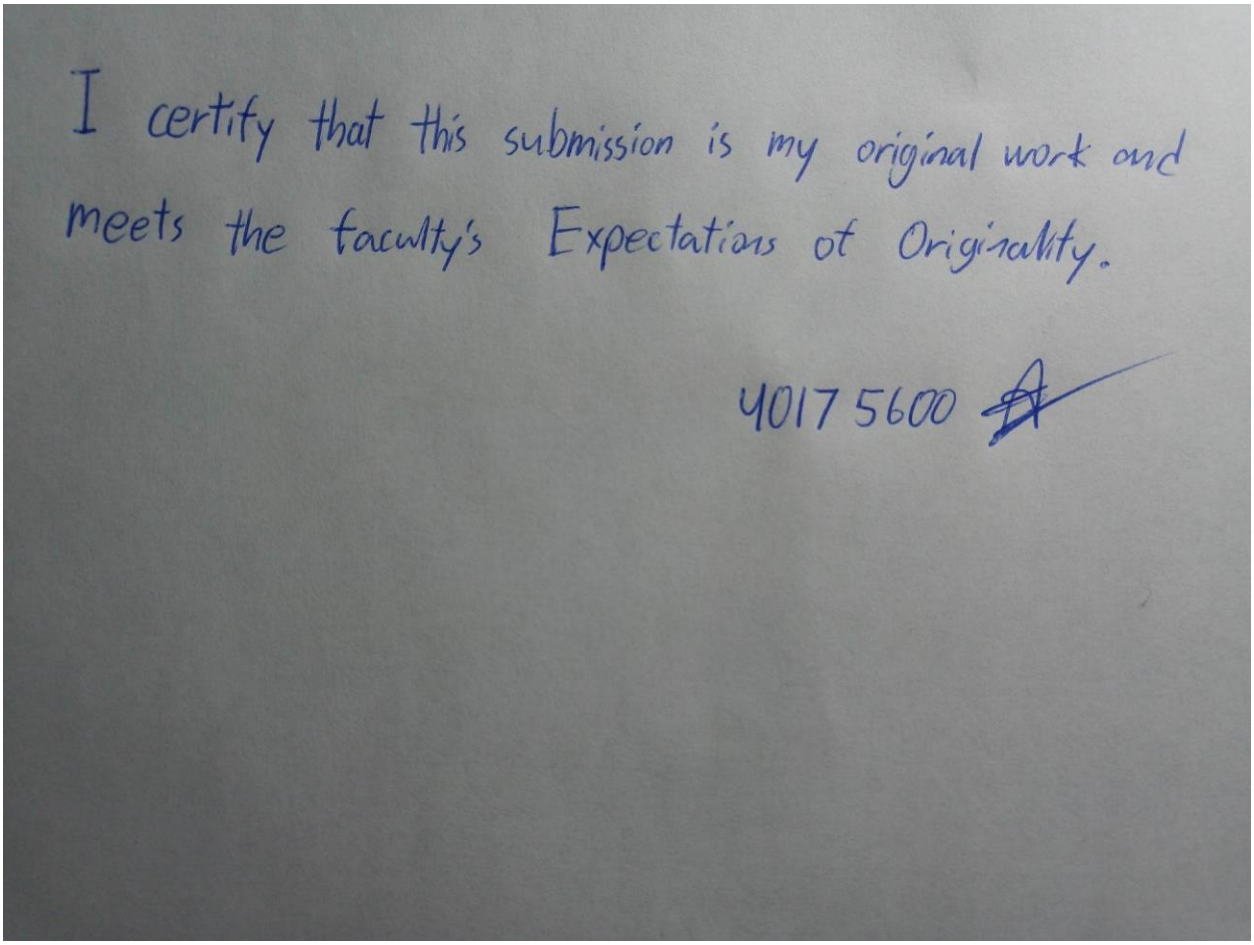
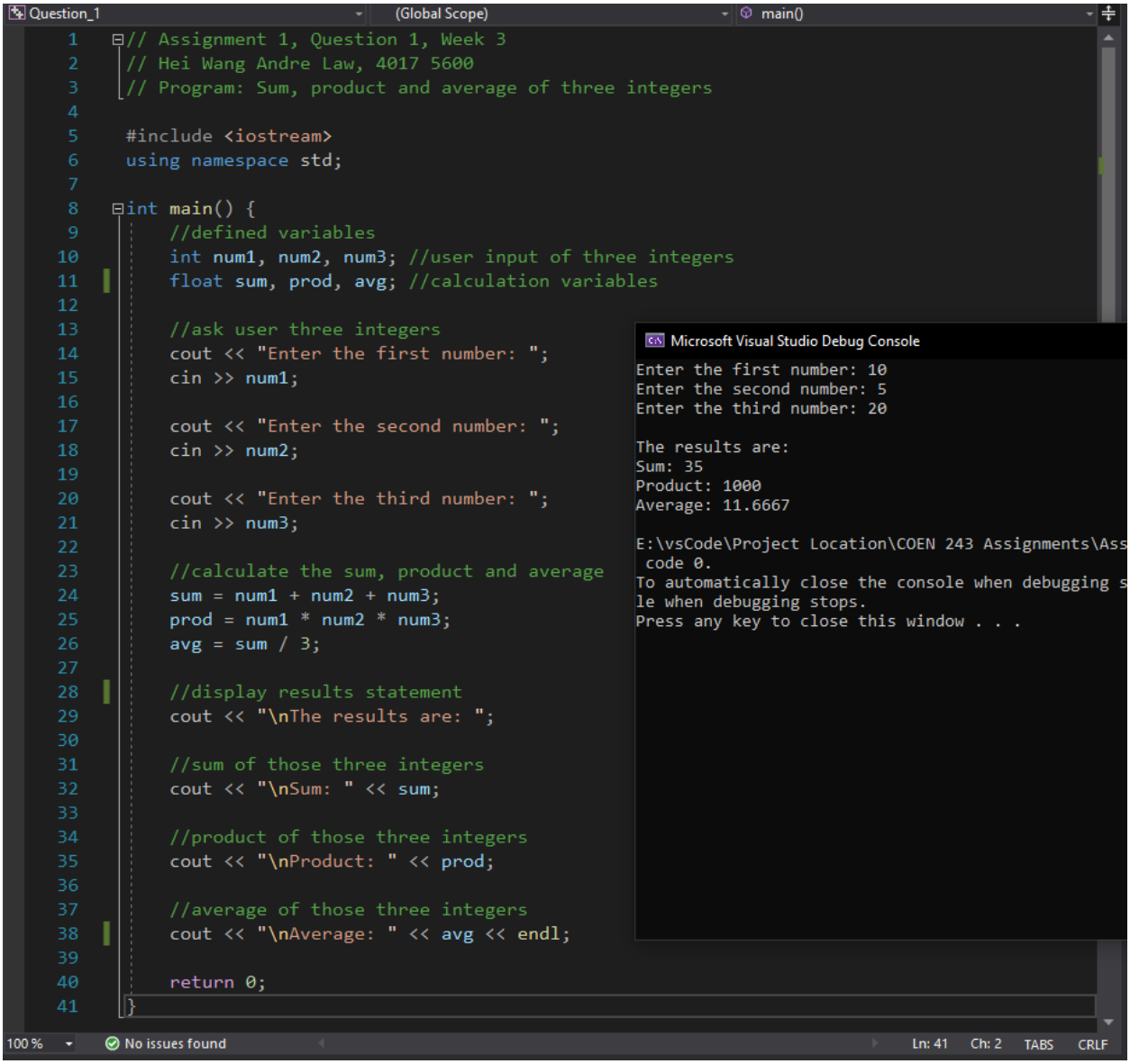
Hei Wang Andre Law

4017 5600

05/02/2021



Question 1:


Question_1
(Global Scope)
main()
// Assignment 1, Question 1, Week 3
// Hei Wang Andre Law, 4017 5600
// Program: Sum, product and average of three integers
#include <iostream>
using namespace std;
int main() {
//defined variables
int num1, num2, num3; //user input of three integers
