

Activity No. 1	
REVIEW OF C++ PROGRAMMING	
<b>Course Code:</b> CPE010	<b>Program:</b> Computer Engineering
<b>Course Title:</b> Data Structures and Algorithms	<b>Date Performed:</b> 09/09/24
<b>Section:</b> CPE21S4	<b>Date Submitted:</b> 09/10/2024
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<b>6. Output</b>	
Sections	Answers
Header File Declaration Section	<code>#include &lt;iostream&gt;</code>
Global Declaration Section	<code>int main () {</code>
Class Declaration and Method Definition Section	<pre> class Triangle { private:     double totalAngle, angleA, angleB, angleC;  public:     Triangle(double A, double B, double C);     void setAngles(double A, double B, double C);     bool validateTriangle() const; // Correct return type }; </pre>
Main Function	<pre> int main() {     Triangle set1(40, 30, 110);     if (set1.validateTriangle()) {         std::cout &lt;&lt; "The shape is a valid triangle.\n";     } else {         std::cout &lt;&lt; "The shape is NOT a valid triangle.\n";     }     return 0; } </pre>
Method Definition	<pre> Triangle::Triangle(double A, double B, double C) {     angleA = A;     angleB = B;     angleC = C;     totalAngle = A + B + C; }  void Triangle::setAngles(double A, double B, double C) {     angleA = A;     angleB = B;     angleC = C;     totalAngle = A + B + C; } </pre>

```
bool Triangle::validateTriangle() const {  
    return (totalAngle == 180);  
}
```

## 7. Supplementary Activity

### 1. Create a C++ program to swap the two numbers in different variables

```
1 // Create a C++ program to swap the two numbers in different variables  
2 #include <iostream>  
3 using namespace std;  
4  
5 int main()  
6 {  
7     int x, y, z, a, b;  
8  
9     cout << "Value of x: ";  
10    cin >> x;  
11    cout << "Value of y: ";  
12    cin >> y;  
13  
14    cout << "The output of the values before swapping is: " << x << ", with: " << y << endl;  
15    cout << "" << endl;  
16    cout << "afterwards..." << endl;  
17    cout << "" << endl;  
18  
19    z = x + y;  
20    a = z - x;  
21    b = z - y;  
22  
23    cout << "The output values after swapping is:" << a << ",with: " << b << endl;  
24  
25    return 0;  
26 }  
27  
28
```

Link to this code: [\[copy\]](#)

Run

options compilation execution

```
Value of x: 5  
Value of y: 10  
The output of the values before swapping is: 5, with: 10  
  
afterwards...  
  
The output values after swapping is:10,with: 5
```

```
1 //Create a C++ program that has a function to convert temperature in Kelvin to Fahrenheit.
2 #include <iostream>
3 using namespace std;
4
5 int main() {
6     float kelvin, fahrenheit;
7
8     cout << "Enter the value of temperature in Kelvin: ";
9     cin >> kelvin;
10    cout << "" << endl;
11
12    fahrenheit = 1.8 * (kelvin-273.15) +32;
13
14    cout << "Therefore the value of the temperature after converting it to fahrenheit is:" << fahrenheit << endl;
15
16    return 0;
17 }
18
19
20
21
22
```

Link to this code: [\[copy\]](#)

Run

[options](#) [compilation](#) [execution](#)

Enter the value of temperature in Kelvin: 45

Therefore the value of the temperature after converting it to fahrenheit is:-378.67

```
1 //Create a C++ program that has a function that will calculate the distance between two points
2 #include <iostream>
3 #include <cmath>
4 using namespace std;
5
6 int main() {
7     float a1,a2,b1,b2;
8
9     cout << "Enter the x value of the first point: ";
10    cin >> a1;
11    cout << "Enter the y value of the first point: ";
12    cin >> a2;
13    cout << "Enter the x value of the second point: ";
14    cin >> b1;
15    cout << "Enter the y value of the second point: ";
16    cin >> b2;
17    cout << "" << endl;
18
19    float first = (b1 - a1)*(b1 - a1) ;
20    float second = (b2 - a2)*(b2 - a2);
21    float sum = first + second;
22    float distance = sqrt(sum);
23
24    cout << "Therefore the distance between two points is:" << distance << endl;
25
26    return 0;
27 }
28
29
30
31
32
```

