

LAB 2.1 WORKING WITH THE cout STATEMENT

Exercise 1: Copy and paste the program name .cpp into Visual Studio IDE. Fill in the code so that the program will do the following:

Print your first and last name in one line on the screen.
Print your address on the next line (recall the function of the endl manipulator).
Print your city, state and zip on the next line.
Print your telephone number on the next line.

Remember that to output a literal, such as “Hello”, you must use quotes.
Compile and run the program.

An Example of Running Result:

```
Deano Beano
123 Markadella Lane
Fruitland, Md. 55503
489-555-5555
```

The code for name.cpp is as follows:

```
// This program will write the name, address and telephone
// number of the programmer.

// PLACE YOUR NAME HERE

#include <iostream>
using namespace std;

int main()
{
    // Fill in a statement below to write your first and last name

    // Fill in a statement below to write your address (on new line)

    // Fill in a statement below to write you city, state and zip (on new line)

    // Fill in a statement below to write your telephone number (on new line)

    return 0;
}
```

Exercise 2: Change the program so that the following is printed. Try to get the spacing just like the following example (recall the function of \t). Compile and run the program.

```
*****
Programmer:  Deano Beano
              123 Markadella Lane
              Fruitland, Md. 55503

              Telephone: 489-555-5555
*****
```

(Print out the program and the running result for exercise 2, and hand them in with the rest of the lab.)

LAB 2.2 WORKING WITH CONSTANTS, VARIABLES AND ARITHMETIC OPERATORS

Exercise 1: Copy and paste the file `circlearea.cpp` into Visual Studio IDE. The code of `circlearea.cpp` is as follows:

```
// This program will output the circumference and area
// of the circle with a given radius.

// PLACE YOUR NAME HERE

#include <iostream>
using namespace std;
const double PI = 3.14;           // Define a constant PI=3.14
const double RADIUS = 5.4;       // Define a constant RADIUS=5.4

int main()
{
    // Fill in a variable type in the blank space below (replace the underlined blank with a proper keyword)
    _____ area;           // define the variable area (of circle)

    float circumference;        // define the variable circumference (of circle)

    circumference = 2 * PI * RADIUS; // computes circumference

    // Fill in the code in the blank space below to calculate the area of the circle
    area = _____;         // computes area

    // Fill in the code for the cout statement below that will output (with description) the circumference

    // Fill in the code for the cout statement below that will output (with description) the area of the circle

    return 0;
}
```

Exercise 2: Fill in the blanks and the `cout` statements so that the output will produce the following:

```
The circumference of the circle is 33.912
The area of the circle is 91.5624
```

(Print out the program and the running result for exercise 2, and hand them in with the rest of the lab.)

Lab 2.3 and Lab 2.4 will follow.

LAB 2.3 RECTANGLE AREA AND PERIMETER

Exercise 1: Using Lab 2.2 as an example, develop a program that will determine the area and perimeter of a rectangle. The length and width can be given as constants. (LENGTH=8 WIDTH=3)

Exercise 2: Compile and run your program. Continue to work on it until you get the following output.

**The area of the rectangle is 24
The perimeter of the rectangle is 22**

(Print out the program and the running result, and hand them in with the rest of the lab.)

LAB 2.4 WORKING WITH CHARACTERS AND STRINGS

Exercise 1: Copy and paste the file `stringchar.cpp` into Visual Studio IDE. This program illustrates the use of characters and strings. The `char` data type allows only one character to be stored in its memory location. The `string` data type (actually a class and not a true data type built into the language) allows a sequence of characters to be stored in one memory location. The code follows:

```
// This program demonstrates the use of characters and strings

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

// Definition of constants
const string FAVORITESODA = "Dr. Dolittle";    // use double quotes for strings
const char BESTRATING = 'A';                 // use single quotes for characters

int main()
{
    char rating;                             // 2nd highest product rating
    string favoriteSnack;                     // most preferred snack
    int numberOfPeople;                       // the number of people in the survey
    int topChoiceTotal;                       // the number of people who prefer the top choice

    // Fill in the code to do the following:

    // Assign the value of "crackers" to favoriteSnack

    // Assign a grade of 'B' to rating

    // Assign the number 250 to the numberOfPeople

    // Assign the number 148 to the topChoiceTotal

    // Fill in the blanks of the following to print the appropriate values:
    cout << "The preferred soda is " << _____ << endl;
    cout << "The preferred snack is " << _____ << endl;
    cout << "Out of " << _____ << " people "
        << _____ << " chose these items!" << endl;
    cout << "Each of these products were given a rating of " << _____;
    cout << " from our expert tasters" << endl;
    cout << "The other products were rated no higher than a " << rating << endl;

    return 0;
}
```

Exercise 2: Fill in the indicated code, then compile and run the program. Continue to work on the program until you have no syntax, run-time, or logic errors.

The output should look similar to the following:

The preferred soda is Dr. Dolittle
The preferred snack is crackers
Out of 250 people 148 chose these items!
Each of these products were given a rating of A from our expert tasters
The other products were rated no higher than a B

(Print out the program and the running result, and hand them in with Lab 2.1, 2.2 and 2.3.)