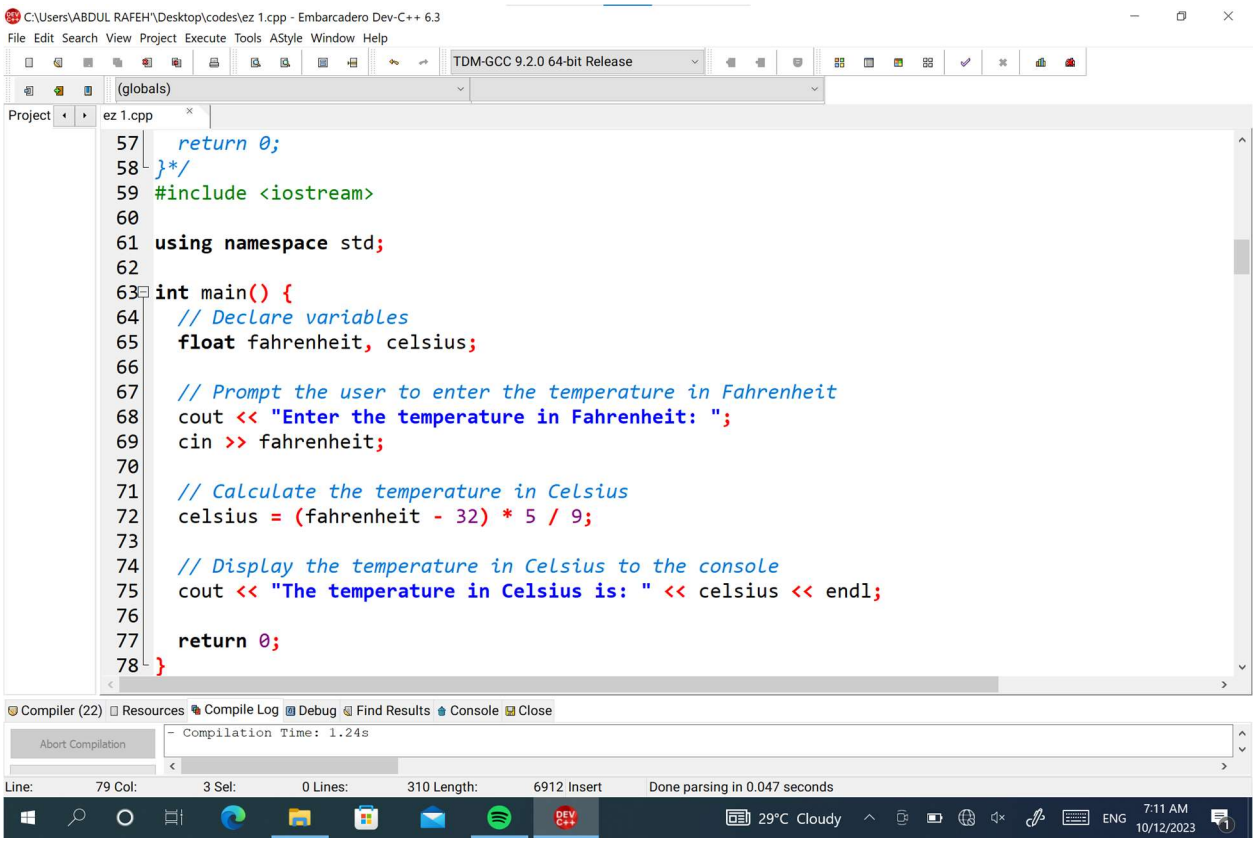


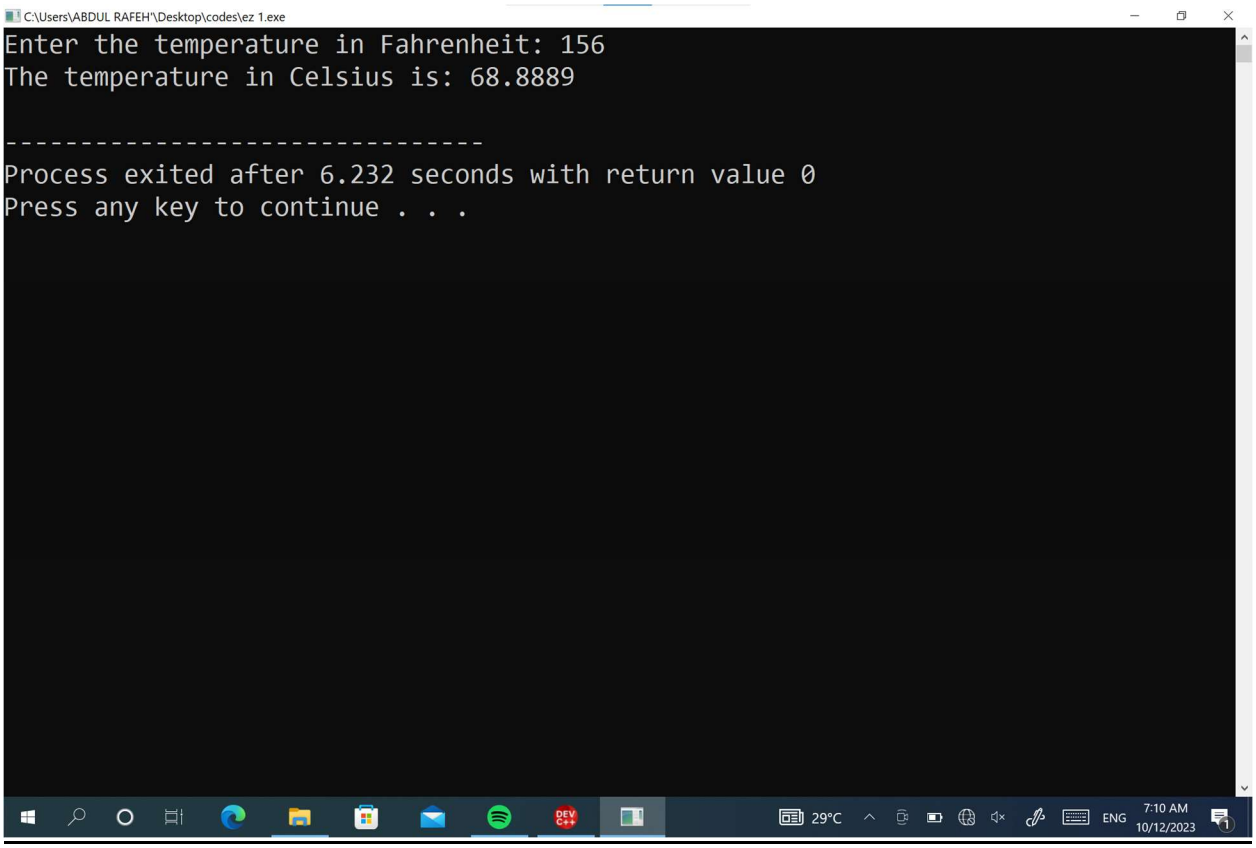

3. **Write a code in C++ that takes values of a and b from the user and displays result of polynomial $a$ 2 + 2$ab$ + $b$ 2 .**