float sum, prod, avg; //calculation variables
//ask user three integers
cout << "Enter the first number: ";
cin >> num1;
cout << "Enter the second number: ";
cin >> num2;
cout << "Enter the third number: ";
cin >> num3;
//calculate the sum, product and average
sum = num1 + num2 + num3;
prod = num1 * num2 * num3;
avg = sum / 3;
//display results statement
cout << "\nThe results are: ";
//sum of those three integers
cout << "\nSum: " << sum;
//product of those three integers
cout << "\nProduct: " << prod;
//average of those three integers
cout << "\nAverage: " << avg << endl;
return 0;
}
Microsoft Visual Studio Debug Console
Enter the first number: 10
Enter the second number: 5
Enter the third number: 20
The results are:
Sum: 35
Product: 1000
Average: 11.6667
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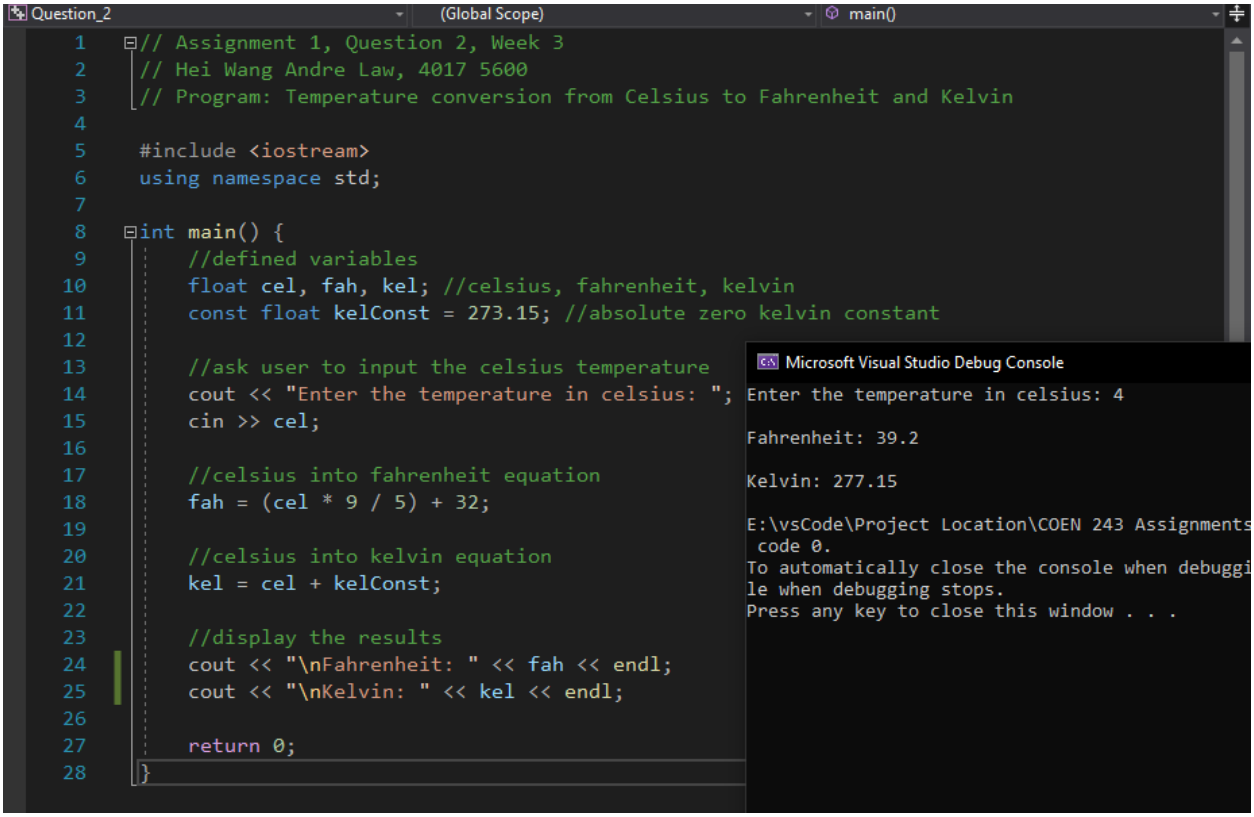
code 0.
