```cpp
#include <iostream.h>
#include <iomanip.h>
#include <math.h>

//******************************************************************
//                Integer Calculator Program (Version 2)
//
//    This program implements a simple integer calculator using
// nested decision structures. In addition, a new type of looping
// structure called a "do-while" loop is demonstrated. These "do-while"
// loops are also nested.
//
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//******************************************************************

void main () {

    int
    choice,             //stores a user choice
    n,                  //first integer
    m,                  //second integer
    result;             //result of the operation

    //Display welcome banner
    cout << "Welcome to the integer calculator.\n";

    do {

        //Display the menu for the user
        cout << "\n1:  add\n";
        cout << "2:  subtract\n";
        cout << "3:  minimum\n";
        cout << "4:  maximum\n";
        cout << "5:  multiply\n";
        cout << "6:  quotient\n";
        cout << "7:  remainder\n";
        cout << "8:  exit calculator\n";

        // Ask for a valid choice
        do {
            cout << "Please make a choice: ";
            cin >> choice;
            if ((choice < 1) || (choice > 8))
                cout << "Choice out of range. Try again.\n";
        } while ((choice < 1) || (choice > 8));

        //Perform a computation
        if (choice != 8) {

            //Input the two integers
            cout << "Input the first integer: ";
            cin >> n;
            cout << "Input the second integer: ";
            cin >> m;

            if (choice == 1) {
                result = n + m;
                cout << "The sum is:  " << result << endl;
            } else if (choice == 2) {
                result = n - m;
                cout << "The difference is:  " << result << endl;
            } else if (choice == 3) {
                result = n;
                if (m < n)
                    result = m;
                cout << "The minimum is:  " << result << endl;
            } else if (choice == 4) {
                result = n;
                if (m > n)
                    result = m;
```
cout << "The maximum is:  " << result << endl;
}
else if (choice == 5) {
    result = n * m;
    cout << "The product is:  " << result << endl;
}
else if (choice == 6) {
    result = n / m;
    cout << "The quotient is:  " << result << endl;
}
else {
    result = n % m;
    cout << "The remainder is:  " << result << endl;
}
}
while (choice != 8);

//Say goodbye

cout << "\nGoodbye." << endl;