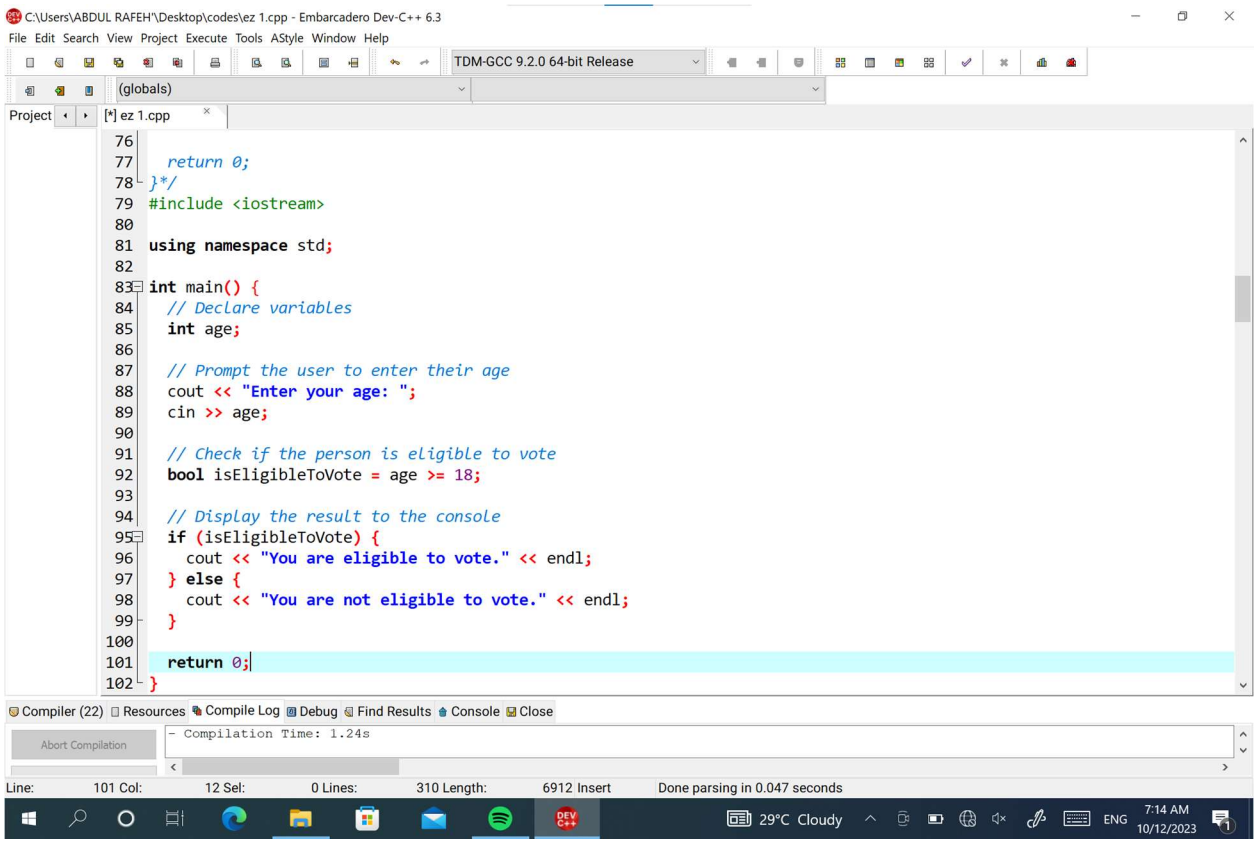

**4. . Write a program in C++ to convert temperature in Fahrenheit to Celsius.**

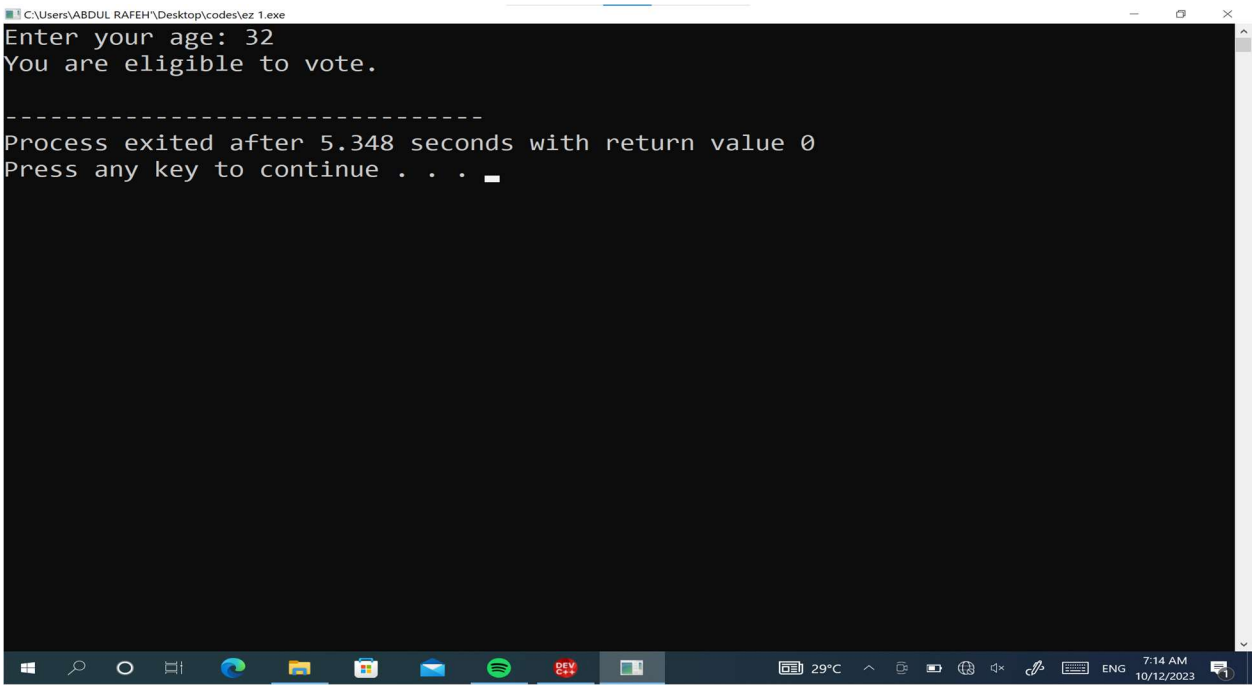

C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
Project
ez 1.cpp
57 return 0;
58 }*/
59 #include <iostream>
60
61 using namespace std;
62
63 int main() {
64 // Declare variables
65 float fahrenheit, celsius;
66
67 // Prompt the user to enter the temperature in Fahrenheit
68 cout << "Enter the temperature in Fahrenheit: ";
69 cin >> fahrenheit;
70
71 // Calculate the temperature in Celsius
72 celsius = (fahrenheit - 32) * 5 / 9;
73
74 // Display the temperature in Celsius to the console
75 cout << "The temperature in Celsius is: " << celsius << endl;
76
77 return 0;
78 }
Compiler (22) Resources Compile Log Debug Find Results Console Close
Abort Compilation
- Compilation Time: 1.24s
Line: 79 Col: 3 Sel: 0 Lines: 310 Length: 6912 Insert Done parsing in 0.047 seconds
29°C Cloudy
ENG
7:11 AM
10/12/2023


C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.exe
Enter the temperature in Fahrenheit: 156
The temperature in Celsius is: 68.8889
---
Process exited after 6.232 seconds with return value 0
Press any key to continue . . .
29°C
ENG
7:10 AM
10/12/2023

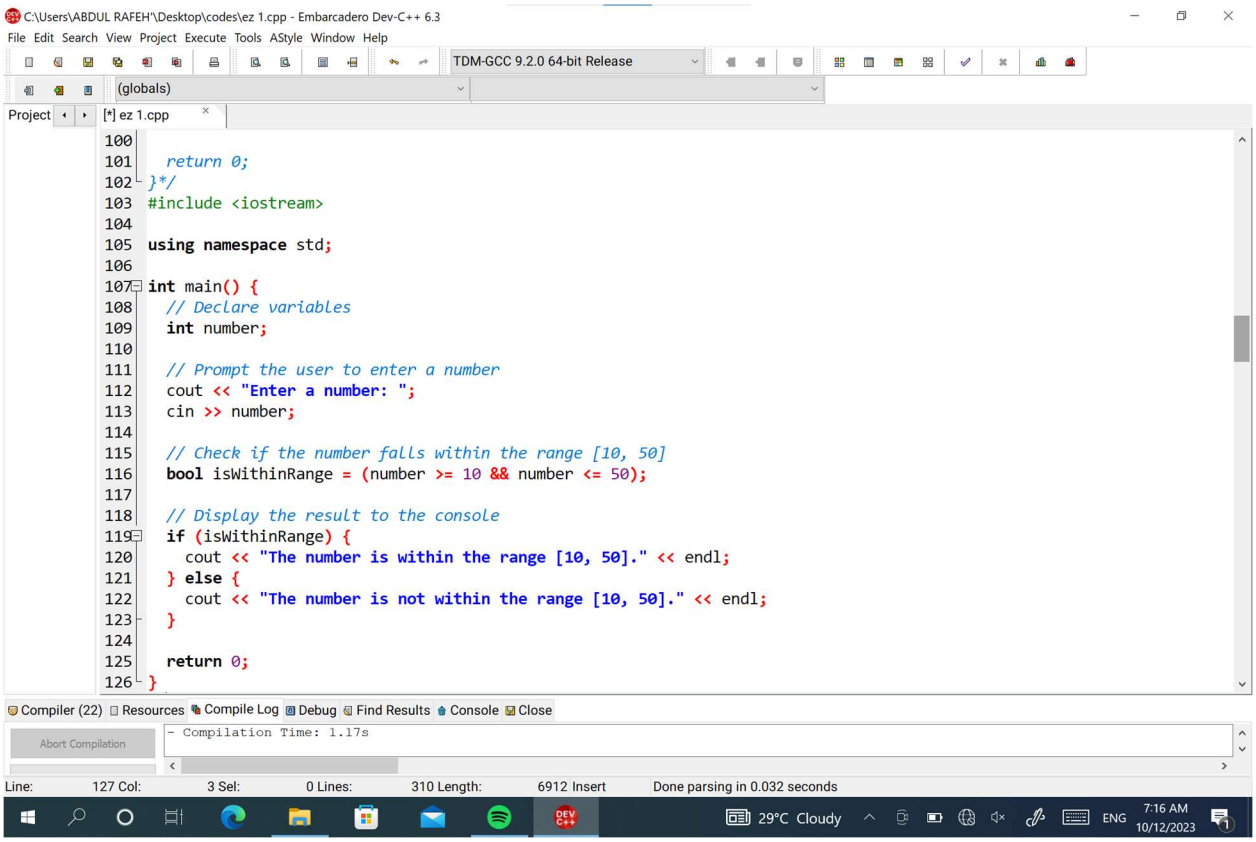
# LAB MANUAL 2:

