HW 5

ELEC 3150 – Object Oriented Programming (Fall 2023)

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Teacher.h:

```
#pragma once
#include "Human.h"
class Teacher :
    public Human
{
public:
    string name;
    Bank_Account bank;
    int knowledge;
    //constructor
    Teacher();
    //method
    string show_name();
    void learn();
    void work();
};
```

Teacher.cpp:

```
#include "Teacher.h"

Teacher::Teacher() : Human()
{
    name = "Nick";
    knowledge = 0;
    bank = Bank_Account(0);
}

string Teacher::show_name()
{
    return "Prof " + name;
}

void Teacher::learn()
{
    knowledge += 10;
    spend_money(20);

    if (knowledge > 100) {
        knowledge = 100;
    }
    }

void Teacher::work()
{
    receieve_money(50);
}
```

Main.cpp:

```
#include <iostream>
#include <string>
using std::cin;
using std::cout;
using std::string;
using std::endl;
#include "Teacher.h"
#include "Human.h"
#include "Bank_Account.h"

int main() {
    Teacher Nicholas;
    Nicholas.work();
    Nicholas.learn();
    Nicholas.learn();
    Nicholas.learn();
    Nicholas.work();
    Nicholas.learn();

    cout << "Teacher has $" << Nicholas.check_money() << " and knowledge: " << Nicholas.knowledge << endl;
    cout << "Your teacher name is: " << Nicholas.show_name();


    return 0;
}
```

Results:

```
Teacher has $20 and knowledge: 40
Your teacher name is: Prof Nick
```

Bankaccount.cpp

```cpp
#include "Bank_Account.h"
#include <iostream>
using std::cin;
using std::cout;
using std::endl;

Bank_Account::Bank_Account()
{
    cash = 0;
}

Bank_Account::Bank_Account(float amount)
{
    cash = amount;
}

float Bank_Account::show_balance()
{
    return cash;
}

void Bank_Account::deposit(float amount)
{
    cash = cash+amount;
}

void Bank_Account::withdraw(float amount)
{
    cash = cash - amount;
}

void Bank_Account::intrest(float percent)
{
    cash = cash * percent;
}
```

Human.cpp:

```cpp
#include "Human.h"

Human::Human()
{
    name = "None";
    bank = Bank_Account(0);
}

Human::Human(string name, float init_amount)
{
    name = name;
    bank = Bank_Account(init_amount);
}

string Human::show_name()
{
    return name;
}

void Human::set_name(string name)
{
    this->name = name;
}

void Human::receieve_money(float amount)
{
    bank.deposit(amount);
}

void Human::spend_money(float amount)
{
    bank.withdraw(amount);
}

float Human::check_money()
{
    return bank.show_balance();
}
```

Bankaccount.h:

```cpp
#pragma once
class Bank_Account
{
    float cash;
public:
    Bank_Account();
    Bank_Account(float amount);
    friend class teacher;

    float show_balance();
    void deposit(float amount);
    void withdraw(float amount);
    void intrest(float percent);
};
```

Human.h:

```cpp
#pragma once
#include <string>
using std::string;
#include "Bank_Account.h"
class Human
{
    string name;
    Bank_Account bank;
public:
    Human();
    Human(string name, float init_amount);
    string show_name();
    void set_name(string name);
    void receieve_money(float amount);
    void spend_money(float amount);
    float check_money();
    };
```