To automatically close the console when debugging s
le when debugging stops.
Press any key to close this window . . .
100 %
No issues found
Ln: 41
Ch: 2
TABS
CRLF

Question 2:



```
Question_2 | (Global Scope) | main()

1  // Assignment 1, Question 2, Week 3
2  // Hei Wang Andre Law, 4017 5600
3  // Program: Temperature conversion from Celsius to Fahrenheit and Kelvin
4
5  #include <iostream>
6  using namespace std;
7
8  int main() {
9      //defined variables
10     float cel, fah, kel; //celsius, fahrenheit, kelvin
11     const float kelConst = 273.15; //absolute zero kelvin constant
12
13     //ask user to input the celsius temperature
14     cout << "Enter the temperature in celsius: ";
15     cin >> cel;
16
17     //celsius into fahrenheit equation
18     fah = (cel * 9 / 5) + 32;
19
20     //celsius into kelvin equation
21     kel = cel + kelConst;
22
23     //display the results
24     cout << "\nFahrenheit: " << fah << endl;
25     cout << "\nKelvin: " << kel << endl;
26
27     return 0;
28 }
```

```
Microsoft Visual Studio Debug Console
Enter the temperature in celsius: 4

Fahrenheit: 39.2

Kelvin: 277.15

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 code 0.
To automatically close the console when debuggi
le when debugging stops.