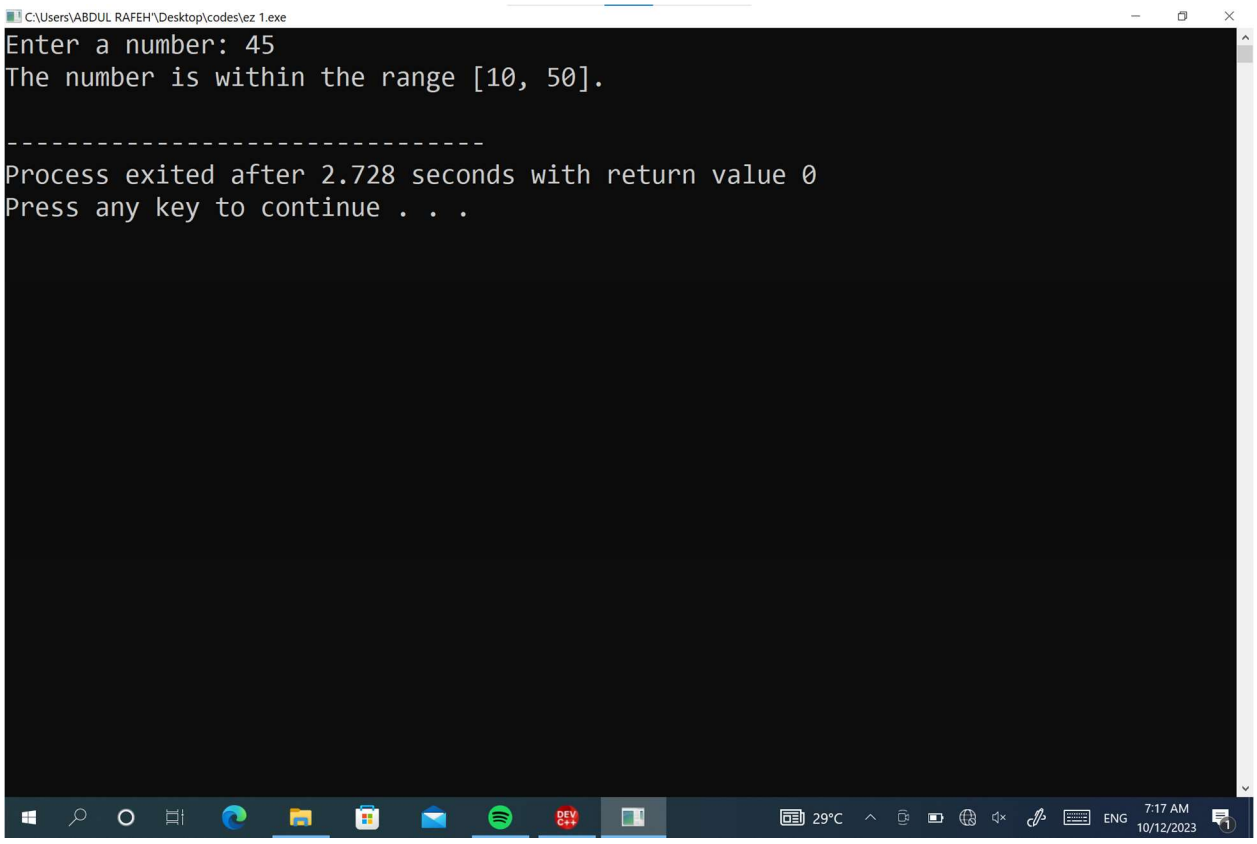
5. **Write a program that determines if a person is eligible to vote based on their age (e.g., 18 years or older) using logical operators.**



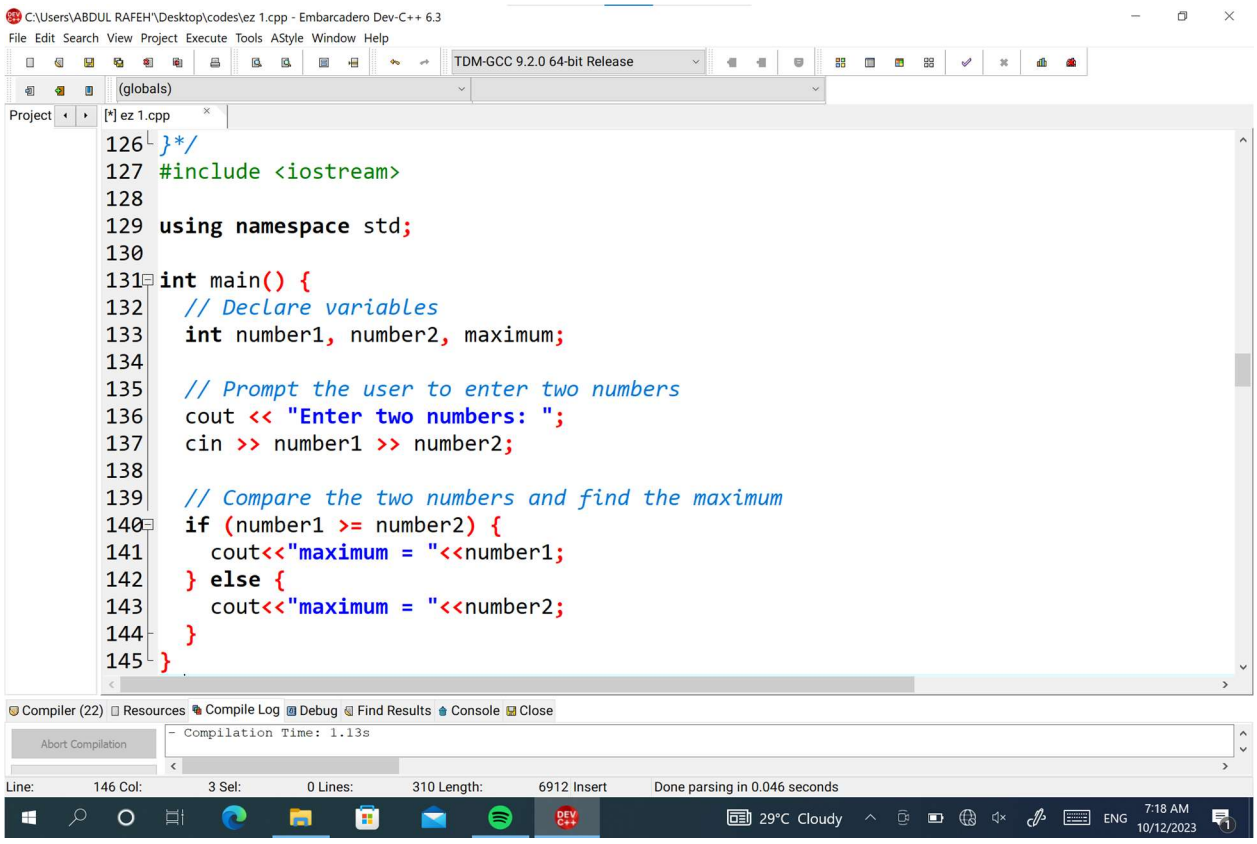


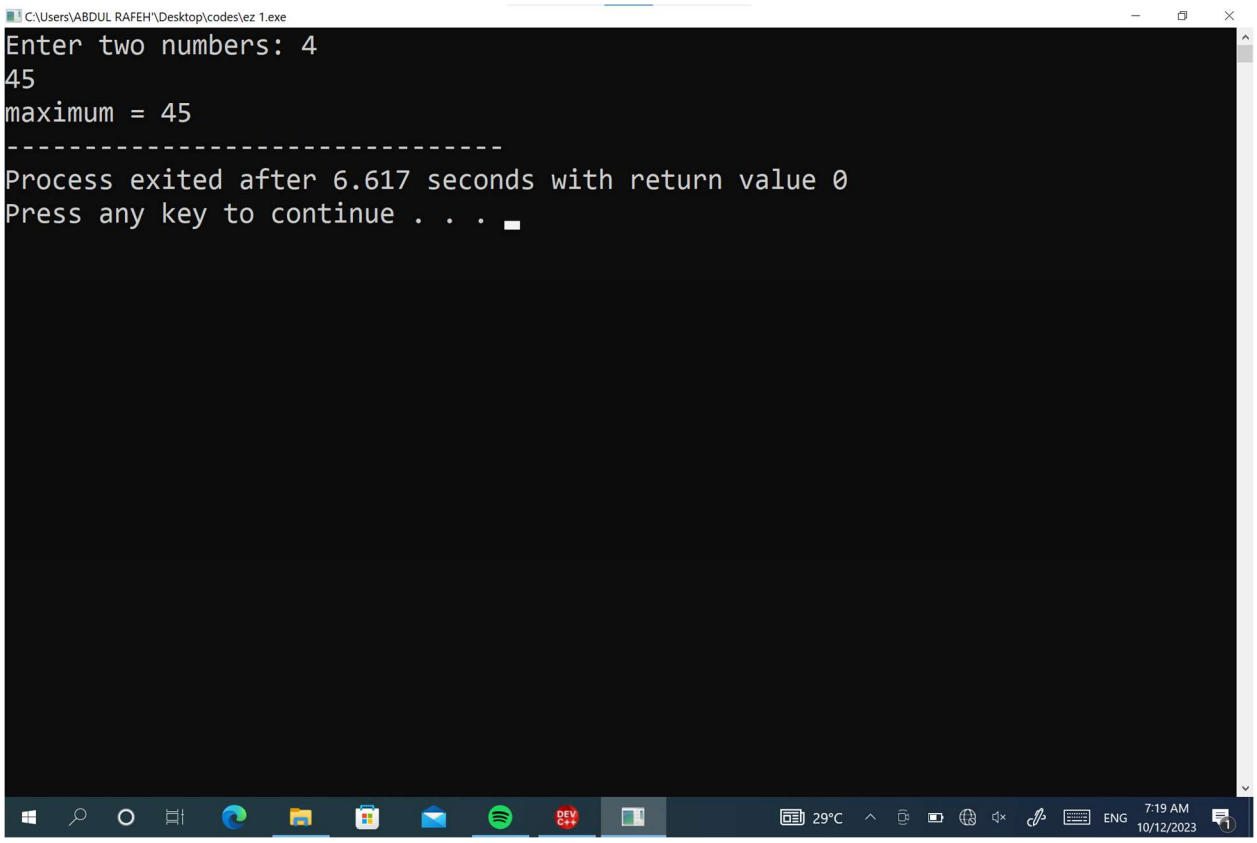

**6. Write a program that takes an integer as input and checks if it falls within the range [10, 50] using logical operators.**



