Activity No. 3.1	
Control Structures (part 2)	
Course Code: CPE007	**Program:** Computer Engineering
Course Title: Programming Logic and Design	**Date Performed: August 16, 2025**
Section:	**Date Submitted: August 18, 2025**
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6. Output

1.

```cpp
#include <iostream>
#include <iomanip>
using namespace std;
int main() {
    double accountnumber, beginningbalance, totalcharges, totalcredit =0, creditlimit, balance;

    while (true){
        cout<<"Enter account number (-1 to end): ";
        cin>>accountnumber;
        if (accountnumber <=-1){
            cout<<"Account Number not valid!";
            break;
        }
          cout<<"Enter beginning balance: ";
        cin>>beginningbalance;
        cout<<"Enter total charges: ";
        cin>>totalcharges;
        cout<<"Enter total credits: ";
        cin>>totalcredit;
        cout<<"Enter credit limit: ";
        cin>>creditlimit;
        cout<<"Account: "<<accountnumber<<endl;
        balance = beginningbalance + totalcharges - totalcredit;
        cout<<"Credit limit: "<<creditlimit<<endl;
        cout<<"Balance: "<<balance<<endl;

        if (balance > creditlimit){
            cout<<"Credit Limit Exceeded\n";
        }
        cout<<endl;
    }
    return 0;
}
```

```
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
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
Balance: 802.45

Enter account number (-1 to end): -1
Account Number not valid!

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

2.

```cpp
#include <iostream>
#include <iomanip>
using namespace std;
int main() {
    double gallons, miles, mpg;
    double totalGallons = 0.0, totalMiles = 0.0;
    double overallMPG = 0.0;

    while (true){
        cout<<"Enter the gallons used (-1 to end): ";
        cin>>gallons;
        if (gallons <=0){
            break;
        }
        cout<<"Enter the miles driven: ";
        cin>>miles;
        mpg = miles / gallons;
        cout<<"The miles / gallon for this tank was "<<fixed<<setprecision(6)<<mpg<<endl;
        cout<<endl;
        totalGallons += gallons;
        totalMiles += miles;
    }
      if (totalGallons > 0) {
        double overallMPG = totalMiles / totalGallons;
        cout << "The overall average miles/gallon was " << overallMPG << endl;
        }
      else {
        cout << "No data entered." << endl;
    }

    return 0;
}
```

```
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 19.417476

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): -1
The overall average miles/gallon was 21.601423


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

3.

```cpp
#include <iostream>
#include <cmath>
using namespace std;
int main() {
    double weight, cost;

    cout<<"Enter the weight of parcel (max 1000g): ";
    cin>>weight;
        if (weight <= 0) {
        cout << "Invalid weight." << endl;
    }
    else if (weight > 1000) {
        cout << "You already exceeded a maximum allowed weight (1000g). Please try again." << endl;
    }
    else {
        if (weight <= 300) {
            cost = 5.00;
        }
        else {
            int extraWeight = weight - 300;
            int extraUnits = ceil(extraWeight / 100.0);
            cost = 5.00 + extraUnits * 2.00;
        }

        cout << "Total cost: P" << cost << endl;
    }

return 0;
}
```

```
Enter the weight of parcel (max 1000g): 1000
Total cost: P19


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

4.

```cpp
#include <iostream>
using namespace std;
int main() {
 int choice;
    float value, result;
    char again = 'y';

    const float cm_to_inch = 0.393701;
    const float inch_to_cm = 2.54;
    const float feet_to_meter = 0.3048;
    const float meter_to_feet = 3.28084;

    while (again == 'y' || again == 'Y') {
        cout << "Unit Conversion Menu:\n";
        cout << "1. cm - inch\n";
        cout << "2. inch - cm\n";
        cout << "3. feet - meter\n";
        cout << "4. meter - feet\n";
        cout << "Select 1-4: ";
        cin >> choice;

        switch (choice) {
            case 1:
                cout << "Enter centimeter value: ";
                cin >> value;
                result = value * cm_to_inch;
                cout << value << " cm = " << result << " inch\n";
                break;

            case 2:
                cout << "Enter inch value: ";
                cin >> value;
                result = value * inch_to_cm;
                cout << value << " inch = " << result << " cm\n";
                break;

            case 3:
                cout << "Enter value in feet: ";
                cin >> value;
                result = value * feet_to_meter;
```

