Activity No. <3.1>	
<Hands-on Activity 3.1: Control Structures >	
Course Code: CPE010	**Program:** Computer Engineering
Course Title: Hands-on Activity 3.1: Control Structures	**Date Performed: Aug 13 2025**
Section:CPE11S1	**Date Submitted: Aug 13 2025**
Name(s):Will Stuart D. Ponce Jr.	**Instructor: Engr. Jim Lord Quejado**

6. Output
Sample Output number 1:
Pseudo Code:
Enter account number (-1 to end): 100

Enter beginning balance: 5394.78

Enter total charges: 1000.00

Enter total credits: 500.00

Enter credit limit: 5500.00

Account: 100

Credit limit: 5500.00

Balance: 5894.78

Credit Limit Exceeded.

Enter account number (-1 to end): 200

Enter beginning balance: 1000.00

Enter total charges: 123.45

Enter total credits: 321.00

Enter credit limit: 1500.00

Enter account number (-1 to end): 300

Enter beginning balance: 500.00

Enter total charges: 274.73

Enter total credits: 100.00

Enter credit limit: 800.00

Enter account number (-1 to end): -1

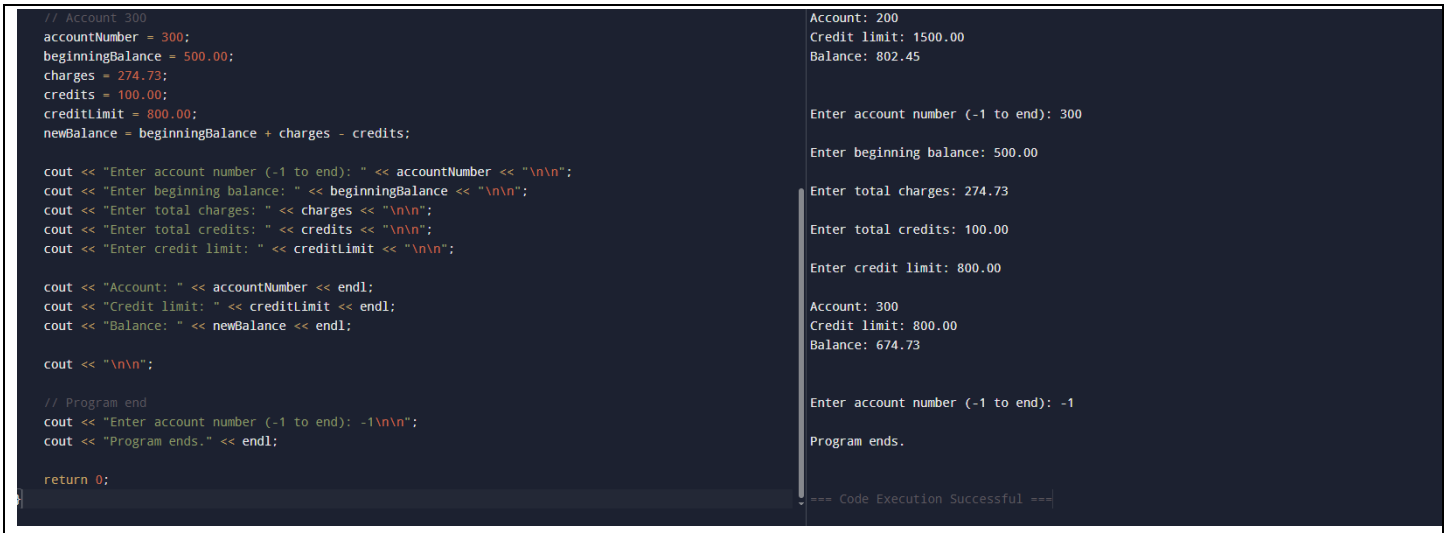
Program ends.

