CSE 461 Lab 1

File I/O

Author: Huanqing Nong
SID: 005814662
Instructor: Dr. Murphy

Source code of PasswordFile.h:

```
#ifndef PASSWORDFILE_H
#define PASSWORDFILE_H
#include<string>
#include<vector>

using namespace std;

class PasswordFile
{
 public:
 PasswordFile(string filename);// opens the file and reads the names/passwords in the vectors user and password.
 void addpw(string newuser, string newpassword); //this adds a new user/password to the vectors and writes the vectors to the file filename
 bool checkpw(string user, string passwd); // returns true if user exists and password matches
 static void newsalt(int ns);
 private:
 static int salt;
 string filename; // the file that contains password information
 vector<string> user; // the list of usernames
 vector<string> password; // the list of passwords
 void synch(); //writes the user/password vectors to the password file
 string encrypt (string s);
 string decrypt (string s);
};
#endif
```

Source code of PasswordFile.cpp:

```
//PasswordFile.cpp
//By Huanqing Nong 005814662
//Lab 1 for 660
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#include <iostream>
#include <string>
#include <vector>
#include <fstream>
```

```
#include "PasswordFile.h"

using namespace std;

PasswordFile::PasswordFile(string _filename){
	this->filename = _filename;
	ifstream ifs;
      ifs.open(filename);
	if (!ifs) {
		cerr << "Unable to open file datafile.txt";
		exit(1);   // call system to stop
	}
	string u,p;
	ifs >> u >> p;
	while(ifs.good()){
		user.push_back(u);
		password.push_back(p);
		ifs >> u >> p;
	}
	ifs.close();
}

void PasswordFile::addpw(string newuser, string newpassword){
	//Check if user newuser exists already.
	for (string usr : user){
		if (usr == newuser){
			cout << "User exists.";
			return;
		}
	}
	user.push_back(newuser);
	password.push_back(encrypt(newpassword));
	synch();
}

bool PasswordFile::checkpw(string user, string passwd){
	for (int i = 0; i < this->user.size(); ++i){
	   if (this->user[i] == user){
		if (this->password[i] == encrypt(passwd)) return true;
			else return false;
	   }
      }
	return false;
}

void PasswordFile::synch(){
      ofstream ofs;
	ofs.open(filename);
      if (!ofs) {
```

```
            cerr << "Unable to open file datafile.txt";
            exit(1);   // call system to stop
        }
           for (int i = 0; i < this->user.size(); ++i){
              ofs << this->user[i];
                 ofs << " ";
                 ofs << this->password[i];
                 ofs << endl;
        }
        ofs.close();
}

int PasswordFile::salt=1;

void PasswordFile::newsalt(int ns)
{
          salt=ns;
}

string PasswordFile::encrypt(string s)
{
          for (int i=0; i<s.size(); i++)
          {
                    s[i]+=salt;
          }
          return s;
}

string PasswordFile::decrypt(string s)
// NOT NEEDED -
{
          for (int i=0; i<s.size(); i++)
          {
                    s[i]-=salt;
          }
          return s;
}


int main()
{
 PasswordFile passfile("password.txt");
 passfile.addpw("dbotting","123qwe");
 passfile.addpw("egomez","qwerty");
 passfile.addpw("tongyu","liberty");
 // write some lines to see if passwords match users
 if(passfile.checkpw("tongyu", "liberty")){
           cout << "The password matches the user." << endl;
 }
```

```
if(!passfile.checkpw("tongyu", "liberty123")){
        cout << "The password does not match the user." << endl;
 }

}
```

Test output:

```
[005814662@csusb.edu@jb358-14 CSE461]$ g++ -o lab1 PasswordFile.cpp PasswordFile.h
[005814662@csusb.edu@jb358-14 CSE461]$ ./lab1
User exists.User exists.User exists.The password matches the user.
The password does not match the user.
[005814662@csusb.edu@jb358-14 CSE461]$ cat password.txt
dbotting 234rxf
egomez rxfsuz
tongyu mjcfsuz
```