

Philip Pesic

Week 3

September 4 2022

Week 3 Prog 4

Assignment:

In one program, write 3 functions, and use them. 1) Write the function body for each: int squareInteger s(int x) double squareDouble(double d) float squareFloat (float f) They basically do the same thing, square a number, but use different argument datatypes. 2) Test Each function: Using int 4, double 4.9, float 9.4 What happened when you use the 1 correct data type as input ? What happens when you use the 2 incorrect data types as inputs ? What is the lesson this teaches you about functions?

Source:

```
//  
// main.cpp  
// Week 3 Prog 4  
//  
// Created by Pippo Pesic on 9/4/22.  
//  
  
#include <iostream>  
#include <cmath>  
using namespace std;  
int squareInteger( int x){  
    return pow(x, 2);  
}  
double squareDouble( double d){  
    return pow(d, 2);  
}  
float squareFloat ( float f){  
    return pow(f, 2);  
}  
  
int main() {  
    int x = 4;  
    double d = 4.9;  
    float f = 9.4;  
  
    cout << "squareInteger(4)=" << squareInteger(x) << endl;  
    cout << "squareInteger(4.9)=" << squareInteger(d) << endl;  
    cout << "squareInteger(9.4)=" << squareInteger(f) << endl;
```

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```
cout << "squareDouble(4)=" << squareDouble(x) << endl;
cout << "squareDouble(4.9)=" << squareDouble(d) << endl;
cout << "squareDouble(9.4)=" << squareDouble(f) << endl;

cout << "squareFloat(4)=" << squareFloat(x) << endl;
cout << "squareFloat(4.9)=" << squareFloat(d) << endl;
cout << "squareFloat(9.4)=" << squareFloat(f) << endl;

cout << "Philip Pesic 9/4/22" << endl;
return 0;
}
```

Screenshot:

The screenshot shows a C++ IDE with the following components:

- Left Panel:** A file explorer showing the project structure with 'Week 3 Prog 4' and 'C' main'.
- Editor:** The source code for 'Week 3 Prog 4' is displayed. It includes headers for `<iostream>` and `<cmath>`, uses the `std` namespace, and defines functions `squareInteger`, `squareDouble`, and `squareFloat`. The `main` function calls these functions with various arguments and prints the results.
- Right Panel:** The 'Identity and Type' sidebar shows the file name 'main.cpp', its type 'Default - C++ Source', and its location relative to the group 'main.cpp'. It also shows the full path and the target membership 'Week 3 Prog 4'.
- Output Window:** The output of the program is shown at the bottom, displaying the results of the function calls and the final message 'Philip Pesic 9/4/22'.

```
squareInteger(4)=16
squareInteger(4.9)=16
squareInteger(9.4)=81
squareDouble(4)=16
squareDouble(4.9)=24.01
squareDouble(9.4)=88.36
squareFloat(4)=16
squareFloat(4.9)=24.01
squareFloat(9.4)=88.36
Philip Pesic 9/4/22
Program ended with exit code: 0
```

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I learned: When a variable of an incorrect data type is passed into the function, the function will convert that variable into whatever datatype the argument was declared with. If a function expects an integer, and I pass in a float or double, the function will convert my argument into an integer. If I use the argument of the correct data type, I will get the expected result. I learned that functions will convert the argument into the data type that the function expects.