COSC 120-002 Lab 1 Report
Charles Reigle

Lab 1.1

Source Code

```
1   // This program will take a number and divide it by 2.
2
3   // Charles Reigle
4
5   #include <iostream>
6   using namespace std;
7
8   int main()
9   {
10      float number;
11      int divider;
12
13      divider = 0;
14
15      cout << "Hi there" << endl;
16      cout << "Please input a number and then hit return" << endl;
17      cin >> number;
18
19      number = number / divider;
20
21      cout << "Half of your number is " << number << endl;
22
23      return 0;
24  }
25
```

Output

```
Now is the time for all good men
To come to the aid of their party

Process returned 0 (0x0)   execution time : 0.090 s
Press any key to continue.
```

Lab 1.2

Source Code

```cpp
// This program demonstrates a compile error.

// Charles Reigle

#include <iostream>
using namespace std;

int main()
{
    int number;
    float total;

    cout << "Today is a great day for Lab";
    cout << endl << "Let's start off by typing a number of your choice" << endl;
    cin >> number;

    total = number * 2;
    cout << total << " is twice the number you typed" << endl;

    return 0;
}
```

Output

```
Today is a great day for Lab
Let's start off by typing a number of your choice
9
18 is twice the number you typed
```

```
Today is a great day for Lab
Let's start off by typing a number of your choice
10
20 is twice the number you typed
```

```
Today is a great day for Lab
Let's start off by typing a number of your choice
150
300 is twice the number you typed
```

Question Answer

The output of the code is valid because when you enter in any number other than the one specified in the instructions, you still get the number * 2 as the answer.

Lab 1.3

Source Code

```
1   // This program will take a number and divide it by 2.
2
3   // Charles Reigle
4
5   #include <iostream>
6   using namespace std;
7
8   int main()
9   {
10      float number;
11      int divider;
12
13      divider = 2;
14
15      cout << "Hi there" << endl;
16      cout << "Please input a number and then hit return" << endl;
17      cin >> number;
18
19      number = number / divider;
20
21      cout << "Half of your number is " << number << endl;
22
23      return 0;
24  }
```

Output

```
Hi there
Please input a number and then hit return
9
Half of your number is 4.5
```

```
Hi there
Please input a number and then hit return
10
Half of your number is 5
```

```
Hi there
Please input a number and then hit return
1235
Half of your number is 617.5
```

Question Answer

The output is valid because it is properly dividing every number by 2 and returning it in the correct format.

Lab 1.4

Source Code

Before fix:

```
1  // This program takes two values from the user and then swaps them
2  // before printing the values. The user will be prompted to enter
3  // both numbers.
4
5  // Charles Reigle
6
7  #include <iostream>
8  using namespace std;
9
10 int main()
11 {
12     float firstNumber;
13     float secondNumber;
14
15     // Prompt user to enter the first number.
16     cout << "Enter the first number" << endl;
17     cout << "Then hit enter" << endl;
18     cin >> firstNumber;
19
20     // Prompt user to enter the second number.
21     cout << "Enter the second number" << endl;
22     cout << "Then hit enter" << endl;
23     cin >> secondNumber;
24
25     // Echo print the input.
26     cout << endl << "You input the numbers as " << firstNumber
27          << " and " << secondNumber << endl;
28
29     // Now we will swap the values.
30     firstNumber = secondNumber;
31     secondNumber = firstNumber;
32
33     // Output the values.
34     cout << "After swapping, the values of the two numbers are "
35          << firstNumber << " and " << secondNumber << endl;
36
37     return 0;
38 }
```

After Fix:

```
 9
10  int main()
11  {
12      float firstNumber;
13      float secondNumber;
14
15      // Prompt user to enter the first number.
16      cout << "Enter the first number" << endl;
17      cout << "Then hit enter" << endl;
18      cin >> firstNumber;
19
20      // Prompt user to enter the second number.
21      cout << "Enter the second number" << endl;
22      cout << "Then hit enter" << endl;
23      cin >> secondNumber;
24
25      // Echo print the input.
26      cout << endl << "You input the numbers as " << firstNumber
27           << " and " << secondNumber << endl;
28
29      // Now we will swap the values.
30      float firstSwapped = secondNumber;
31      float secondSwapped = firstNumber;
32
33      // In the case that you want to use the swapped values for later,
34      // but also want to use the original variables rather than the new ones
35      // Like done in the output code
36
37      secondNumber = secondSwapped;
38      firstNumber = firstSwapped;
39
40      // Output the values.
41      cout << "After swapping, the values of the two numbers are "
42           << firstNumber << " and " << secondNumber << endl;
43
44      return 0;
45  }
```

Output

Before Fixed:

```
Enter the first number
Then hit enter
9
Enter the second number
Then hit enter
4

You input the numbers as 9 and 4
After swapping, the values of the two numbers are 4 and 4
```

After Fixed:

```
Enter the first number
Then hit enter
9
Enter the second number
Then hit enter
4

You input the numbers as 9 and 4
After swapping, the values of the two numbers are 4 and 9
```

Question Answer

Instead of swapping the values, it returns the same value twice. This is because, when it assigns firstNumber = secondNumber, it then goes and assigns secondNumber = firstNumber, just duplicating the number, because the original firstNumber is lost.

Lab 1.5

Source Code

```
1  // A program that takes in a value representing kilometers, and returns that distance in miles
2
3  // Charles Reigle
4
5  #include <iostream>
6  using namespace std;
7
8  int main()
9  {
10
11     float kil;
12     float conversion = 0.621;
13     float miles;
14
15     cout << "Please enter an amount of kilometers in numerical value, then hit enter" << endl;
16     cin >> kil;
17
18     miles = kil * conversion;
19
20     cout << "You entered " << kil << " kilometers. This is equal to " << miles << " miles" << endl;
21
22
23 return 0;
24 }
25
```

Output

```
Please enter an amount of kilometers in numerical value, then hit enter
3.1415
You entered 3.1415 kilometers. This is equal to 1.95087 miles
```

```
Please enter an amount of kilometers in numerical value, then hit enter
5
You entered 5 kilometers. This is equal to 3.105 miles
```

Checking the calidity of results: