In Chinese society, the five elements are commonly used in a variety of aspects. The five elements are composed of "Wood", "Fire", "Earth", "Metal", and "Water". Interestingly, the five elements follow two cycles: the generation cycle and the overcoming cycle. In the generation cycle, the five elements have the following relationships:
Wood generates Fire, Fire generates Earth, Earth generates Metal, Metal generate Water, and Water generates Wood.
While the overcoming cycle follows:
Wood overcomes Earth, Fire overcomes Metal, Earth overcomes Water, Metal overcomes Wood, and Water overcomes Fire.
To leverage the idea of the five elements, we can simple use an integer to represent the state of an element; that is, Wood = 0, Fire = 1, Earth = 2, Metal = 3, and Water = 4. However, the relations among the elements are somehow complicated which cannot be defined by the built in relation operators. Fortunately, C++ provides the possibility of overloading operators. Write a program to determine the relations of the five elements. Your program should provide a class TheFiveElements, which must contain:
1. A private data member of type size_t representing the **state** of the element.
2. A private **static data member** to store the name of the five elements.
3. A public **static member function** with one argument to get the name of the corresponding element.
4. A **default constructor** initializing the state of the element to zero.
5. Corresponding set and get functions for the data member.
6. Overloaded unary operators for **prefix** and **postfix increment** and **decrement** operator.
7. Overloaded binary operators for stream **insertion** and **extraction** operators.
8. Overloaded binary operators for **relation operator** ">", which examines the generation relation.
9. Overloaded binary operators for **relation operator** "<", which examines the overcoming relation.

Requirement: Use the sample main function to complete your program. Provide a classes TheFiveElements satisfying all of the above conditions and separate the interface (TheFiveElements.h) and implementation (TheFiveElements.cpp).
Prohibited: C-style code.

Input

The integer in the first line indicates the number of cases. Each case contains two integers which represent the states of the first and the second element.

Output

Each case leads to three lines of output. The first line is the results of post-incrementing the first element and post-decrementing the second elements. The second line is the results of pre-incrementing the first element and pre-decrementing the second elements. The third line is the relation of the first element and the second element. Consecutive cases are separated by a newline stream manipulator.

Sample Input

```
3
0 0
1 2
4 3
```

Sample Output

```
Wood Wood
Earth Metal
Earth generates Metal.

Fire Earth
Metal Wood
Metal overcomes Wood.

Water Metal
Fire Fire
Fire equals to Fire.
```