Press any key to close this window . . .
```
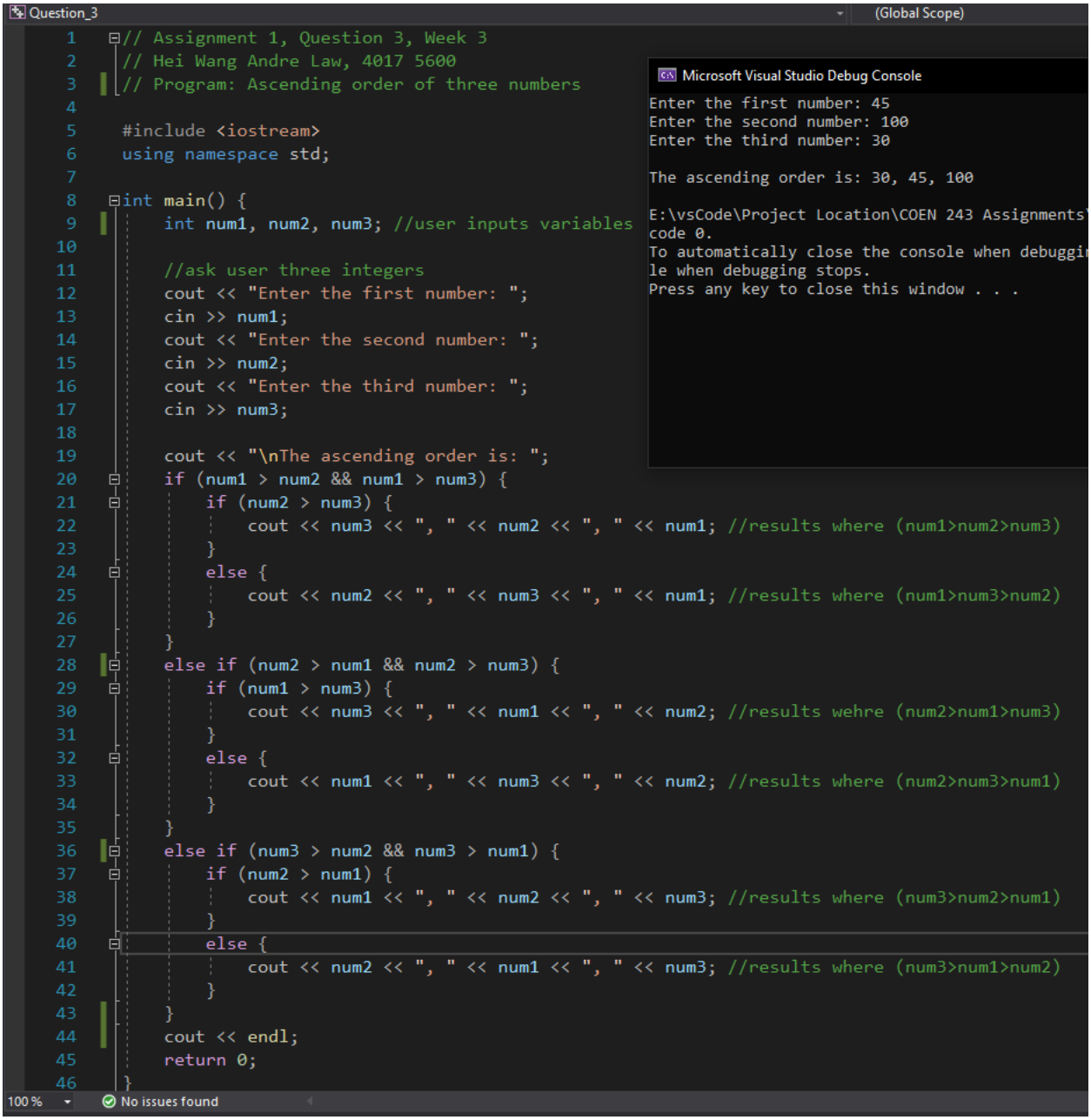
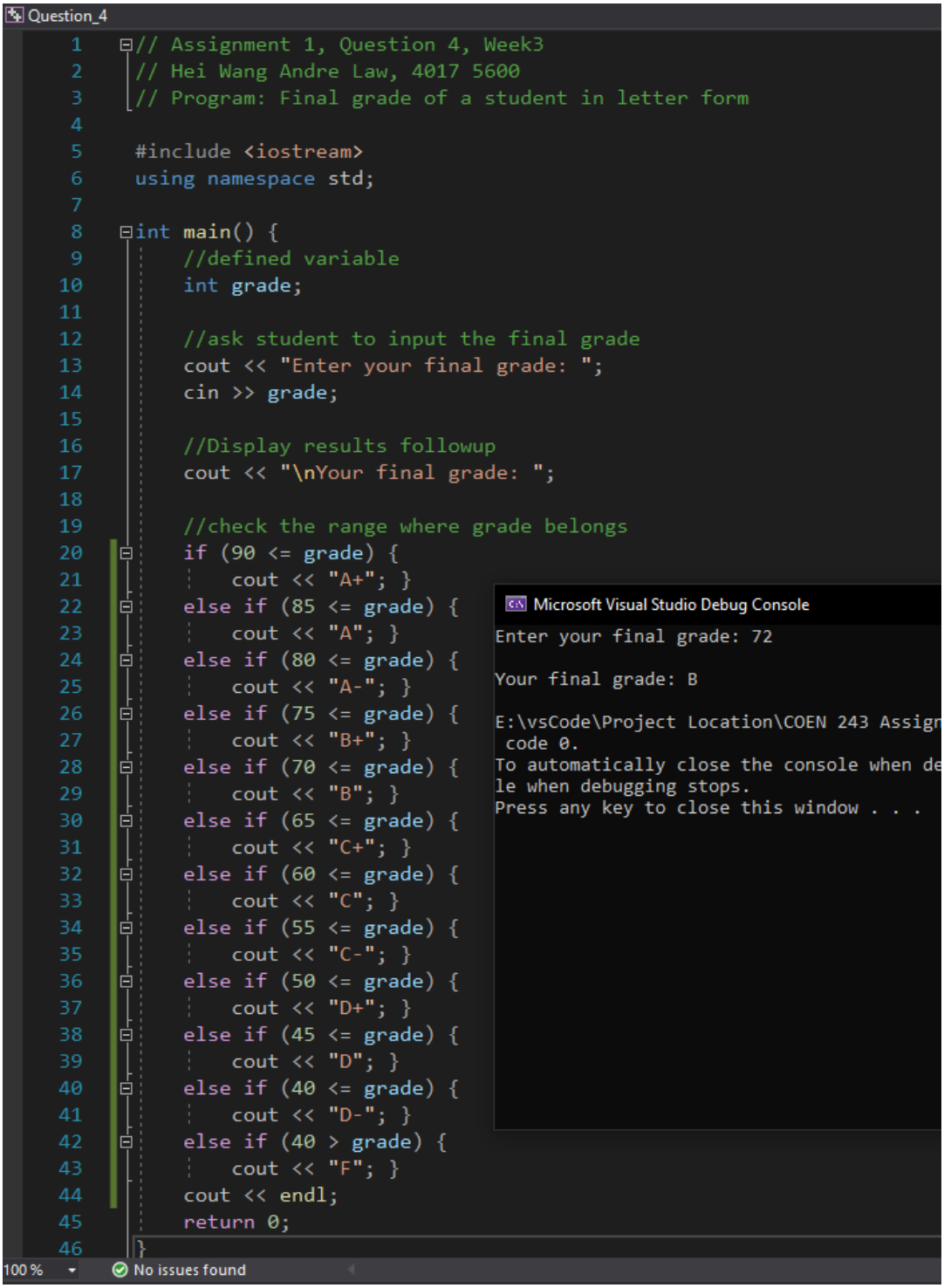

Question 3:




```cpp
// Assignment 1, Question 3, Week 3
// Hei Wang Andre Law, 4017 5600
// Program: Ascending order of three numbers

#include <iostream>
using namespace std;

int main() {
    int num1, num2, num3; //user inputs variables

    //ask user three integers
    cout << "Enter the first number: ";
    cin >> num1;
    cout << "Enter the second number: ";
    cin >> num2;
    cout << "Enter the third number: ";
    cin >> num3;

    cout << "\nThe ascending order is: ";
    if (num1 > num2 && num1 > num3) {
        if (num2 > num3) {
            cout << num3 << ", " << num2 << ", " << num1; //results where (num1>num2>num3)
        }
        else {
            cout << num2 << ", " << num3 << ", " << num1; //results where (num1>num3>num2)
        }
    }
    else if (num2 > num1 && num2 > num3) {
        if (num1 > num3) {
            cout << num3 << ", " << num1 << ", " << num2; //results wehre (num2>num1>num3)
        }
        else {
            cout << num1 << ", " << num3 << ", " << num2; //results where (num2>num3>num1)
        }
    }
    else if (num3 > num2 && num3 > num1) {
        if (num2 > num1) {
