

# 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  $-10^{20000} \sim 10^{20000}$
- output
  - **stdout**
  - print the result of the calculation

## Main Function Template

```
1  #include <iostream>
2  #include <stdlib.h>
3  #include <fstream>
4  #include "BigNum.h"
5
6  using namespace std;
7
8  int main()
9  = {
10     // You have to let the following code run correctly.
11     // The testing main function may like the code below but may be different.
12     BigNum a, b;
13     int times;
14     cin >> times;
15     for(int i = 0; i < times; i++)
16     {
17         cin >> a >> b;
18         BigNum c(a), d, e, f, g;
19         d = a+b;
20         e = a-b;
21         f = d*e;
22         g = f/c;
23         cout << c << " " << d-e+f-g << endl;
24     }
25     return 0;
26 }
```

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**