**CPP Problem Design**

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| **Subject: Namespace** |
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| **Main testing concept: Namespace**   |  |  | | --- | --- | | **Basics** | **Functions** | | ■ C++ BASICS  □ FLOW OF CONTROL  □ FUNCTION BASICS  □ PARAMETERS AND OVERLOADING  □ ARRAYS  □ STRUCTURES AND CLASSES  □ CONSTRUCTORS AND OTHER TOOLS  □ OPERATOR OVERLOADING, FRIENDS,AND REFERENCES  □ STRINGS  □ POINTERS AND DYNAMIC ARRAYS | ■ SEPARATE COMPILATION AND NAMESPACES  □ STREAMS AND FILE I/O  □ RECURSION  □ INHERITANCE  □ POLYMORPHISM AND VIRTUAL FUNCTIONS  □ TEMPLATES  □ LINKED DATA STRUCTURES  □ EXCEPTION HANDLING  □ STANDARD TEMPLATE LIBRARY  □ PATTERNS AND UML | |
| **Description:**  Please define a namespace called **Authenticate** to check if the account password entered by the user is valid.   * The following requirements should be met for user names and passwords entered. * The user name should be all letters and not less than 8. * The user password consists of letters and numbers and should contain at least one number and be no less than 8. * The following methods should be defined in namespace **Authenticate**. * **void inputUserName()** Print "*Enter your* *username (8 letters only)*" and wait for the user to enter a username. If the username entered by the user is not valid, print "*Enter your username (8 letters only)*" again and wait until the user to enter a valid username. * **string getUserName()** Return the username entered by the user. * **void inputPassword()** Print "*Enter your password (at least 8 characters and at least one non-letter)*" and wait for the user to enter the password. If the password entered by the user is not valid, print "*Enter your password (at least 8 characters and at least one non-letter)*" again and wait until the user to enter a valid password. * **string getPassword()** Return the password entered by the user.   **Input:**  A series of strings.  \*\*The main() function in your submission will be replaced when judging.  \*\*You can use the main() function in “Other Notes” to test your program.  **Output:**  The result of executing your program with the given main function.  **Sample Input / Output：**   |  |  | | --- | --- | | Sample Input | Sample Output | | aaa aaaaaa abcdefghi abcdefgh aaaaaaaaaa1 | Enter your username (8 letters only) Enter your username (8 letters only) Enter your username (8 letters only) Enter your username (8 letters only) Enter your password (at least 8 characters and at least one non-letter) Your username is abcdefgh and your password is: aaaaaaaaaa1 | |
| **□ Easy, only basic programming syntax and structure are required.**  **■ Medium, multiple programming grammars and structures are required.**  **□ Hard, need to use multiple program structures or complex data types.** |
| **Expected solving time:**  20 minutes |
| **Other notes:** using namespace Authenticate;  int main()  {  inputUserName();  inputPassword();  cout << "Your username is " << getUserName() <<  " and your password is: " <<  getPassword() << endl;  return 0;  } |