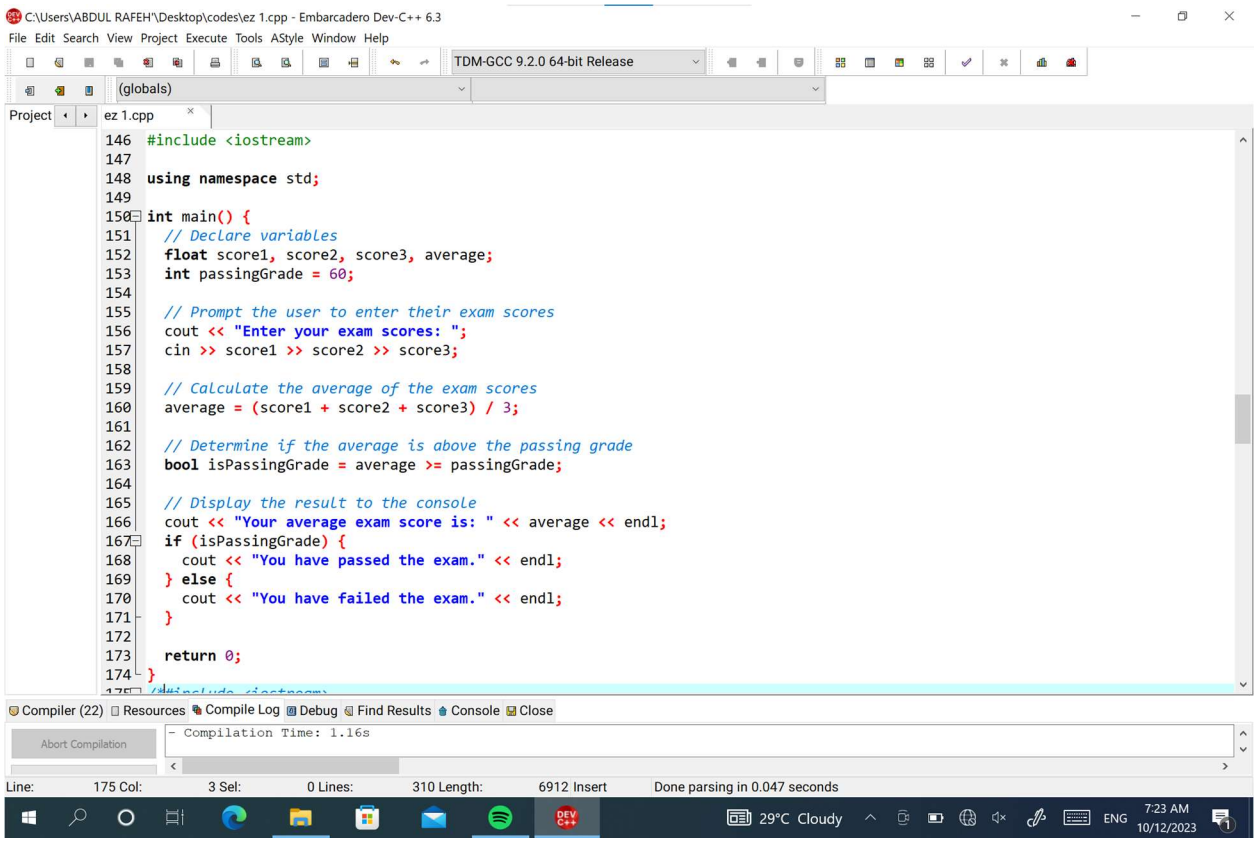


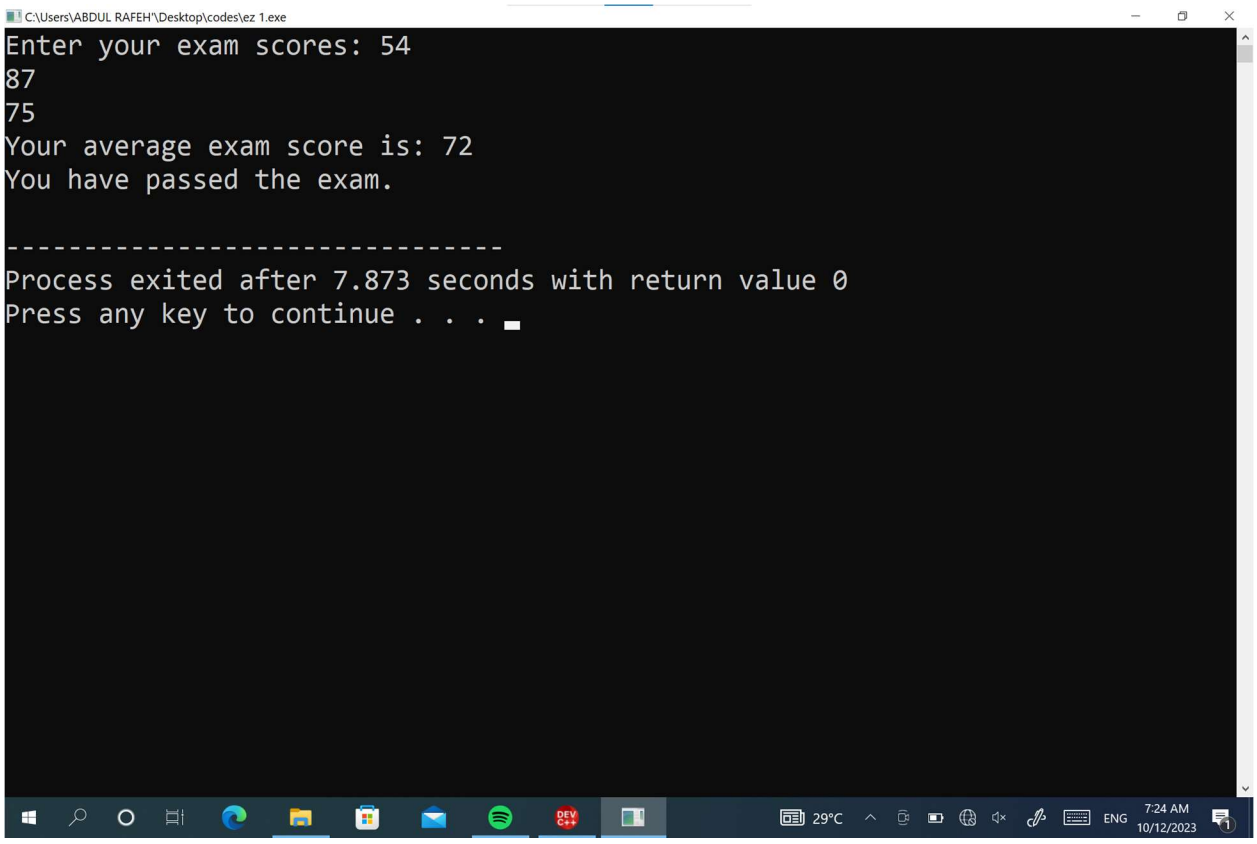

7. **Write a C++ program to compare two integers and find the maximum value**


C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
Project
[*] ez 1.cpp
}*/
#include <iostream>
using namespace std;
int main() {
// Declare variables
int number1, number2, maximum;
// Prompt the user to enter two numbers
cout << "Enter two numbers: ";
cin >> number1 >> number2;
// Compare the two numbers and find the maximum
if (number1 >= number2) {
cout<<"maximum = "<<number1;
} else {
cout<<"maximum = "<<number2;
}
}
Compiler (22) Resources Compile Log Debug Find Results Console Close
Abort Compilation
- Compilation Time: 1.13s
Line: 146 Col: 3 Sel: 0 Lines: 310 Length: 6912 Insert Done parsing in 0.046 seconds
29°C Cloudy
ENG
7:18 AM
10/12/2023

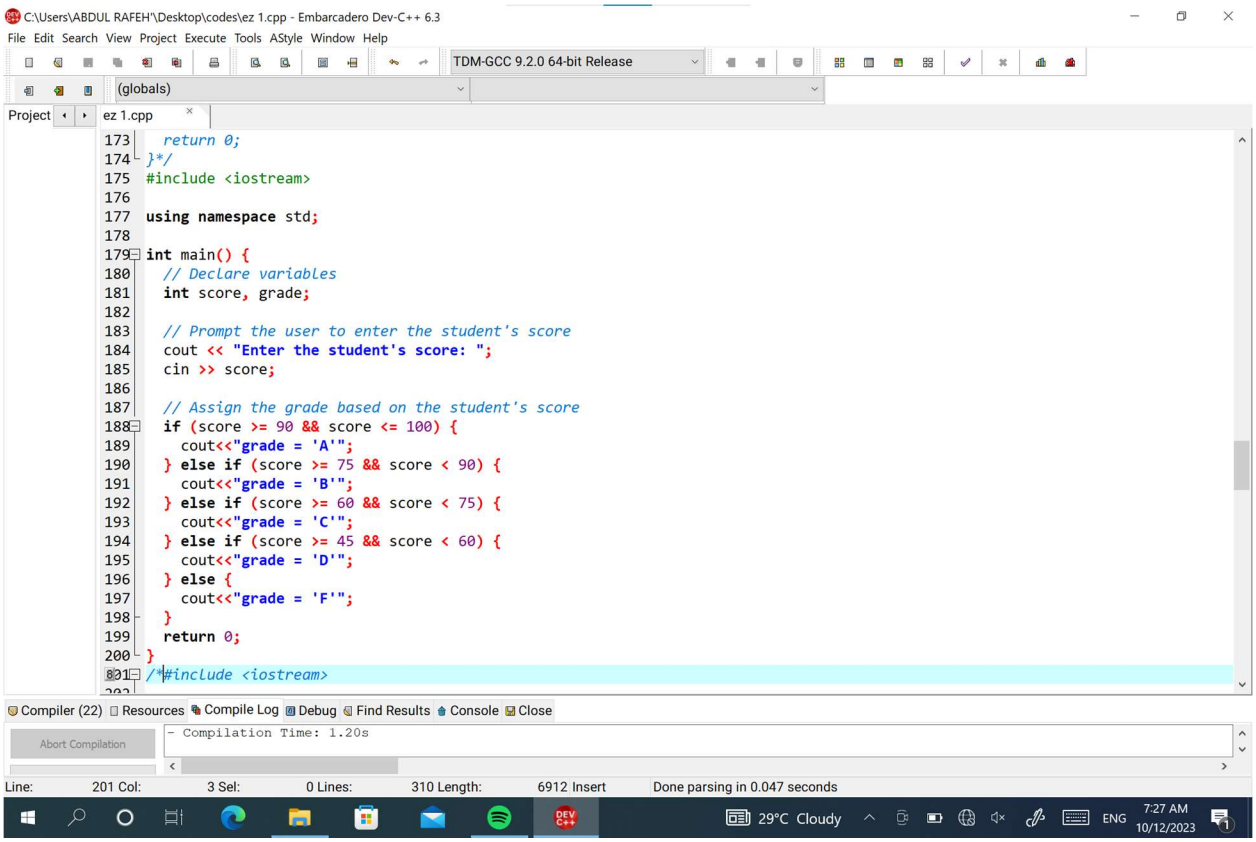

C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.exe
Enter two numbers: 4
45
maximum = 45
--------------------------------
Process exited after 6.617 seconds with return value 0
Press any key to continue . . .
29°C
ENG
7:19 AM
10/12/2023

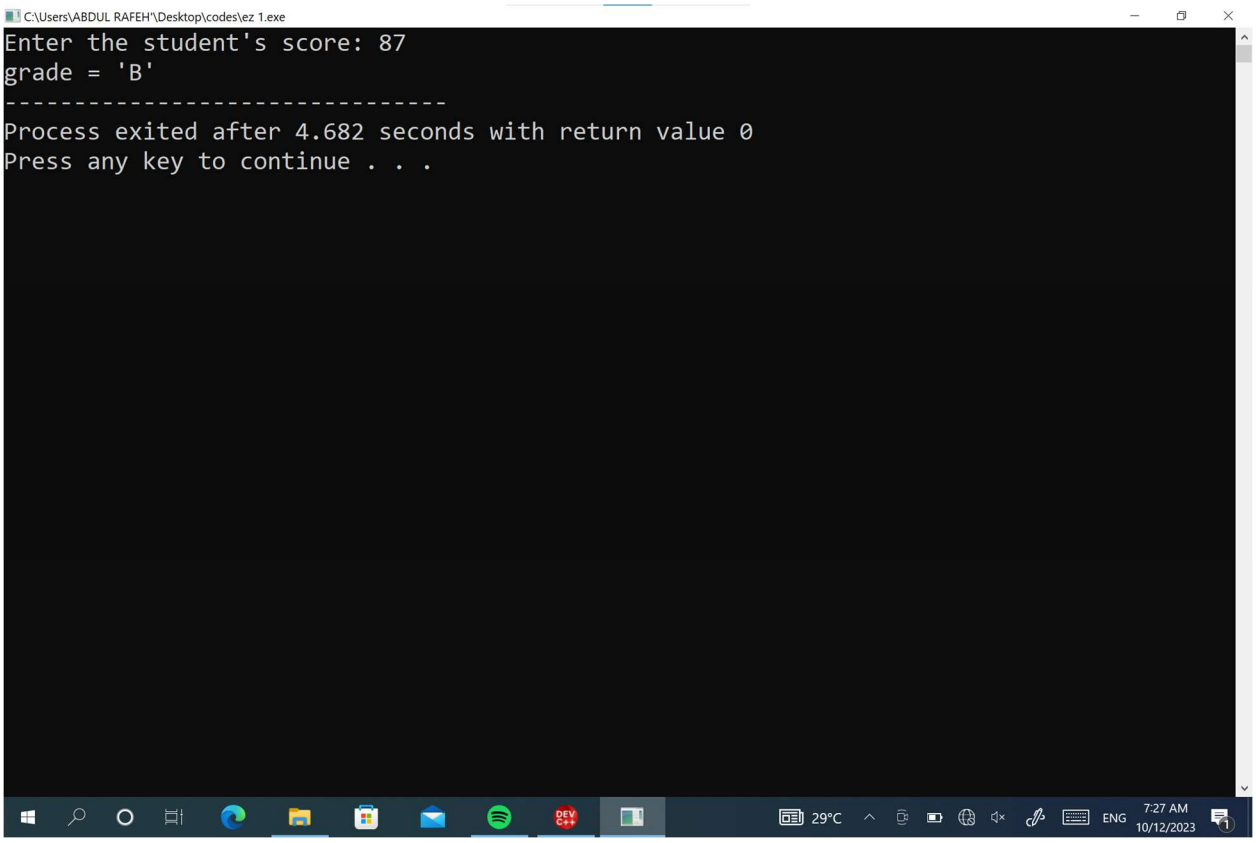
8. **Write a C++ program to calculate the average of three exam scores and determine if it's above a passing grade (e.g., average >= 60)**



