001-Namespace

Difficulty: Medium   Expect Time: 20min   Homework

    This Programming Project explores how the unnamed namespace works. Listed below are snippets from a program to perform input validation for a username and password. The code to input and validate the username and the code to input and validate the password are shown as follow.

username.h:

```cpp
#pragma once
#include "global.h"
#include "solution.h"
#include <iostream>
#include <string>

using namespace std;

namespace Authenticate {

inline void inputUserName() {
  do {
    cout << "Enter your username (8 letters only)" << endl;
    cin >> ::usernameRef;
  } while (!::isValidUsername());
}

inline string getUserName() { return ::usernameRef; }
}
```

    Declare an unnamed namespace in solution.h, define the **string** username and a reference to username called usernameRef and the isValidUsername() function within that namespace. The isValidUsername() function should return **true** if the username contains exactly eight letters.

password.h:

```cpp
#pragma once
#include "global.h"
#include "solution.h"
#include <iostream>
#include <string>

using namespace std;

namespace Authenticate {

inline void inputPassword() {
  do {
    cout << "Enter your password (at least 8 characters "
         << "and at least one non-letter)" << endl;
    cin >> ::passwordRef;
  } while (!::isValidPassword());
}

inline string getPassword() { return ::passwordRef; }
}
```

Similarly, please define the **string password** and a reference to password called passwordRef and the isValidPassword() function within that namespace. The isValidPassword() function should return **true** if the input password is at least 8 characters long and contains at least one non-letter character.

At this point, the unnamed namespace in solution.h has 2 validation functions, one checks usernameRef and another checks passwordRef, and 4 variables, namely username, password, usernameRef and passwordRef. Place the following main function in an appropriate place.

```cpp
// This file will be replaced by the Online Judge
// MUST NOT modify it.
#include <iostream>

#include "password.h"
#include "username.h"
using namespace Authenticate;
using namespace std;

int main() {
  inputUserName();
  inputPassword();
  cout << "Your username is " << getUserName()
       << " and your password is: " << getPassword() << endl;
  return 0;
}
```

Input

1. Please declare and implement the variables, functions, and namespace in solution.h.

2. The input for the program will be handled by the provided code.

3. The Online Judge will replace the following files:

    a) main.cpp

    b) password.h

    c) username.h

    d) global.h

4. The following file contains test cases for Online Judge. You can input the contents of this file in STDIN as a test.

    a) in001.txt

    b) in002.txt

5. Input range

    a) Each line contains a string.

       i.   this string contains only alphanumeric characters.

    b) The length of this string DOESN'T exceed 50 characters.

Output

1. Please DON'T print any data to STDOUT.
2. The output will be handled by the provided code.
3. The sample output corresponding to the input file is shown as follow.
   a) out001.txt corresponds to in001.txt
   b) out002.txt corresponds to in002.txt