DS & OOP HW2
Big Number With Class

Problem Description

Big Number operation with operator overloading using c++ class.

Operator Overloading

The BigNum class contains following member function:

- BigNum(????);
  The constructor.
- BigNum(????);
  The copy constructor.
- BigNum operator+(????);
- BigNum operator-(????);
- BigNum operator*(????);
- BigNum operator/(????);
- ostream& operator<<(????);
  output “one” big number
- istream& operator>>(????);
  input “one” big number

???? = your parameter(s)

Input and Output

TAs will provide a main function and include your header file. You can’t use your own main function when demo.

- input
  - The Numbers are in the range -10^20000 ~ 10^20000
- output
  - **stdout**
  - print the result of the calculation

Main Function Template

```cpp
#include <iostream>
#include <stdlib.h>
#include <fstream>
#include "BigNum.h"

using namespace std;

int main()
{
    // You have to let the following code run correctly.
    // The testing main function may like the code below but may be different.
    BigNum a, b;
    int times;
    cin >> times;
    for(int i = 0; i < times; i++)
    {
        cin >> a >> b;
        BigNum c(a), d, e, f, g;
        d = a+b;
        e = a-b;
        f = d*e;
        g = f/c;
        cout << c << " " << d-e+f-g << endl;
    }
    return 0;
}
```

input.txt	3 1 9 11 22 25 3
command	./a.out input.txt
output	1 18 11 -286 25 598

Requirement

- **Cannot use any Big Number library**
- Please use C++ to do this homework (we'll use g++ to compile)
- Cannot use C++11
- You can use any platform to write the homework like codeblocks, dev, …etc, but **TAs will use linux workstation provided by the CS Computer Center to grade your code**, so please make sure that your code can work on workstation.
- Runtime limits: **3 minutes**

Deadline And Submit

- **Deadline : 4/27(Thursday)**
- Each student must work individually and submit a **.zip file** to e3(.rar .7z or others are forbidden), named by **<Your_Student_ID>.zip** containing:
  - source code named by **<Your_Student_ID>.h**
  - If you have cpp file, please put with your header file named by <Your_Student_ID>.cpp
- Contain all the source code files into a directory and name by your student ID, then compress it into zip format.

Grading

- Correctness 100%(Must come to demo, otherwise--0 points. And the demo time will be announced.)
- Bonus 10%
- Penalty
  - **Can't compile -- 0 point**
  - **Delay -- 0 point**
  - Use big number library -- 0 point
  - Copy or piracy -- 0 point
  - Can't work on workstation -- 40%off
  - Wrong file name or compressing format -20 points
  - Wrong output format -20 points