Lab1

- **Due Tuesday 23:59 March 29, 2016**
- **No Extension ! start early !**
- **Upload via ftp only !**

Part1

Reference and Pointer

Before starting your lab, you may want to know what the difference between reference and pointer is. Consider and run the following code.

```
#include <iostream>
using namespace std;
int main(int argc, char const *argv[])
{
    int a = 1;
    int *ap = &a;
    int &ar = a;
    cout << &a << endl;
    cout << &ap << endl;
    cout << &ar << endl;
    return 0;
}
```

Qusetion1. What will be print out of the program? Why it has such output?
Question2. Reference and pointer have the same performance in most condition, but they are different actually. Please list the differences. (hint: Google is a good teacher)
Question3: There is no pointer in JAVA, please describe how JAVA passing value and reference. (You can use code to illustrate that.)

Please write down the answers in lab1_part1.txt

Part2

Given *numRows*, generate the first *numRows* of Pascal's triangle.

For example, given *numRows* = 5,

print:

```
[
[1],
[1,1],
[1,2,1],
[1,3,3,1],
[1,4,6,4,1]
]
```

Please use the following interface:

```
public:
    void generate(int numRows) {

    }
```

Note:

You can create test cases by yourself, and we would check your code by our own test cases. Make sure you cover all possible cases.

Feel free to contact TAs

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