Link to this code: [\[copy\]](#)

Run

options compilation execution

Enter the x value of the first point: 5  
Enter the y value of the first point: 10  
Enter the x value of the second point: 5  
Enter the y value of the second point: 20

Therefore the distance between two points is:10

Normal program termination. Exit status: 0

```
1 #include <iostream>
2 #include <cmath>
3 using namespace std;
4
5 float resultArea(float height, float base) {
6     return (base * height) / 2;
7 }
8
9 float resultPerimeter(float sideA, float sideB, float sideC) {
10     return sideA + sideB + sideC;
11 }
12
13 string typeOfTriangle(float sideA, float sideB, float sideC) {
14     float sideA2 = sideA * sideA;
15     float sideB2 = sideB * sideB;
16     float sideC2 = sideC * sideC;
17
18     if (sideA + sideB > sideC && sideB + sideC > sideA && sideA + sideC > sideB) {
19         if (sideA2 + sideB2 > sideC2 && sideB2 + sideC2 > sideA2 && sideA2 + sideC2 > sideB2) {
20             return "The figure is an Acute-angled triangle";
21         } else if (sideA2 + sideB2 == sideC2 || sideB2 + sideC2 == sideA2 || sideA2 + sideC2 == sideB2) {
22             return "The figure is a Right-angled triangle";
23         } else {
24             return "The figure is an Obtuse-angled triangle";
25         }
26     } else {
27         return "Not a valid triangle";
28     }
29 }
30
31 int main() {
32     float sideA, sideB, sideC, base, height;
33
34     cout << "Enter the measurement of the first side of the triangle: ";
35     cin >> sideA;
36     cout << "Enter the measurement of the second side of the triangle: ";
37     cin >> sideB;
38     cout << "Enter the measurement of the third side of the triangle: ";
39     cin >> sideC;
40     cout << "Enter the measurement of the base of the triangle: ";
41     cin >> base;
42     cout << "Enter the measurement of the height of the triangle: ";
43     cin >> height;
44
45     float area = resultArea(height, base);
46     float perimeter = resultPerimeter(sideA, sideB, sideC);
47     string type = typeOfTriangle(sideA, sideB, sideC);
48
49     cout << "Area of the triangle: " << area << endl;
50     cout << "Perimeter of the triangle: " << perimeter << endl;
51     cout << "Type of triangle: " << type << endl;
52
53     return 0;
54 }
```

Link to this code: [\[copy\]](#)

Run

options compilation execution

```
Enter the measurement of the first side of the triangle: 5
Enter the measurement of the second side of the triangle: 4
Enter the measurement of the third side of the triangle: 3
Enter the measurement of the base of the triangle: 7
Enter the measurement of the height of the triangle: 8
Area of the triangle: 28
Perimeter of the triangle: 12
Type of triangle: The figure is a Right-angled triangle
```

Normal program termination. Exit status: 0

## 8. Conclusion

In this activity, we were taught how to create a basic C++ code as a way for us to review as it was already taught to us before. We were taught again how to use the basics such as data types, operators, Bitwise Operators, and more. Unlike Python, c++ for me is a more sensitive type of programming language since you need to perform extra steps such as making sure to include header files and other necessary libraries, or else your code will not work, an example of a library would be the <cmath> for when you need to create a code that include a complex math problem and you need to be very meticulous in inputting your code as one small mistake can make the code not work. The supplementary activity helped me brush up my coding skills with C++ which was easy once I got used to it, however, I did observe that I had a lot of errors especially forgetting to put ";" which I was not used to since the second sem last year, I was more used to python. Overall my performance was satisfactory, I think that the most important part for my improvement would be practicing more and reviewing more about the functions since some of them I have already forgotten.

## 9. Assessment Rubric