CPS 171 Machine Problem 6

You are going to create a Bank ***Account*** class. A minimal set of attributes for a bank account will be the following:

1. A **my_password** (a string)
2. A **my_balance** (a real number)

The operations that users expect to perform on a bank account follow:

1. Create a new account with default password and balance.
2. Create a new account with user-specified password and balance.
3. Change the password.
4. Deposit money.
5. Withdraw money.
6. Observe the balance.

Users expect the balance in an account to be secure. They do not want Smith's deposit going into Jones's account. Access to an account's attributes cannot occur without knowledge of the owner's password. Thus, the owner's password must be passed as a parameter to the operations that observe or modify any of the attributes. Each of these operations will verify the validity of the password. If access is denied, each operation will return –1. Otherwise, some other value will be returned, such as the amount of the current balance. The withdrawal operation will return –2 if the user has insufficient funds.

Default Constructor:
my_balance is set to 0.0, and **my_password** is set to an empty string in the account object.

Constructor for specifying certain values:
The parameter **password** is a string representing the password, and the parameter **balance** is a real number representing the initial amount to be deposited into the account. **my_password** is set to **password** and **my_balance** is set to **balance** in the account object.

changePassword():
It has 2 parameters. The parameter **password** is a string representing the password, and **new_password** is a string representing the new password.
If the **password** and **my_password** are the same, **my_password** is set to **new_password**, and 1 is returned; otherwise, -1 is returned.

makeDeposit():
It has 2 parameters. The parameter **password** is a string representing the password, and **amount** is the amount (a real number) to be deposited, and can't be less than zero. If the **password** is valid, then **my_balance** is increased by amount, and its value is returned; otherwise, -1 is returned. If the amount is invalid, then -2 is returned.

makeWithdrawal():

It has 2 parameters. The parameter **password** is a string representing the password, and **amount** is the amount (a real number) to be withdrawn. If the **password** is valid, then if there are sufficient funds, then **my_balance** is decreased by amount (non-negative number), and its value is returned. If there are insufficient funds, then -2 is returned. If the **password** is invalid, -1 is returned.

getBalance():

It has one parameter. The parameter **password** is a string representing the password. If the **password** is valid, then the value of **my_balance** is returned; otherwise, -1 is returned.

Be sure to use three files for your program. The account.h file should contain only the declaration of the class, the account.cpp file should contain the implementation of the member functions and the main program (in a third file) should test your class as shown below.

```
#include "account.h"

int main()
{
        /* create two accounts one for judy and one for jim.
        judy's password is "goodness", with 50.00 dollars
        jim's password is "Godzilla", with 100.00 dollars */

        // get judy's and jim's balance

        // get jim's balance with invalid password

        // make a $20.47 deposit into jim's account

        // make a $220.50 deposit into jim's account

        // make a $16.50 deposit into judy's account

        // make a $70.00 withdrawal from judy's account
        // make a $50.20 withdrawal from judy's account

        // make a $370.00 withdrawal from jim's account
        // make a $-370.00 withdrawal from jim's account
        // get judy's balance
        // get jim's balance

        return 0;
}
```

A sample output from the above program will be similar to this:

```
Judy's balance = $50.00
Jim's balance = $100.00
Getting jim's balance with different password.==>
Invalid password.
Depositing $20.47 to Jim. ==> New balance = $120.47
Depositing $220.50 to Jim.==> New balance = $340.97
Depositing $16.50 to Judy.==> New balance = $66.50
Result of withdrawal from Judy ($70.00)==> Invalid
withdrawal amount.
Result of withdrawal from Judy ($50.20) = $ 16.30
Result of withdrawal from Jim ($370.00)==> Invalid
withdrawal amount.
Result of withdrawal from Jim ($-300.00)==> Invalid
withdrawal amount.
Judy's balance = $16.30
Jim's balance = $340.97
Press any key to continue
```