HW6

A class called Pairs in the form (5,6) (5,-4).

Here is Pairs_operation.h, and you need to complete Pairs_operation.cpp.

We will provide Pairs_operation.h and main.cpp, and you only need to write Pairs_operation.cpp

Your task:

(1.)

write implementations of overloaded operator >> and the overloaded operator <<, so that objects of class Pairs are to be input and output in the form (5,6) , (5,-4) , (-5,4) or (-5,-6)

in>>(a,b)

cout<<(a,b)

(2.)

implement the no parameter constructor which should initialize the first and the second of member of the pair to be 0 .Additionally, implement the constructors with one and two int parameter ,the one-parameter constructor should initialize the first member of the pair; the second member of the pair is to be 0.

(3.)

overloaded binary operator+ to add pairs

(a,b)+(c,d)=(a+c,b+d)

overloaded binary operator- to add pairs

(a,b)-(c,d)=(a-c,b-d)

overloaded binary operator* on Pairs and int

(a,b)* c=(a*c,b*c)

Pairs_operation.h

```cpp
#include <iostream>
using namespace std;
#ifndef _PAIRS_H_
#define _PAIRS_H_
class Pairs
{
public:
    Pairs();
    Pairs(int first,int second);
    Pairs(int first);
    friend istream& operator >>(istream& in, Pairs & second);
    friend ostream& operator <<(ostream& outs, const Pairs & second);
    Pairs operator + (const Pairs & obj);
    Pairs operator - (const Pairs & obj);
Pairs operator * (int obj);

private:
    int f;
    int s;
};
```

```
#endif
```

main.cpp

```cpp
#include "Pairs_operation.h"
#include <fstream>
#include <iostream>
int main(int argc,char ** argv)
{
    ifstream file;
    file.open(argv[1]);
    int opera;
    int mult_int;
    int first,second;
    Pairs a ;
    file >> first;
    Pairs b (first);
    file >> first >> second;
    Pairs c(first,second);
    Pairs d;
    file >> d;
    Pairs e;
    file >> e;
    bool st=1;
    while(st){
        file >>opera;
    switch(opera){
    case 1:
        b=c+b;break;
    case 2:
    file >> mult_int;
        b=c* mult_int;break;
    case 3:
        file >> a;break;
    case 4:
        d=e-c; break;
    case 5:
        cout << a << endl;
        cout << b << endl;
        cout << c << endl;
        cout << d << endl;
        cout << e << endl;break;
    case 6:
```

```
        c=d+e;break;
    }
    file>>st;}
  file.close();
}
```

執行方法:
g++ -std=c++11 main.cpp Pairs_operation.cpp -I . -o Hw06
./Hw06 input1.txt

oj:
/home/share/demo_OOP112_2 Hw 06

input1.txt
第一行第二行是做constructor的測試
第三行是做 overloaded operator >> 的測試　　　　p.s.格式(3,4)沒有任何空格
接下來的行數會作一些運算
每一行的第一個數字
case 1: overloaded operator + 的測試
case 2: overloaded operator * 的測試
case 3: overloaded operator >> 的測試　　　　p.s.格式(3,4)沒有任何空格
case 4: overloaded operator - 的測試
case 5: overloaded operator << 的測試 cout << a(type 為Pairs) p.s.格式(3,4)沒有任何空格
詳細請看main.cpp

```
 1    -62
 2    -532 333
 3    (-2,-4) (3,17)
 4    5 1
 5    1 1
 6    2 14 1
 7    5 1
 8    3(4,-52) 1
 9    5 1
10    1 1
11    4 1
12    5 1
13    2 -2 1
14    5 1
15    6 1
16    3(-11,-11) 1
17    2 -6 1
18    2 0 1
19    5 0
```

cout:

```
(0,0)
(-62,0)
(-532,333)
(-2,-4)
(3,17)
(0,0)
(-7448,4662)
(-532,333)
(-2,-4)
(3,17)
(4,-52)
(-7448,4662)
(-532,333)
(-2,-4)
(3,17)
(4,-52)
(-7980,4995)
(-532,333)
(535,-316)
(3,17)
(4,-52)
(1064,-666)
(-532,333)
(535,-316)
(3,17)
(-11,-11)
(0,0)
(538,-299)
(535,-316)
(3,17)
```

Submission - Deadline: 2024/4/8 23:59 ⬤ 請將程式碼(.cpp 檔)上傳至 E3 作業繳交區 ⬤ 程式碼命名: studentID_HW3.cpp (e.g. 112511000_HW3.cpp) ***命名方式錯誤 將斟酌扣

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