```
            cout << value << " feet = " << result << " meter\n";
            break;

        case 4:
            cout << "Enter meter value: ";
            cin >> value;
            result = value * meter_to_feet;
            cout << value << " meter = " << result << " feet\n";
            break;

        default:
            cout << "Invalid choice! Please select 1-4 only.\n";
            continue;
    }

    cout << "\nDo you want to continue? (y/n): ";
    cin >> again;
}

cout << "Thank you!\n";
return 0;
}
```

```
Unit Conversion Menu:
1. cm - inch
2. inch - cm
3. feet - meter
4. meter - feet
Select 1-4: 1
Enter centimeter value: 500
500 cm = 196.85 inch

Do you want to continue? (y/n): y
Unit Conversion Menu:
1. cm - inch
2. inch - cm
3. feet - meter
4. meter - feet
Select 1-4: 2
Enter inch value: 196.85
196.85 inch = 499.999 cm

Do you want to continue? (y/n): y
Unit Conversion Menu:
1. cm - inch
2. inch - cm
3. feet - meter
4. meter - feet
Select 1-4: 3
Enter feet value: 6
6 feet = 1.8288 meter

Do you want to continue? (y/n): y
Unit Conversion Menu:
1. cm - inch
2. inch - cm
3. feet - meter
4. meter - feet
Select 1-4: 4
Enter meter value: 1.8288
1.8288 meter = 6 feet

Do you want to continue? (y/n): n
Thank you!


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

5.

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

int main() {
    int choice;
    float radius, length, width, base, height, side;
    char again = 'y';

    while (again =='y' || again =='Y') {
        cout << "AREA CALCULATOR MENU\n";
        cout << "1. Area of Circle\n";
        cout << "2. Area of Rectangle\n";
        cout << "3. Area of Triangle\n";
        cout << "4. Area of Square\n";
        cout << "Select 1-4: ";
        cin >> choice;

        switch (choice) {
            case 1:
                cout << "Enter radius: ";
                cin >> radius;
                cout << "Area of Circle: " << M_PI * radius * radius << endl;
                break;

            case 2:
                cout << "Enter length: ";
                cin >> length;
                cout << "Enter width: ";
                cin >> width;
                cout << "Area of Rectangle: " << length * width << endl;
                break;

            case 3:
                cout << "Enter base: ";
                cin >> base;
                cout << "Enter height: ";
                cin >> height;
                cout << "Area of Triangle: " << 0.5 * base * height << endl;
                break;
```

```
            break;

        case 4:
            cout << "Enter side: ";
            cin >> side;
            cout << "Area of Square: " << side * side << endl;
            break;

        default:
            cout << "Invalid choice! Please select 1-4 only.\n";
            continue;
        }

        cout << "\nDo you want to continue? (y/n): ";
        cin >> again;
    }

    cout << "Thank you!\n";
    return 0;
}
```

```
AREA CALCULATOR MENU
1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
Select 1-4: 1
Enter radius: 40
Area of Circle: 5026.55

Do you want to continue? (y/n): y
AREA CALCULATOR MENU
1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
Select 1-4: 2
Enter length: 40
Enter width: 30
Area of Rectangle: 1200

Do you want to continue? (y/n): y
AREA CALCULATOR MENU
1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
Select 1-4: 3
Enter base: 20
Enter height: 26
Area of Triangle: 260

Do you want to continue? (y/n): y
AREA CALCULATOR MENU
1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
Select 1-4: 4
Enter side: 40
Area of Square: 1600

Do you want to continue? (y/n): n
Thank you!


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

7. Supplementary Activity

8. Conclusion
This activity is a big help to my learning curve on coding. It gives me glimpse on how to create a control structure function in coding so that you can create a product that needs a control structure like calculators and apps that has a menu. Not only I learned in this activity, it will also help you to calculate values faster by programming a calculator-like programs. I appreciate on how developers, programmers, and engineers make software that helps our daily lives. I also appreciate on how they are transferring their knowledge to student like us so that we can also help to advance our technologies more.
9. Assessment Rubric