            cout << num1 << ", " << num2 << ", " << num3; //results where (num3>num2>num1)
        }
        else {
            cout << num2 << ", " << num1 << ", " << num3; //results where (num3>num1>num2)
        }
    }
    cout << endl;
    return 0;
}
```

Question 4:


Question_4
// Assignment 1, Question 4, Week3
// Hei Wang Andre Law, 4017 5600
// Program: Final grade of a student in letter form
#include <iostream>
using namespace std;
int main() {
//defined variable
int grade;
//ask student to input the final grade
cout << "Enter your final grade: ";
cin >> grade;
//Display results followup
cout << "\nYour final grade: ";
//check the range where grade belongs
if (90 <= grade) {
cout << "A+"; }
else if (85 <= grade) {
cout << "A"; }
else if (80 <= grade) {
cout << "A-"; }
else if (75 <= grade) {
cout << "B+"; }
else if (70 <= grade) {
cout << "B"; }
else if (65 <= grade) {
cout << "C+"; }
else if (60 <= grade) {
cout << "C"; }
else if (55 <= grade) {
cout << "C-"; }
else if (50 <= grade) {
cout << "D+"; }
else if (45 <= grade) {
cout << "D"; }
else if (40 <= grade) {
cout << "D-"; }
else if (40 > grade) {
cout << "F"; }
cout << endl;
return 0;
}
Microsoft Visual Studio Debug Console
Enter your final grade: 72
Your final grade: B
E:\vsCode\Project Location\COEN 243 Assign
code 0.