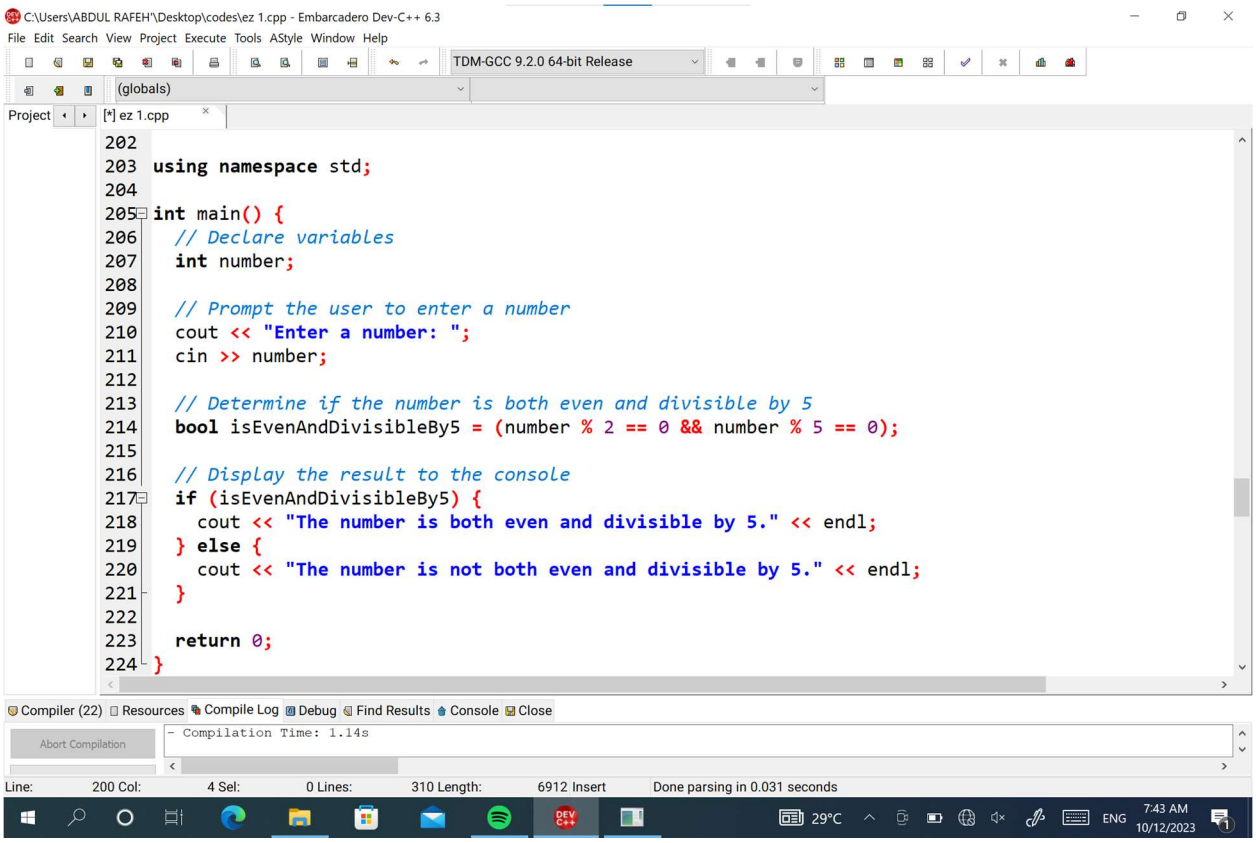


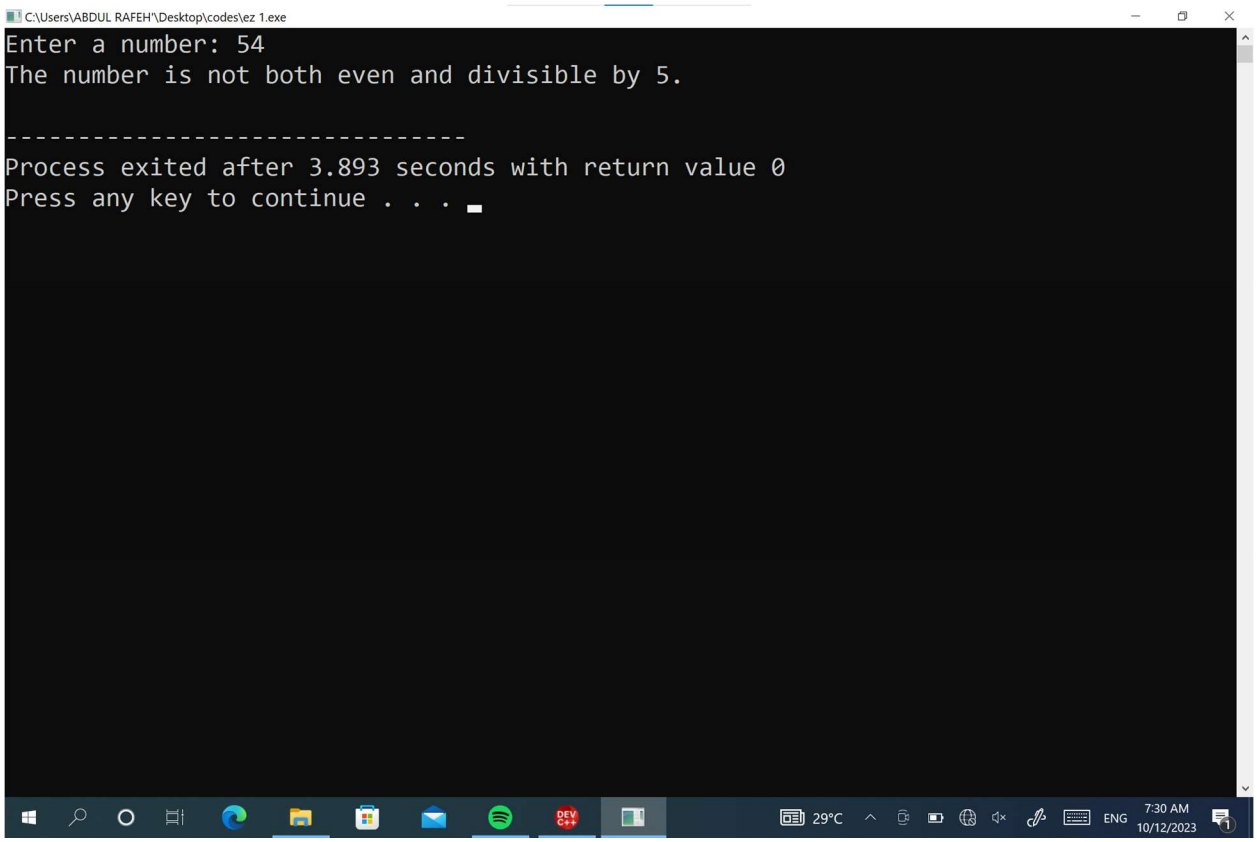

9. **Create a program that takes a student's score as input and assigns a grade based on predefined criteria using logical operators (e.g., A, B, C, D, F). A-Grade: 90-100 Marks B-Grade: 75-90 Marks C-Grade: 60-75 Marks D-Grade: 45-60 Marks F-Grade: 0-45 Mark**


C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
Project
ez 1.cpp
173 return 0;
174 }*/
175 #include <iostream>
176
177 using namespace std;
178
179 int main() {
180 // Declare variables
181 int score, grade;
182
183 // Prompt the user to enter the student's score
184 cout << "Enter the student's score: ";
185 cin >> score;
186
187 // Assign the grade based on the student's score
188 if (score >= 90 && score <= 100) {
189 cout<<"grade = 'A'";
190 } else if (score >= 75 && score < 90) {
191 cout<<"grade = 'B'";
192 } else if (score >= 60 && score < 75) {
193 cout<<"grade = 'C'";
194 } else if (score >= 45 && score < 60) {
195 cout<<"grade = 'D'";
196 } else {
197 cout<<"grade = 'F'";
198 }
199 return 0;
200 }
201 /*#include <iostream>
Compiler (22) Resources Compile Log Debug Find Results Console Close
Abort Compilation
- Compilation Time: 1.20s
Line: 201 Col: 3 Sel: 0 Lines: 310 Length: 6912 Insert Done parsing in 0.047 seconds
29°C Cloudy
ENG
7:27 AM
10/12/2023

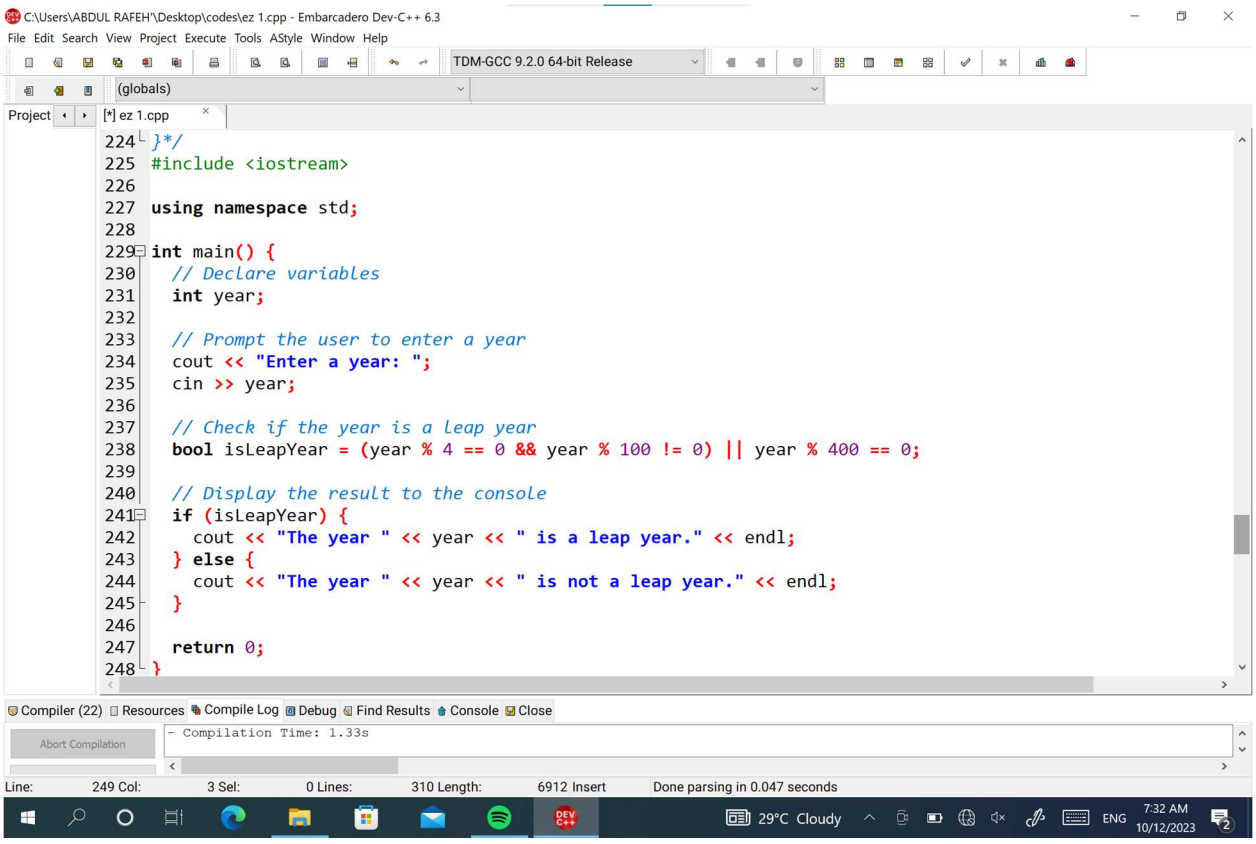

C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.exe
Enter the student's score: 87
grade = 'B'
--------------------------------
Process exited after 4.682 seconds with return value 0
Press any key to continue . . .
29°C
ENG
7:27 AM
10/12/2023

