

COSC 120 Lab 6 Report

Charles Reigle

Lab 6.1

Source Code

```
1 // This program prints the proverb
2 // "Now is the time for all good men to come to the aid of their party"
3 // in a function (procedure) called writeProverb that is called by the main function
4
5 // Charles Reigle
6
7 #include <iostream>
8 using namespace std;
9
10 void writeProverb(); // This is the prototype for the writeProverb function
11
12 int main()
13 {
14     writeProverb();
15
16     return 0;
17 }
18
19 //*****
20 // writeProverb
21 //
22 // task: This function prints a proverb
23 // data in: none
24 // data out: no actual parameter altered
25 //
26 //*****
27
28 void writeProverb() {
29     cout << "Now is the time for all good men to come to the aid of their party" << endl;
30 }
31
```

Output

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

Lab 6.2

Source Code

Exercise 1:

```
1 // This program will allow the user to input from the keyboard
2 // whether the last word to the following proverb should be party or country:
3 // "Now is the time for all good men to come to the aid of their ___"
4 // Inputting a 1 will use the word party. Any other number will use the word country.
5
6 // Charles Reigle
7
8 #include <iostream>
9 #include <string>
10 using namespace std;
11
12 void writeProverb(int);
13
14 int main()
15 {
16     int wordCode;
17
18     cout << "Given the phrase:" << endl;
19     cout << "Now is the time for all good men to come to the aid of their ___"
20         << endl;
21
22     cout << "Input a 1 if you want the sentence to be finished with party"
23         << endl;
24     cout << "Input any other number for the word country" << endl;
25
26     cout << "Please input your choice now" << endl;
27     cin >> wordCode;
28     cout << endl;
29
30     writeProverb(wordCode);
31
32     return 0;
33 }
34
35 // *****
36 // writeProverb
37 //
38 // task: This function prints a proverb. The function takes a number
39 // from the call. If that number is a 1 it prints "Now is the time
40 // for all good men to come to the aid of their party."
41 // Otherwise, it prints "Now is the time for all good men
42 // to come to the aid of their country."
43 // data in: code for ending word of proverb (integer)
44 // data out: no actual parameter altered
45 //
46 // *****
47
48 void writeProverb(int number)
49 {
50     if (number == 1) cout << "Now is the time for all good men to come to the aid of their party" << endl;
51     else cout << "Now is the time for all good men to come to the aid of their country" << endl;
52 }
```

Exercise 2:

```

#include <iostream>
#include <string>
using namespace std;

void writeProverb(int);

int main()
{
    int wordCode;

    cout << "Given the phrase:" << endl;
    cout << "Now is the time for all good men to come to the aid of their ___"
        << endl;

    cout << "Input a 1 if you want the sentence to be finished with party"
        << endl;
    cout << "Input a 2 if you want the sentence to be finished with country" << endl;

    cout << "Please input your choice now" << endl;
    cin >> wordCode;

    while ((wordCode != 1) && (wordCode != 2)) {
        cout << "Input number is not valid. Please try again." << endl;
        cin >> wordCode;
    }
    cout << endl;

    writeProverb(wordCode);

    return 0;
}

// *****
// writeProverb
//
// task: This function prints a proverb. The function takes a number
// from the call. If that number is a 1 it prints "Now is the time
// for all good men to come to the aid of their party."
// Otherwise, it prints "Now is the time for all good men
// to come to the aid of their country."
// data in: code for ending word of proverb (integer)
// data out: no actual parameter altered
//
// *****

void writeProverb(int number)
{
    if (number == 1) cout << "Now is the time for all good men to come to the aid of their party" << endl;
    else cout << "Now is the time for all good men to come to the aid of their country" << endl;
}

```

Exercise 3:

```

#include <iostream>
#include <string>
using namespace std;

void writeProverb(string);

int main()
{
    string wordCode;

    cout << "Given the phrase:" << endl;
    cout << "Now is the time for all good men to come to the aid of their ___"
        << endl;

    cout << "Please input the word you would like to have finish the proverb" << endl;
    cout << endl;

    cin >> wordCode;

    writeProverb(wordCode);

    return 0;
}

// *****
// writeProverb
//
// task:    This function prints a proverb. The function takes a number
//          from the call. If that number is a 1 it prints "Now is the time
//          for all good men to come to the aid of their party."
//          Otherwise, it prints "Now is the time for all good men
//          to come to the aid of their country."
// data in: code for ending word of proverb (integer)
// data out: no actual parameter altered
//
// *****

void writeProverb(string word)
{
    cout << "Now is the time for all good men to come to the aid of their " << word << endl;
}

```

Output

Exercise 1:

```

Given the phrase:
Now is the time for all good men to come to the aid of their ____
Input a 1 if you want the sentence to be finished with party
Input any other number for the word country
Please input your choice now
1

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

```

```
Given the phrase:
Now is the time for all good men to come to the aid of their ____
Input a 1 if you want the sentence to be finished with party
Input any other number for the word country
Please input your choice now
5

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

If a float like -3.97 is entered, it will still function properly by executing the else statement

```
Given the phrase:
Now is the time for all good men to come to the aid of their ____
Input a 1 if you want the sentence to be finished with party
Input any other number for the word country
Please input your choice now
-3.97

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

Exercise 2:

```
Given the phrase:
Now is the time for all good men to come to the aid of their ____
Input a 1 if you want the sentence to be finished with party
Input a 2 if you want the sentence to be finished with country
Please input your choice now
9
Input number is not valid. Please try again.
1

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