To automatically close the console when de
le when debugging stops.
Press any key to close this window . . .
100 %
No issues found

Question 5: (132 000$)

Question_5 (Global Scope)

```cpp
// Assignment 1, Question 5, Week 3
// Hei Wang Andre Law, 4017 5600
// Program: Canada's income tax calculator

#include <iostream>
using namespace std;

int main() {
    //defined variable
    double income, tax, net; //shown values
    double bracket1, bracket2, bracket3, bracket4; //calculations variables for each tax bracket

    //ask user the income
    cout << "Enter your income: ";
    cin >> income;

    //logic -> calculate the tax of each bracket in advance
    bracket1 = 0.15 * 48535; //income below 48535$
    bracket2 = 0.205 * 48534; //income between 48535$ - 97069$
    bracket3 = 0.26 * 53404; //income between 97069$ - 150473$
    bracket4 = 0.29 * 63895; //income between 150473$ - 214368$

    //filter income to know which bracket it belongs to
    if (income > 214368) {
        tax = bracket1 + bracket2 + bracket3 + bracket4 + 0.33 * (income - 214368);
    }
    else if (income > 150473) {
        tax = bracket1 + bracket2 + bracket3 + 0.29 * (income - 150473);
    }
    else if (income > 97069) {
        tax = bracket1 + bracket2 + 0.26 * (income - 97069);
    }
    else if (income > 48535) {
        tax = bracket1 + 0.205 * (income - 48535);
    }
    else if (income <= 48535) {
        tax = 0.15 * income;
    }
    net = income - tax;
        cout << "\nTax income: " << tax << "$";
    cout << "\nNet income: " << net << "$\n";
    return 0;
}
```

Microsoft Visual Studio Debug Console

```
Enter your income: 132000

Tax income: 26311.8$
Net income: 105688$

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 code 0.
To automatically close the console when
le when debugging stops.
Press any key to close this window . .
```
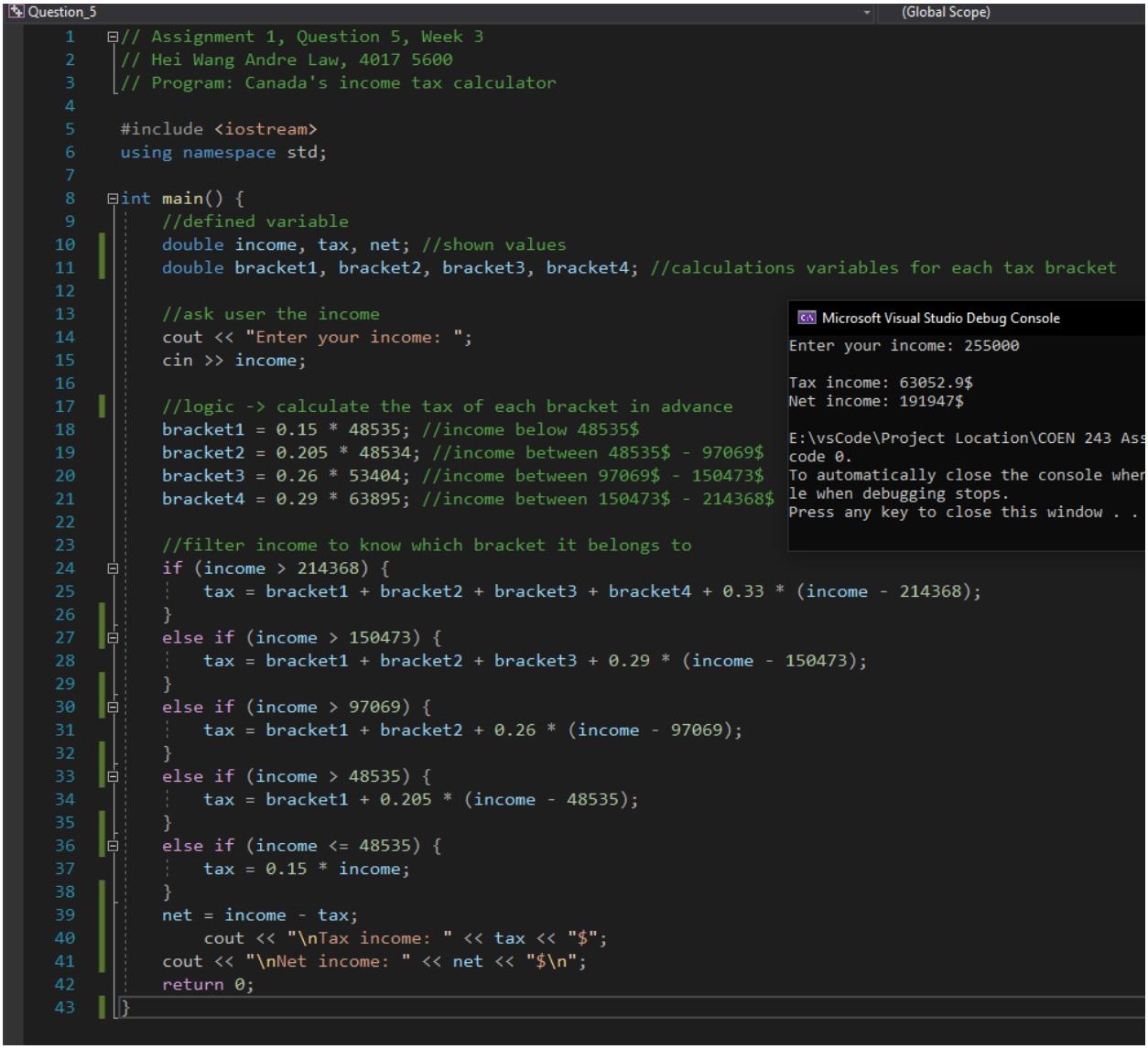

Question 5: (255 000$)



```cpp
// Assignment 1, Question 5, Week 3
// Hei Wang Andre Law, 4017 5600
// Program: Canada's income tax calculator

#include <iostream>
using namespace std;

int main() {
    //defined variable
    double income, tax, net; //shown values
    double bracket1, bracket2, bracket3, bracket4; //calculations variables for each tax bracket

    //ask user the income
    cout << "Enter your income: ";
    cin >> income;

    //logic -> calculate the tax of each bracket in advance
    bracket1 = 0.15 * 48535; //income below 48535$
    bracket2 = 0.205 * 48534; //income between 48535$ - 97069$
    bracket3 = 0.26 * 53404; //income between 97069$ - 150473$
    bracket4 = 0.29 * 63895; //income between 150473$ - 214368$

    //filter income to know which bracket it belongs to
    if (income > 214368) {
        tax = bracket1 + bracket2 + bracket3 + bracket4 + 0.33 * (income - 214368);
    }
    else if (income > 150473) {
        tax = bracket1 + bracket2 + bracket3 + 0.29 * (income - 150473);
    }
    else if (income > 97069) {
        tax = bracket1 + bracket2 + 0.26 * (income - 97069);
    }
    else if (income > 48535) {
        tax = bracket1 + 0.205 * (income - 48535);
    }
    else if (income <= 48535) {
        tax = 0.15 * income;
    }
    net = income - tax;
        cout << "\nTax income: " << tax << "$";
    cout << "\nNet income: " << net << "$\n";
    return 0;
}
```

```
Microsoft Visual Studio Debug Console
Enter your income: 255000

Tax income: 63052.9$
Net income: 191947$

E:\vsCode\Project Location\COEN 243 Ass
code 0.
To automatically close the console wher
le when debugging stops.
Press any key to close this window . .
```