Philip Pesic

Week 6

September 25 2022

Week 6 Prog 3

Convert problems 3,5,6,7 in to template classes, of week 5.

Test each with Implicit int, float, double, long int.

```
//
//  main.cpp
//  Week 6 Prog 3
//
//  Created by Pippo Pesic on 9/25/22.
//

#include <iostream>
using namespace std;

template <class T>
class box {
        T width, height, depth;
public:
        T getWidth(void) {
        return width;
```

Philip Pesic

Week 6

September 25 2022

Week 6 Prog 3

```
}
void setWidth(T inWidth) {
width = inWidth;
}

T getHeight(void) {
return height;
}
void setHeight(T inHeight) {
height = inHeight;
}

T getDepth(void) {
return depth;
}
void setDepth(T inDepth) {
depth = inDepth;
}

T calcArea() {
T area = (( height * width ) * 4)  + ( ( depth * width ) * 2);
```

Philip Pesic

Week 6

September 25 2022

Week 6 Prog 3

```
        return area;
        }

        T calcVolume() {
        T volume = height * width * depth;
        return volume;
        }

};

int main() {
        box<int> B1;
        B1.setWidth(2);
        B1.setHeight(3);
        B1.setDepth(4);
        cout << "Height = " << B1.getHeight() << endl;
        cout << "Area = " << B1.calcArea() << endl;
        cout << "Volume = " << B1.calcVolume() << endl;
        // Box 2 - Test zero value error for calc Area and Volume of sides functions
        box<double> B2;
        B2.setWidth(3);
```

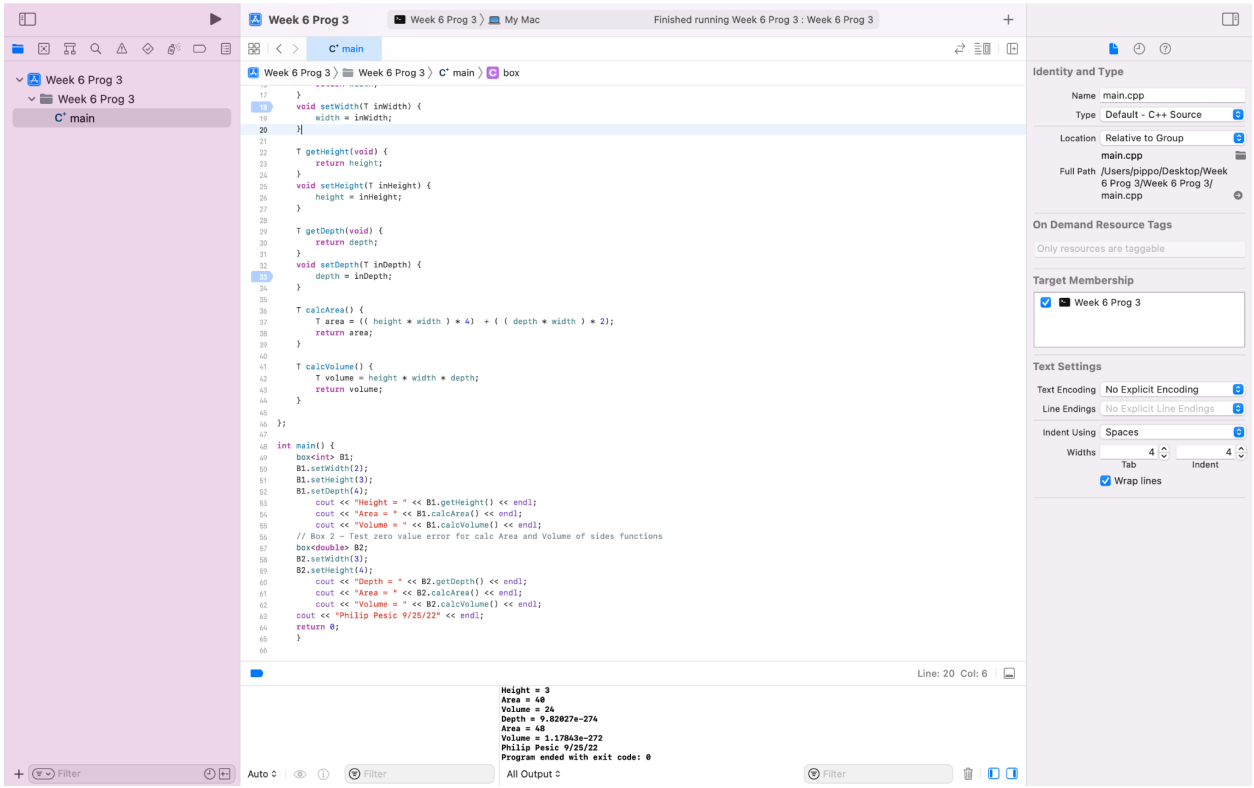
Philip Pesic

Week 6

September 25 2022

Week 6 Prog 3

```
        B2.setHeight(4);
        cout << "Depth = " << B2.getDepth() << endl;
        cout << "Area = " << B2.calcArea() << endl;
        cout << "Volume = " << B2.calcVolume() << endl;
        cout << "Philip Pesic 9/25/22" << endl;
        return 0;
        }
```



I learned: how to write templates and template classes

Philip Pesic

Week 6

September 25 2022

Week 6 Prog 3

box
-height: T -width: T -depth: T
+setHeight (inHeight: T) return inHeight = height +getHeight (height: T) return void +setDepth (inDepth: T) return inDepth = depth +getDepth (depth: T) return void +setWidth (inWidth: T) return inWidth = width +getWidth (width: T) return void +calcArea (area: T) return ((height * width) * 4) + ((depth * width) * 2) +calcVolume (volume: T) return height*width*depth