```
Given the phrase:
Now is the time for all good men to come to the aid of their ____
Input a 1 if you want the sentence to be finished with party
Input a 2 if you want the sentence to be finished with country
Please input your choice now
7
Input number is not valid. Please try again.
2
```

Exercise 3:

```
Given the phrase:
Now is the time for all good men to come to the aid of their ____
Please input the word you would like to have finish the proverb

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

Lab 6.3

Source Code

Exercise 1/2:

```
1  // This program takes two numbers (payRate & hours)
2  // and multiplies them to get grosspay.
3  // It then calculates net pay by subtracting 15%
4
5  // Charles Reigle
6
7  #include <iostream>
8  #include <iomanip>
9  using namespace std;
10
11 // Function prototypes
12 void printDescription();
13 void computePaycheck(float, int, float&, float&);
14
15 int main()
16 {
17     float payRate;
18     float grossPay;
19     float netPay;
20     int hours;
21
22     cout << setprecision(2) << fixed;
23     cout << "Welcome to the Pay Roll Program" << endl;
24
25     printDescription(); // Call to Description function
26
27     cout << "Please input the pay per hour" << endl;
28     cin >> payRate;
29
30     cout << endl << "Please input the number of hours worked" << endl;
31     cin >> hours;
32
33     cout << endl << endl;
34
35     computePaycheck(payRate, hours, grossPay, netPay);
36
37     cout << "The gross pay is $" << grossPay << endl;
38
39     cout << "The net pay is $" << netPay << endl;
40
41     cout << "We hope you enjoyed this program" << endl;
42
43     return 0;
44 }
45
46 // ...
47
48 void printDescription() // The function heading
49 {
50     cout << "*****" << endl << endl;
51     cout << "This program takes two numbers (payRate & hours)" << endl;
52     cout << "and multiplies them to get gross pay " << endl;
53     cout << "it then calculates net pay by subtracting 15%" << endl;
54     cout << "*****" << endl << endl;
55 }
56
57 // ...
58
59 void computePaycheck(float rate, int time, float& gross, float& net)
60 {
61     gross = rate * time;
62     net = gross - (0.15 * gross);
63 }
```

Exercise 4:

```
1  // ...
4
5  // Charles Reigle
6
7  #include <iostream>
8  #include <iomanip>
9  using namespace std;
10
11  // Function prototypes
12  void printDescription();
13  void computePaycheck(float, int, float&, float&);
14
15  int main()
16  {
17      float payRate;
18      float grossPay;
19      float netPay;
20      int hours;
21
22      cout << setprecision(2) << fixed;
23      cout << "Welcome to the Pay Roll Program" << endl;
24
25      printDescription();    // Call to Description function
26
27      cout << "Please input the pay per hour" << endl;
28      cin >> payRate;
29
30      cout << endl << "Please input the number of hours worked" << endl;
31      cin >> hours;
32
33      cout << endl << endl;
34
35      computePaycheck(payRate, hours, grossPay, netPay);
36
37      cout << "We hope you enjoyed this program" << endl;
38
39      return 0;
40  }
41
42  // ...
43
44  void printDescription() // The function heading
45  {
46      cout << "*****" << endl << endl;
47      cout << "This program takes two numbers (payRate & hours)" << endl;
48      cout << "and multiplies them to get gross pay " << endl;
49      cout << "it then calculates net pay by subtracting 15%" << endl;
50      cout << "*****" << endl << endl;
51  }
52
53  // ...
54
55  void computePaycheck(float rate, int time, float& gross, float& net)
56  {
57      gross = rate * time;
58      net = gross - (0.15 * gross);
59
60      cout << "The gross pay is $" << gross << endl;
61
62      cout << "The net pay is $" << net << endl;
63  }
```

Output

Exercise 1/2:

```
Welcome to the Pay Roll Program
*****

This program takes two numbers (payRate & hours)
and multiplies them to get gross pay
it then calculates net pay by subtracting 15%
*****

Please input the pay per hour
9.50

Please input the number of hours worked
40

The gross pay is $380.00
The net pay is $323.00
We hope you enjoyed this program
```

Exercise 5:

```
Welcome to the Pay Roll Program
*****

This program takes two numbers (payRate & hours)
and multiplies them to get gross pay
it then calculates net pay by subtracting 15%
*****

Please input the pay per hour
9.50

Please input the number of hours worked
40

The gross pay is $380.00
The net pay is $323.00
We hope you enjoyed this program
```

Answers:

Exercise 3: The parameters gross and net are pass by reference

Lab 6.4

Source Code

```
1 //Takes in a value of miles traveled and hours traveled
2 //And calculates MPH, and the result is a parameter passed by reference.
3
4 //Charles Reigle
5
6 #include <iostream>;
7 #include <iomanip>;
8
9 using namespace std;
10
11 void calcMPH(int, int, double&);
12
13 int main() {
14     int miles, hours;
15     double mph; //mph will be passed by reference.
16
17     cout << "Please input the miles traveled" << endl;
18     cin >> miles;
19     cout << "Please input the hours traveled" << endl;
20     cin >> hours;
21     calcMPH(miles, hours, mph);
22     cout << fixed << setprecision(2);
23     cout << "Your speed is " << mph << " miles per hour" << endl;
24 }
25
26 void calcMPH(int miles, int hours, double& mph) {
27     mph = miles / (double) hours;
28 }
```

Output

```
Please input the miles traveled
475
Please input the hours traveled
8
Your speed is 59.38 miles per hour
```

```
Please input the miles traveled
120
Please input the hours traveled
2
Your speed is 60.00 miles per hour
```