

**Polytechnic University of Puerto Rico**  
**Electrical and Computer Engineering & Computer Science Department**  
**CECS 2223 – Computer Programming II Lab**

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**Lab 1**

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1. Copy the source code developed for Lab 1 and paste it as **text** below. (15 points)

```
/*
 * CECS 2223, Computer Programming II Laboratory
 * Fall 2023, Sec. 09
 * Date: August 15, 2023
 * Topic: OOD Review
 * File name: Box.cpp
 * Name: Coral S. Schmidt, ID#148830
 * This file defines the Box class
 */
// do we need any preprocessor directives?
#include "Box.h"
// define the default constructor; assign 0 to all fields
Box::Box()
{
    height = 0;
    width = 0;
    length = 0;
}

// The set methods DO NOT prompt the user for values
// or include any cout or printf statements.
// Make sure that the values received as parameters
// are valid.
void Box::setHeight(int aHeight)
{
    if (aHeight > 0)
        height = aHeight;
}

void Box::setWidth(int aWidth)
{
    if (aWidth > 0)
        width = aWidth;
}

void Box::setLength(int aLength)
{
    if (aLength > 0)
        length = aLength;
}

// define the get methods, they should all be constant
int Box::getHeight() const
{
    return height;
}
```

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```
}

int Box::getWidth()const
{
    return width;
}

int Box::getLength() const
{
    return length;
}

int Box::getArea() const
{
    return (2*length*width)+(2*length*height)+(2*height*width);
}

int Box::getVolume() const
{
    return length*width*height;
}

// The printBox method uses printf to output values formatted
// to be displayed in a table, 8 spaces per column.
// The values to be displayed are: height, width, length,
// area, and volume. All values must be
// printed in the same line.

void Box::printBox() const
{
    printf("Height: %i\tWidth: %i\tLength: %i\tArea: %i\tVolume: %i\n", height,
width, length, getArea(), getVolume());
}
/*
* CECS 2223, Computer Programming II Lab
* Fall 2023, Sec. 09
* Date: August 15, 2023
* Topic: OOD Review
* File name: lab01.cpp
* Name: Coral S. Schmidt, ID#148830
* Complete the C++ code as required
*/
// do we need any preprocessor directives?
#include "Box.h"
#include <iostream>

// the main function returns an integer value, should be 0

int main() {
    // declare a Box object, named box1
    Box(box1);

    // assign a height of 20, width of 7 and a length of 3 to box1
```

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```
box1.setHeight(20);
box1.setWidth(7);
box1.setLength(3);

// declare a Box object, named box2
Box box2;

// assign a height of 5, width of 4, and length of 12 to box2
box2.setHeight(5);
box2.setWidth(4);
box2.setLength(12);

// declare a Box object, named box3
Box box3;

// assign a height of 10, width of 9, and length of 8 to box3
box3.setHeight(10);
box3.setWidth(9);
box3.setLength(8);

printf("The boxes created have the following dimensions:\n");

// table headers
printf("%s      %s      %s      %s      %s\n", "HEIGHT",
"WIDTH", "LENGTH", "AREA", "VOLUME");

// using printBox method, print the dimensions for each Box object
box1.printBox();
box2.printBox();
box3.printBox();

// write a statement which prints the phrase
// "Program developed by [YOUR NAME], ID#[YOUR ID NUMBER]"
// where the square brackets and the text within is substituted with
// your personal information. Make sure to include a blank line
// before and after the phrase.
printf("\nProgram developed by Coral S. Schmidt, ID#148830\n");

system("pause"); // for Visual Studio use only
return 0; // this statement MUST be included at the end of main
}
/*
* CECS 2223, Computer Programming II Laboratory
* Fall 2023, Sec. 09
* Date: August 15, 2023
* Topic: OOD Review
* File name: Box.h
* This file declares a class named Box
* Name: Coral S. Schmidt, ID#148830
*
* This file contains errors, find and correct them!
*/
#pragma once
// write the required preprocessor directive
```

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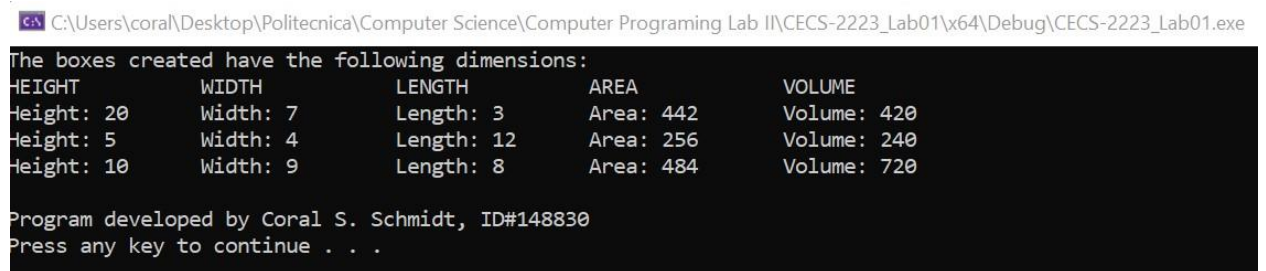
---

```
#include <iostream>

// write the using directive
using namespace std;

class Box {
private:
    int height = 0;
    int width = 0;
    int length = 0;
public:
    Box();
    void setHeight(int);
    void setWidth(int);
    void setLength(int);
    int getHeight()const;
    int getWidth()const;
    int getLength()const;
    int getArea()const;
    int getVolume()const;
    void printBox() const;
};
```

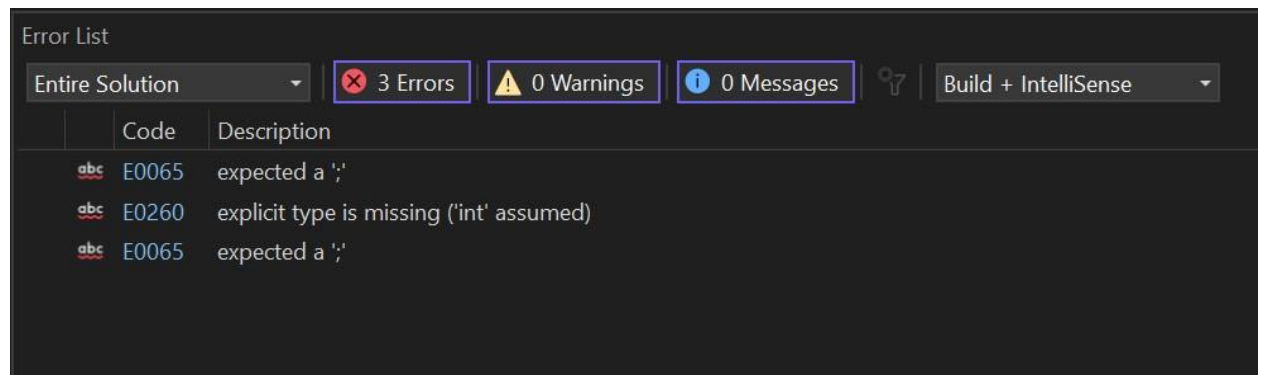
2. Paste the screenshots of the program's execution below. (5 points)



```
C:\Users\coral\Desktop\Politecnica\Computer Science\Computer Programming Lab II\CECS-2223_Lab01\x64\Debug\CECS-2223_Lab01.exe
The boxes created have the following dimensions:
HEIGHT      WIDTH      LENGTH      AREA      VOLUME
Height: 20   Width: 7     Length: 3    Area: 442   Volume: 420
Height: 5     Width: 4     Length: 12   Area: 256   Volume: 240
Height: 10    Width: 9     Length: 8    Area: 484   Volume: 720

Program developed by Coral S. Schmidt, ID#148830
Press any key to continue . . .
```

3. Comment on any warnings or errors revealed by Visual Studio. If any error messages were present, list the error and describe how you corrected it. (5 points)



Error:  
public:

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```
Box();  
void setHeight(int);  
void setWidth(int);  
void setLength(int);  
int getHeight(); const  
int getWidth();  
int getLength();  
int getArea(const);  
int getVolume();  
void printBox() const;  
}
```

Fixed error:

```
public:  
    Box();  
    void setHeight(int);  
    void setWidth(int);  
    void setLength(int);  
    int getHeight()const;  
    int getWidth()const;  
    int getLength()const;  
    int getArea()const;  
    int getVolume() const;  
    void printBox() const;  
};
```

I corrected them by adding the “;” after the “}”. In addition, I moved and added const after the “( )” to all the get methods.