Answer:

```cpp
#include <iostream>
#include <iomanip>

using namespace std;

int main() {
    cout << fixed << setprecision(2); // Set output to 2 decimal places

    // Account 100
    int accountNumber = 100;
    double beginningBalance = 5394.78;
    double charges = 1000.00;
    double credits = 500.00;
    double creditLimit = 5500.00;
    double newBalance = beginningBalance + charges - credits;

    cout << "Enter account number (-1 to end): " << accountNumber << "\n\n";
    cout << "Enter beginning balance: " << beginningBalance << "\n\n";
    cout << "Enter total charges: " << charges << "\n\n";
    cout << "Enter total credits: " << credits << "\n\n";
    cout << "Enter credit limit: " << creditLimit << "\n\n";

    cout << "Account: " << accountNumber << endl;
    cout << "Credit limit: " << creditLimit << endl;
    cout << "Balance: " << newBalance << endl;

    if (newBalance > creditLimit) {
        cout << "\nCredit Limit Exceeded.\n";
    }

    cout << "\n\n";

    // Account 200
    accountNumber = 200;
    beginningBalance = 1000.00;
    charges = 123.45;
    credits = 321.00;
    creditLimit = 1500.00;
    newBalance = beginningBalance + charges - credits;

    cout << "Enter account number (-1 to end): " << accountNumber << "\n\n";
    cout << "Enter beginning balance: " << beginningBalance << "\n\n";
    cout << "Enter total charges: " << charges << "\n\n";
    cout << "Enter total credits: " << credits << "\n\n";
    cout << "Enter credit limit: " << creditLimit << "\n\n";

    cout << "Account: " << accountNumber << endl;
    cout << "Credit limit: " << creditLimit << endl;
    cout << "Balance: " << newBalance << endl;

    cout << "\n\n";

    // Account 300
    accountNumber = 300;
    beginningBalance = 500.00;
    charges = 274.73;
    credits = 100.00;
    creditLimit = 800.00;
    newBalance = beginningBalance + charges - credits;

    cout << "Enter account number (-1 to end): " << accountNumber << "\n\n";
    cout << "Enter beginning balance: " << beginningBalance << "\n\n";
    cout << "Enter total charges: " << charges << "\n\n";
    cout << "Enter total credits: " << credits << "\n\n";
    cout << "Enter credit limit: " << creditLimit << "\n\n";

    cout << "Account: " << accountNumber << endl;
    cout << "Credit limit: " << creditLimit << endl;
    cout << "Balance: " << newBalance << endl;

    cout << "\n\n";
```

```
Enter account number (-1 to end): 100

Enter beginning balance: 5394.78

Enter total charges: 1000.00

Enter total credits: 500.00

Enter credit limit: 5500.00

Account: 100
Credit limit: 5500.00
Balance: 5894.78

Credit Limit Exceeded.


Enter account number (-1 to end): 200

Enter beginning balance: 1000.00

Enter total charges: 123.45

Enter total credits: 321.00

Enter credit limit: 1500.00

Account: 200
Credit limit: 1500.00
Balance: 802.45


Enter account number (-1 to end): 300

Enter beginning balance: 500.00
```


```
Account: 100
Credit limit: 5500.00
Balance: 5894.78

Credit Limit Exceeded.


Enter account number (-1 to end): 200

Enter beginning balance: 1000.00

Enter total charges: 123.45

Enter total credits: 321.00

Enter credit limit: 1500.00

Account: 200
Credit limit: 1500.00
Balance: 802.45


Enter account number (-1 to end): 300

Enter beginning balance: 500.00
```



```
// Account 300
accountNumber = 300;
beginningBalance = 500.00;
charges = 274.73;
credits = 100.00;
creditLimit = 800.00;
newBalance = beginningBalance + charges - credits;

cout << "Enter account number (-1 to end): " << accountNumber << "\n\n";
cout << "Enter beginning balance: " << beginningBalance << "\n\n";
cout << "Enter total charges: " << charges << "\n\n";
cout << "Enter total credits: " << credits << "\n\n";
cout << "Enter credit limit: " << creditLimit << "\n\n";

cout << "Account: " << accountNumber << endl;
cout << "Credit limit: " << creditLimit << endl;
cout << "Balance: " << newBalance << endl;

cout << "\n\n";

// Program end
cout << "Enter account number (-1 to end): -1\n\n";
cout << "Program ends." << endl;

return 0;
}
```

```
Account: 200
Credit limit: 1500.00
Balance: 802.45


Enter account number (-1 to end): 300

Enter beginning balance: 500.00

Enter total charges: 274.73

Enter total credits: 100.00

Enter credit limit: 800.00

Account: 300
Credit limit: 800.00
Balance: 674.73


Enter account number (-1 to end): -1

Program ends.


=== Code Execution Successful ===
```

Sample Output number 2:
Pseudo Code:
Enter the gallons used (-1 to end): 12.8

Enter the miles driven: 287

The miles / gallon for this tank was 22.421875

Enter the gallons used (-1 to end): 10.3

Enter the miles driven: 200

The miles / gallon for this tank was 19.417475

Enter the gallons used (-1 to end): 5

Enter the miles driven: 120

The miles / gallon for this tank was 24.000000

Enter the gallons used (-1 to end):