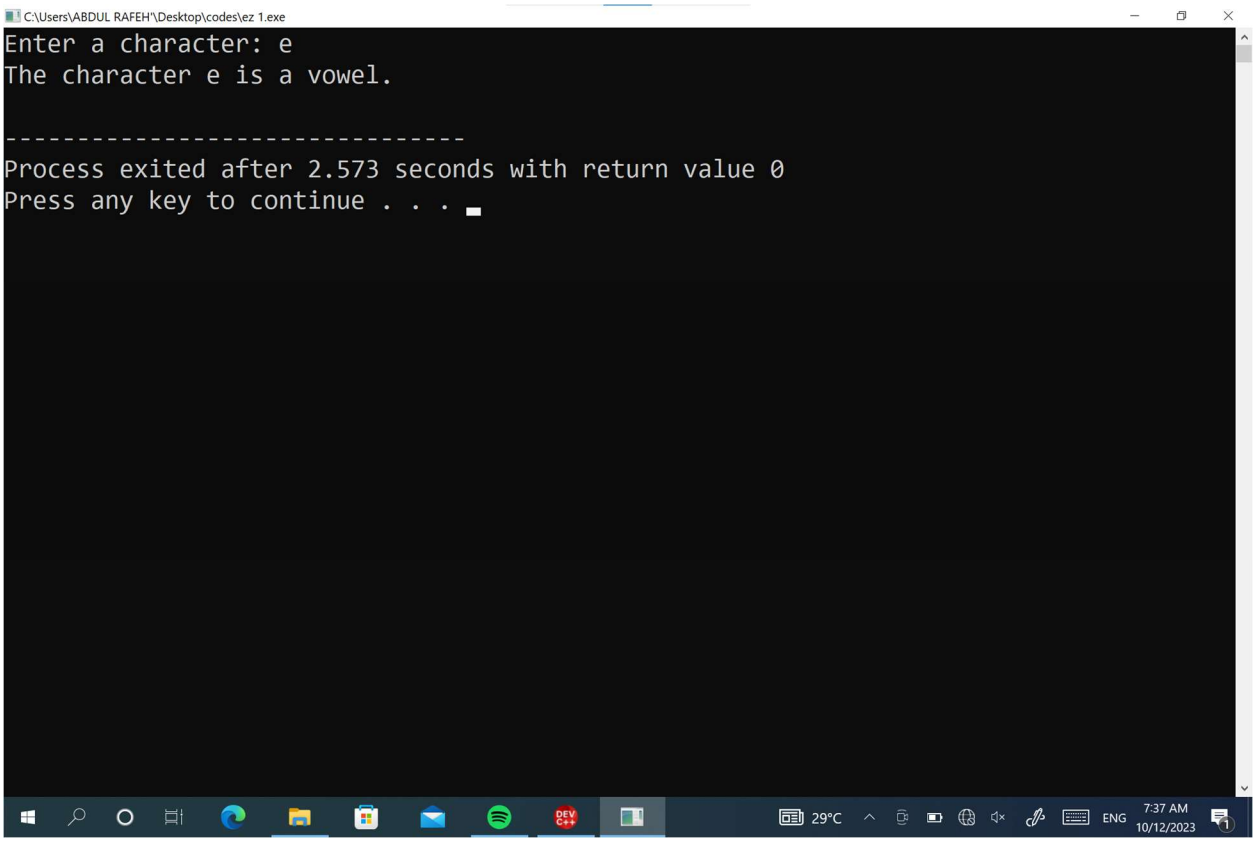
**10. Write a program that takes an integer as input and determines if it is both even and divisible by 5.**



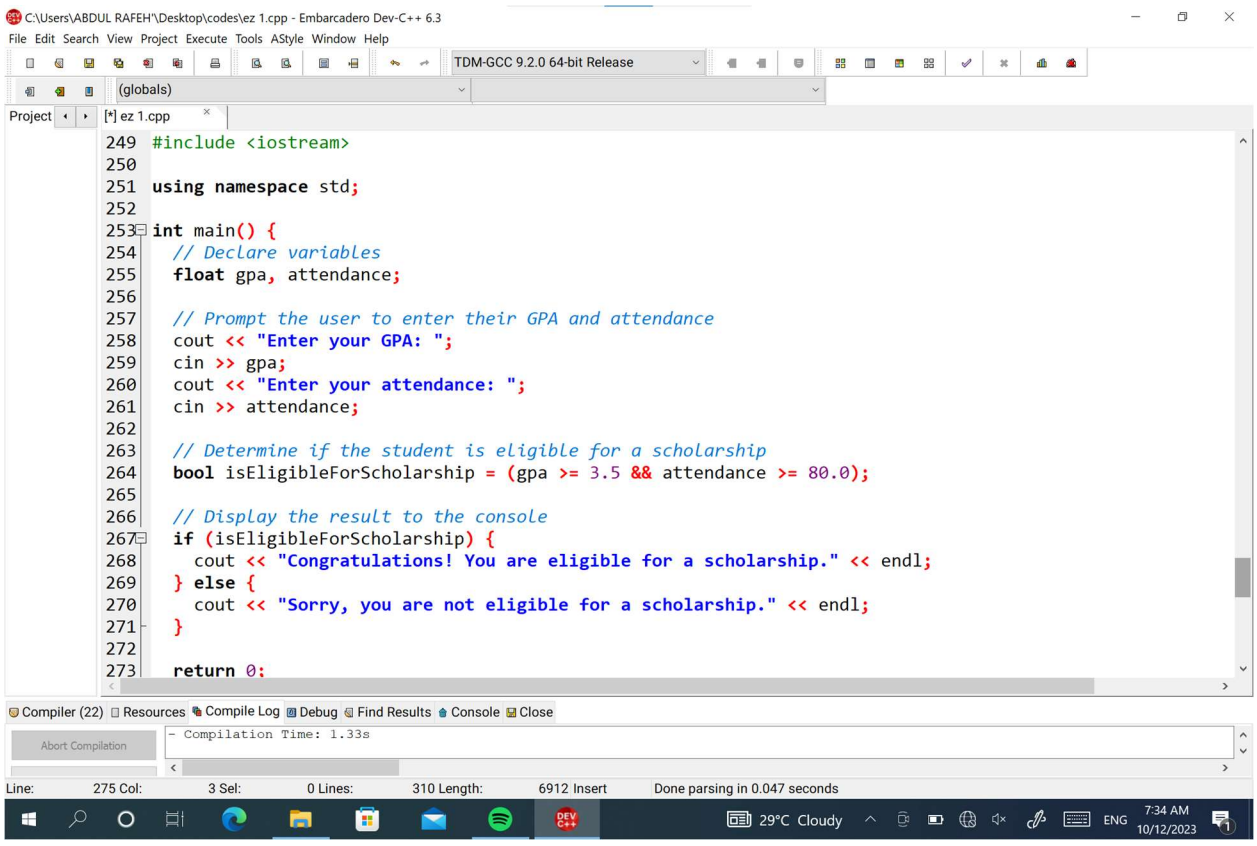


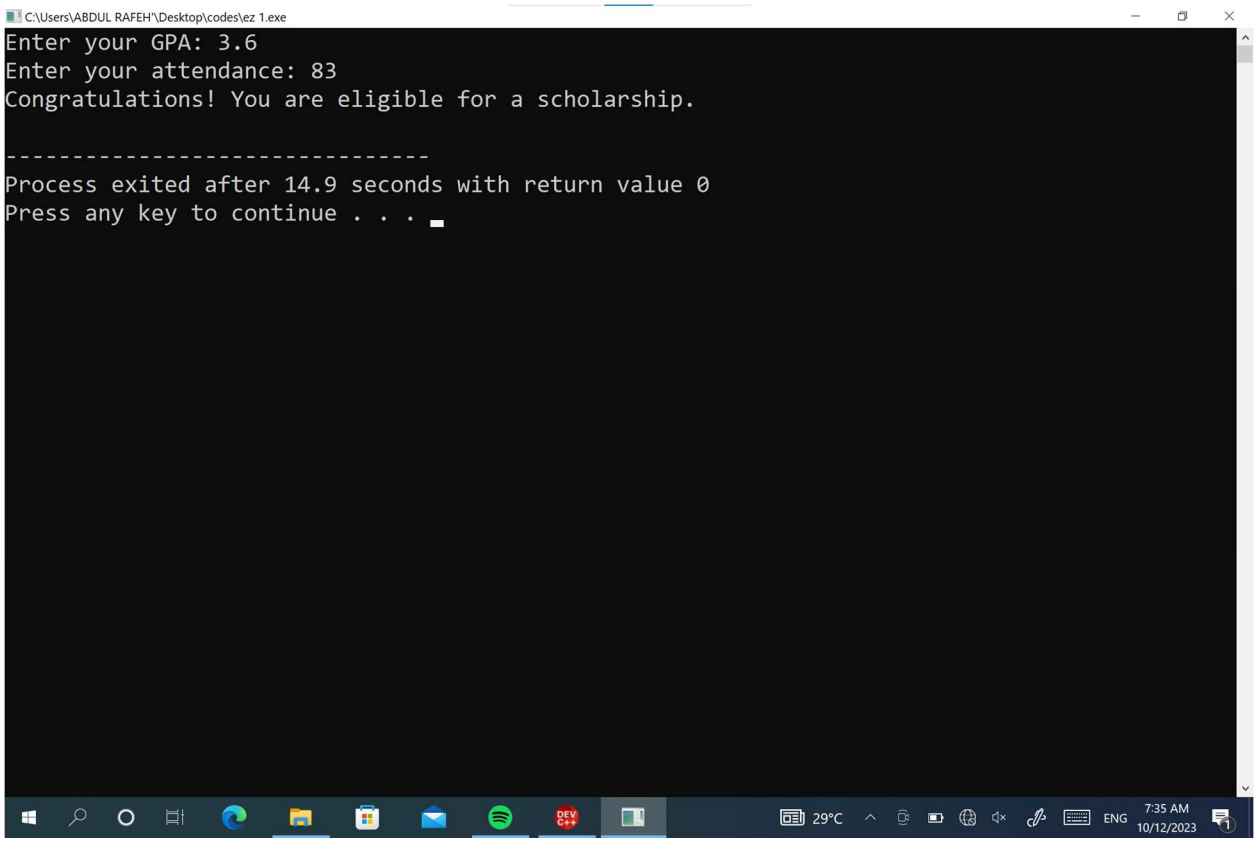

**11. Create a C++ program that checks if a user-provided year is a leap year**


C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.cpp - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
Project
[*] ez 1.cpp
}*/
#include <iostream>
using namespace std;
int main() {
// Declare variables
int year;
// Prompt the user to enter a year
cout << "Enter a year: ";
cin >> year;
// Check if the year is a leap year
bool isLeapYear = (year % 4 == 0 && year % 100 != 0) || year % 400 == 0;
// Display the result to the console
if (isLeapYear) {
cout << "The year " << year << " is a leap year." << endl;
} else {
cout << "The year " << year << " is not a leap year." << endl;
}
return 0;
}
Compiler (22) Resources Compile Log Debug Find Results Console Close
Abort Compilation
- Compilation Time: 1.33s
Line: 249 Col: 3 Sel: 0 Lines: 310 Length: 6912 Insert Done parsing in 0.047 seconds
29°C Cloudy
ENG
7:32 AM
10/12/2023

