

CSCI 275 Assignment Week #12

Due: Saturday 4/23/22

Late: Saturday 4/30/22 (5 point penalty)

Points: 60

Note: School is closed on Monday 4/18/22 and there is no Zoom lecture. No new work is assigned Week 14 (4/18-4/22) so you have only the weekly quiz and completion of this assignment for tasks.

This program practices using STL set and map classes. A file contains user IDs and a list of recent passwords. The data is read into a map where the user ID is the key. The value portion can be a sequential container. The last password in the container is the most recent one.

The interactive portion reads a user ID and logs in with the most recent password. The user gets up to 3 tries to login or is logged out of this system. Once logged in, the user is asked to change their password. The new password must satisfy the rules listed below and cannot be on the list. The user must enter passwords repeatedly until a valid one is entered. This password is added to the map.

Rules for a password:

- must be at least 6 characters
- must contain at least one lower case letter
- must contain at least one upper case letter
- must contain at least one punctuation from the set: ['_', '%', '#', '!', '\$']

1. Data file **users.txt** contains a list user IDs and recent passwords. There are no blanks in the user ID.
2. Use the **TreeMap** class to store the user IDs with associated passwords. Display the map before and after the interactive portion (for debugging). Report appropriate messages upon error conditions or success.
3. Use at least one **TreeSet** object in the portion of code that checks for a valid password.

Sample Output: (Be sure to test all possible cases)

```
Users map holds 7 accounts
abbot2      s5shi!E      Rer#Rab5      rryTot3#
chin3       z_s#Z$xcv    345Ad%%      90werCV&&q    w5v6YU!      edV9%47
fallow5     kkR$3rb      QR2#4ty      pyT%52X
horrow7     qwe!YY3
macroy2     ax9Kp$a      qv$5_bUI
raisin5     12$rMo       si1B9%
sinder6     poPPy6_67    wegp009q$

Enter user ID: chin3
Enter current password: edV9%47
Enter new password: asdHH$12
Password successfully changed

Users map holds 7 accounts
abbot2      s5shi!E      Rer#Rab5      rryTot3#
chin3       z_s#Z$xcv    345Ad%%      90werCV&&q    w5v6YU!      edV9%47      asdHH$12
fallow5     kkR$3rb      QR2#4ty      pyT%52X
horrow7     qwe!YY3
macroy2     ax9Kp$a      qv$5_bUI
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macroy2     ax9Kp$a      qv$5_bUI
raisin5     12$rMo       silB9%
sinder6     poPPy6_67    wegp009q$

Enter user ID: fallow5
Enter current password: pyT%52X
Enter new password: aW%4
aW%4 is not valid
Enter new password: aw$eee12
aw$eee12 is not valid
Enter new password: qw9P&^23
qw9P&^23 is not valid
Enter new password: qwe456%qw
qwe456%qw is not valid
Enter new password: aqwRT56$
Password successfully changed

Users map holds 7 accounts
abbot2      s5shi!E      Rer#Rab5      rryTot3#
chin3       z_s#Z$xcv    345Ad%%      90werCV&&q    w5v6YU!      edV9%47
fallow5     kkR$3rb      QR2#4ty      pyT%52X      aqwRT56$
horrow7     qwe!YY3
macroy2     ax9Kp$a      qv$5_bUI
raisin5     12$rMo       silB9%
sinder6     poPPy6_67    wegp009q$

```

Submission:

Upload the main application to Brightspace. Note: Code is not accepted that does not compile.

Need Help?

1. Email your question with your attached .cpp source code file. Do not attach an image or a pdf. Do not paste your code into the email body. I would like to download your code so I can test it as needed.
2. Use the scheduling software on the left side of Brightspace to schedule a Zoom meeting with me. If you cannot make the listed times, email me a list of your free times.