Laboratory 03B

CS-102

Spring 2022

Laboratory 03B
Case 0

- Using no formatting write and run a program which includes the following features:
  - #include <iomanip> //required for this
  - //assume this data
  - string item1, item2;
  - double price1, price2;
  - item1 = "Buffalo Wings";
  - item2 = "Nachos";
  - price1 = 10.50;
  - price2 = 8.50;
  - //cout with no formatting
  - cout << item1 << " $" << price1 << endl;
  - cout << item2 << " $" << price2 << endl << endl;
- What is the result that you get?

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Case 1

- Now we will begin to format the result to improve the way it appears.
- Add 2 decimal places for all decimal numbers
  - cout << setprecision(2) << fixed; //requires iomanip
  - cout << item1 << " $" << price1 << endl;
  - cout << item2 << " $" << price2 << endl;
  - cout << endl; // CASE 1:
- Save the code as: *YourName*_Lab03B-1.cpp
- If you are doing this Lab synchronously, show your result to the instructor to receive proper credit.
- If you are doing this Lab asynchronously, submit your result to Canvas.

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Case 2

- Now add field width for numbers
  - cout << item1 << " $" << setw(6) << price1 << endl;
  - cout << item2 << " $" << setw(6) << price2 << endl;
  - cout << endl; // **CASE 2:**

- Save the code as: *YourName*_Lab03B-2.cpp
- If you are doing this Lab synchronously, show your result to the instructor to receive proper credit.
- If you are doing this Lab asynchronously, submit your result to Canvas.

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Case 3

- Note that Case 2 didn't line up because strings are different lengths
- You added field width for strings
- But now the strings need to line up
- Try the following amendments to the program.
  - cout << setw(15) << item1 << " $" << setw(6) << price1 << endl;
  - cout << setw(15) << item2 << " $" << setw(6) << price2 << endl;
  - cout << endl; // **CASE 3:**
- What do you get now when you run the amended program?
- Save the code as: *YourName*_Lab03B-3.cpp
- If you are doing this Lab synchronously, show your result to the instructor to receive proper credit.
- If you are doing this Lab asynchronously, submit your result to Canvas.

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Case 4

- What resulted from the default was to right align everything
- Now strings need left alignment
- Hence we need to left align strings
- Try the following enhancement to the program.
  - cout << left << setw(15) << item1 << " $" << right << setw(6) << price1 << endl;
  - cout << left << setw(15) << item2 << " $" << right << setw(6) << price2 << endl;
  - cout << endl; // CASE 4:
- Save the code as: *YourName*_Lab03B-4.cpp
- If you are doing this Lab synchronously, show your result to the instructor to receive proper credit.
- If you are doing this Lab asynchronously, submit your result to Canvas.

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Case 5

- But now we have a different number of spaces between the $ and the amount.
- Let's use the Library: #include <sstring>, and format your program so that the final result looks like:

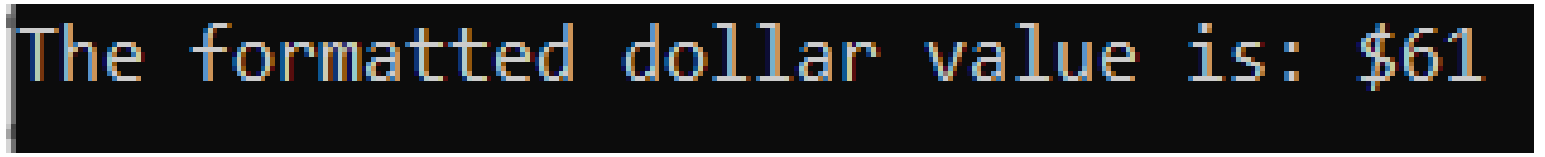
CASE 5

```
Buffalo Wings     $10.50
Nachos             $8.50
```

- The StringStream Library allows us to combine numeric with string types in a data stream and convert the result to a pure string.
- This allows us better control over how our data is ultimately displayed.

Example of Use of String Stream Library

```
#include<iostream>
#include<sstream>
using namespace std;
main()
{
  int dollars = 61;                  // Step 1: Define numeric quantity
  stringstream my_ss;                // Step 2: Define String Stream variable
  my_ss << "$" << dollars;           // Step 3: Combine your numeric quantity with your string quantity using <<
  string result = my_ss.str();       // Step 4: Change your String Stream variable into a String Variable using .str()
  cout << "The formatted dollar value is: " << result;   // Now you can use your new string Variable for output
  cin.get();
  return 0;
}
```



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Case 5

- Note that we now have full control over our output, due to this library.
- So, using StringStream, make your output look like that shown below.

CASE 5

```
Buffalo Wings     $10.50
Nachos             $8.50
```

- Show your results for cases 1 – 5, and show the code that you used for case 5, in particular.
- Save the code as: *YourName*_Lab03B-5.cpp
- If you are doing this Lab synchronously, show your result to the instructor to receive proper credit.
- If you are doing this Lab asynchronously, submit your result to Canvas.