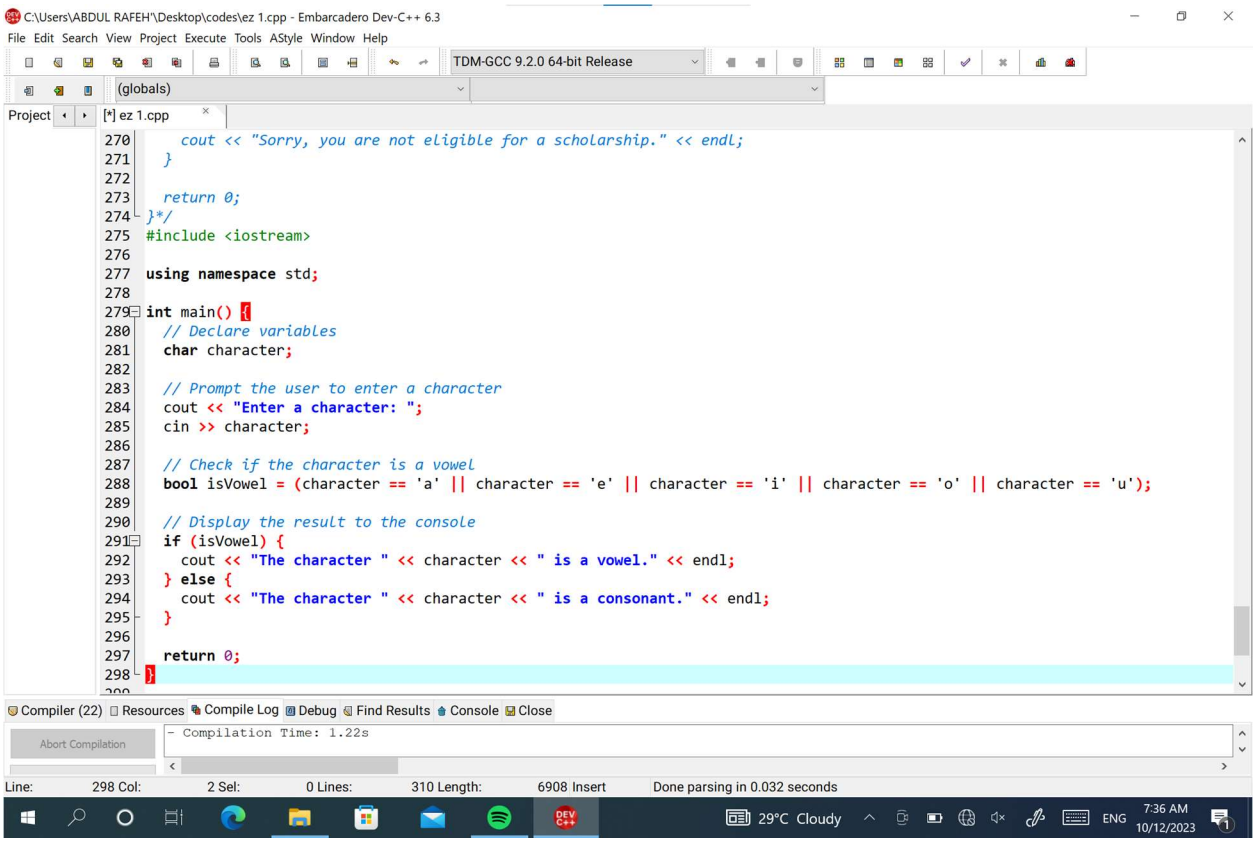

C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.exe
Enter a character: e
The character e is a vowel.
---
Process exited after 2.573 seconds with return value 0
Press any key to continue . . .
29°C
ENG
7:37 AM
10/12/2023

**12. Create a C++ program that determines if a student is eligible for a scholarship based on their GPA (must have GPA >= 3.5) and attendance (must have attended at least 80% of classes**






**13. Write a program that checks if a given character is a vowel (a, e, i, o, u) or a consonant using logical operators**



C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.cpp - Embarcadero Dev-C++ 6.3

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 9.2.0 64-bit Release

(globals)

Project [*] ez 1.cpp

```
270     cout << "Sorry, you are not eligible for a scholarship." << endl;
271   }
272
273   return 0;
274 }*/
275 #include <iostream>
276
277 using namespace std;
278
279 int main() {
280   // Declare variables
281   char character;
282
283   // Prompt the user to enter a character
284   cout << "Enter a character: ";
285   cin >> character;
286
287   // Check if the character is a vowel
288   bool isVowel = (character == 'a' || character == 'e' || character == 'i' || character == 'o' || character == 'u');
289
290   // Display the result to the console
291   if (isVowel) {
292     cout << "The character " << character << " is a vowel." << endl;
293   } else {
294     cout << "The character " << character << " is a consonant." << endl;
295   }
296
297   return 0;
298 }
```

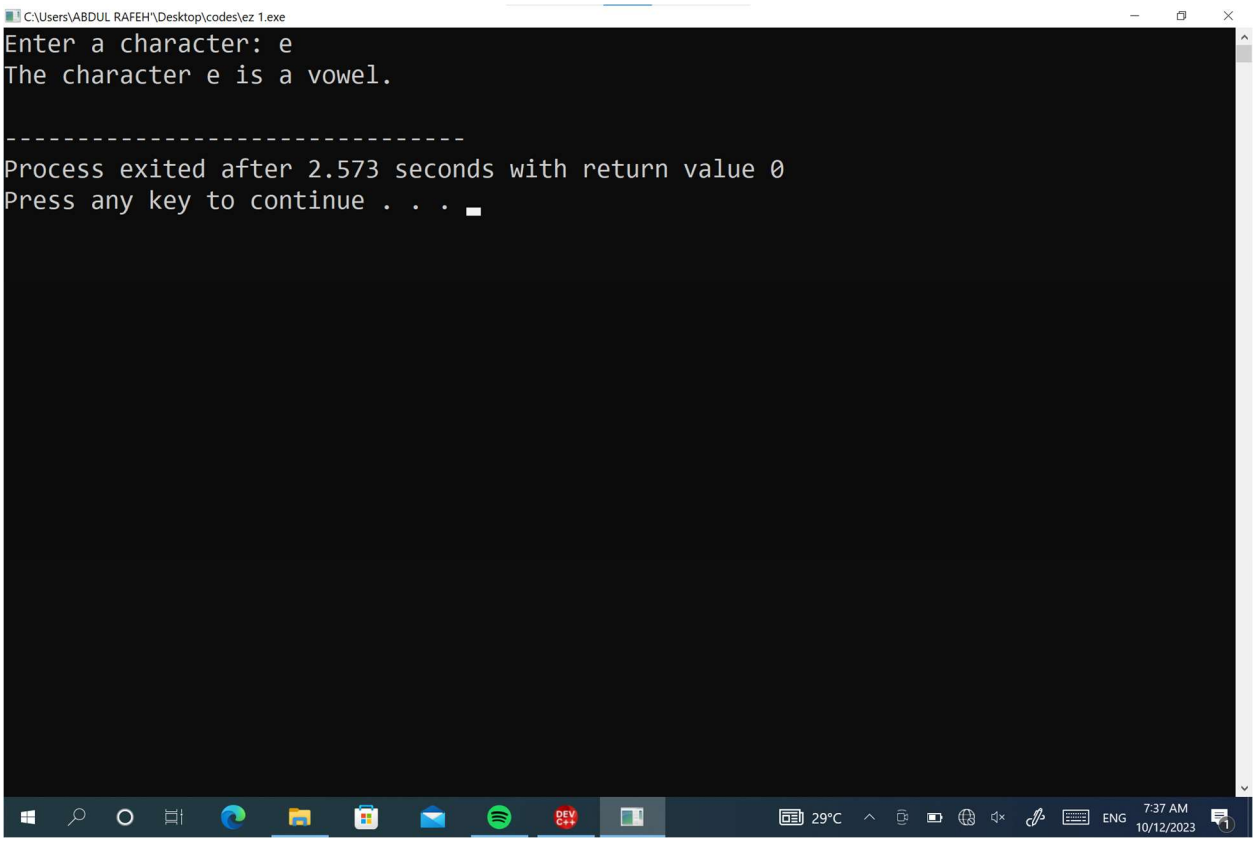
Compiler (22) Resources Compile Log Debug Find Results Console Close

Abort Compilation

- Compilation Time: 1.22s

Line: 298 Col: 2 Sel: 0 Lines: 310 Length: 6908 Insert Done parsing in 0.032 seconds

29°C Cloudy ENG 7:36 AM 10/12/2023



C:\Users\ABDUL RAFEH\Desktop\codes\ez 1.exe

```
Enter a character: e
The character e is a vowel.

--------------------------------
Process exited after 2.573 seconds with return value 0
Press any key to continue . . .
```

29°C ENG 7:37 AM 10/12/2023