The overall average miles/gallon was 21.601423
Answer:

```
    totalMiles += milesDriven;
    totalGallons += gallonsUsed;

    // Second tank
    gallonsUsed = 10.3;
    milesDriven = 200;

    cout << "Enter the gallons used (-1 to end): " << gallonsUsed << "\n";
    cout << "Enter the miles driven: " << milesDriven << "\n";
    mpg = milesDriven / gallonsUsed;
    cout << "The miles / gallon for this tank was " << mpg << "\n\n";

    totalMiles += milesDriven;
    totalGallons += gallonsUsed;

    // Third tank
    gallonsUsed = 5;
    milesDriven = 120;

    cout << "Enter the gallons used (-1 to end): " << gallonsUsed << "\n";
    cout << "Enter the miles driven: " << milesDriven << "\n";
    mpg = milesDriven / gallonsUsed;
    cout << "The miles / gallon for this tank was " << mpg << "\n\n";

    totalMiles += milesDriven;
    totalGallons += gallonsUsed;

    // End input
    cout << "Enter the gallons used (-1 to end): \n\n";

    // Calculate overall average MPG
    double overallMpg = totalMiles / totalGallons;
    cout << "The overall average miles/gallon was " << overallMpg << endl;

    return 0;
}
```

```
Enter the gallons used (-1 to end): 12.800000
Enter the miles driven: 287.000000
The miles / gallon for this tank was 22.421875

Enter the gallons used (-1 to end): 10.300000
Enter the miles driven: 200.000000
The miles / gallon for this tank was 19.417476

Enter the gallons used (-1 to end): 5.000000
Enter the miles driven: 120.000000
The miles / gallon for this tank was 24.000000

Enter the gallons used (-1 to end): -1

The overall average miles/gallon was 21.601423


=== Code Execution Successful ===
```

```cpp
#include <iostream>
#include <iomanip>

using namespace std;

int main() {
    cout << fixed << setprecision(6);

    // First tank
    double gallonsUsed = 12.8;
    double milesDriven = 287;
    double totalMiles = 0.0, totalGallons = 0.0;

    cout << "Enter the gallons used (-1 to end): " << gallonsUsed << "\n";
    cout << "Enter the miles driven: " << milesDriven << "\n";
    double mpg = milesDriven / gallonsUsed;
    cout << "The miles / gallon for this tank was " << mpg << "\n\n";

    totalMiles += milesDriven;
    totalGallons += gallonsUsed;

    // Second tank
    gallonsUsed = 10.3;
    milesDriven = 200;

    cout << "Enter the gallons used (-1 to end): " << gallonsUsed << "\n";
    cout << "Enter the miles driven: " << milesDriven << "\n";
    mpg = milesDriven / gallonsUsed;
    cout << "The miles / gallon for this tank was " << mpg << "\n\n";

    totalMiles += milesDriven;
    totalGallons += gallonsUsed;

    // Third tank
    gallonsUsed = 5;
    milesDriven = 120;
```

7. Supplementary Activity
Activity:
Number 3:
Pseudo Code:
START

PROMPT "Enter the weight of the parcel in grams"
READ weight

```
IF weight > 1000 THEN
   PRINT "Error: Parcel weight exceeds the maximum allowed (1000g)."
   STOP
ENDIF

IF weight <= 300 THEN
   cost = 5.00
ELSE
   extraWeight = weight - 300
   increments = CEILING(extraWeight / 100)  // round up to nearest whole number
   cost = 5.00 + (increments * 2.00)
ENDIF

PRINT "The cost of sending the parcel is: P" + cost

END
```

Answer:

```cpp
#include <iostream>
#include <cmath>    // for ceil function

using namespace std;

int main() {
    double weight;
    const double baseCharge = 5.00;
    const double additionalChargePer100g = 2.00;
    const double maxWeight = 1000.0;
    const double baseWeight = 300.0;

    cout << "Enter the weight of the parcel in grams: ";
    cin >> weight;

    if (weight > maxWeight) {
        cout << "Error: Parcel weight exceeds the maximum allowed (1000g)." << endl;
        return 1;
    }

    if (weight <= baseWeight) {
        cout << "The cost of sending the parcel is: P" << baseCharge << endl;
    } else {
        double extraWeight = weight - baseWeight;
        // Calculate how many 100g increments, rounding up
        int increments = static_cast<int>(ceil(extraWeight / 100.0));
        double totalCost = baseCharge + increments * additionalChargePer100g;

        cout << "The cost of sending the parcel is: P" << totalCost << endl;
    }

    return 0;
}
```

```
Enter the weight of the parcel in grams: 300
The cost of sending the parcel is: P5


=== Code Execution Successful ===
```

Number 4:

```
START

 // Convert cm to inches
 SET inputValue = 10
 convertedValue = inputValue / 2.54
 PRINT inputValue + " cm = " + convertedValue + " inches"

 // Convert inches to cm
 SET inputValue = 5
 convertedValue = inputValue * 2.54
 PRINT input Value + " inches = " + convertedValue + " cm"
```

// Convert feet to meters
SET input Value = 6
converted Value = input Value * 0.3048
PRINT input Value + " feet = " + converted Value + " meters"

// Convert meters to feet
SET input Value = 2
converted Value = input Value / 0.3048
PRINT input Value + " meters = " + converted Value + " feet"

PRINT "Demo completed."

END

Answer:

```cpp
#include <iostream>
#include <iomanip>
using namespace std;

int main() {
    cout << fixed << setprecision(4);

    // 1) cm to inches (example: 10 cm)
    float inputValue = 10.0;
    float convertedValue = inputValue / 2.54;
    cout << inputValue << " cm = " << convertedValue << " inches\n\n";

    // 2) inches to cm (example: 5 inches)
    inputValue = 5.0;
    convertedValue = inputValue * 2.54;
    cout << inputValue << " inches = " << convertedValue << " cm\n\n";

    // 3) feet to meter (example: 6 feet)
    inputValue = 6.0;
    convertedValue = inputValue * 0.3048;
    cout << inputValue << " feet = " << convertedValue << " meters\n\n";

    // 4) meter to feet (example: 2 meters)
    inputValue = 2.0;
    convertedValue = inputValue / 0.3048;
    cout << inputValue << " meters = " << convertedValue << " feet\n\n";

    cout << "Demo completed.\n";

    return 0;
}
```

```
10.0000 cm = 3.9370 inches

5.0000 inches = 12.7000 cm

6.0000 feet = 1.8288 meters

2.0000 meters = 6.5617 feet

Demo completed.


=== Code Execution Successful ===
```

Number 5:

Pseudo Code:

START

// Area of Circle
SET radius = 3.0
COMPUTE areaCircle = PI * radius * radius
PRINT "Area of circle with radius", radius, "=", areaCircle

// Area of Rectangle
SET length = 5.0
SET width = 4.0
COMPUTE areaRectangle = length * width
PRINT "Area of rectangle with length", length, "and width", width, "=", areaRectangle

// Area of Triangle
SET base = 6.0
SET height = 2.0
COMPUTE areaTriangle = 0.5 * base * height

PRINT "Area of triangle with base", base, "and height", height, "=", areaTriangle

// Area of Square
SET side = 7.0
COMPUTE areaSquare = side * side
PRINT "Area of square with side", side, "feet =", areaSquare

PRINT "Demo completed."

END

Answer:

```cpp
#include <iostream>
#include <iomanip>
using namespace std;

int main() {
    const float PI = 3.14159265;
    cout << fixed << setprecision(4);

    // 1) Area of Circle with radius = 3
    float radius = 3.0;
    float areaCircle = PI * radius * radius;
    cout << "Area of circle with radius " << radius << " = " << areaCircle << endl << endl;

    // 2) Area of Rectangle with length = 5 and width = 4
    float length = 5.0, width = 4.0;
    float areaRectangle = length * width;
    cout << "Area of rectangle with length " << length << " and width " << width << " = " << areaRectangle
        << endl << endl;

    // 3) Area of Triangle with base = 6 and height = 2
    float base = 6.0, height = 2.0;
    float areaTriangle = 0.5f * base * height;
    cout << "Area of triangle with base " << base << " and height " << height << " = " << areaTriangle <<
        endl << endl;

    // 4) Area of Square (feet) with side = 7
    float side = 7.0;
    float areaSquare = side * side;
    cout << "Area of square with side " << side << " feet = " << areaSquare << " square feet" << endl <<
        endl;

    cout << "Demo completed." << endl;

    return 0;
}
```

```
Area of circle with radius 3.0000 = 28.2743

Area of rectangle with length 5.0000 and width 4.0000 = 20.0000

Area of triangle with base 6.0000 and height 2.0000 = 6.0000

Area of square with side 7.0000 feet = 49.0000 square feet

Demo completed.


=== Code Execution Successful ===
```

8. Conclusion: Conclusion about this is hard to understand a little bit in programming but carry to do the assignment and project I m surprise if you the compiler or the programiz is more longer the process but in the dev c++ is short but not the quite impressive like the programiz c++.

9. Assessment Rubric