تمرینات جلسه ۱۲:

[1*] 1. Implement a three-way comparison operator for class Time.

[1*] 2. Implement a three-way comparison operator for class Rational.

[2*] 3. Consider the following code:

```
// 1
#include <iostream>
class X {
public:
        X()
        {
                std::cout << "X()\n";
        }
        ~X()
        {
                std::cout << "~X()\n";
        }
        X(const X&)
        {
                std::cout << "X(const&)\n";
        }
        X& operator=(const X&) = delete;
};

class Y {
public:
        Y()
        {
                std::cout << "Y()\n";
        }
        ~Y()
        {
                std::cout << "~Y()\n";
        }
        Y(const Y&)
        {
                throw 1;
        }
        Y& operator=(const Y&) = delete;
};
```

```
// 2
class Z {
        X* x_ptr;
        Y* y_ptr;
public:
        Z()
        : x_ptr(nullptr),
        y_ptr(nullptr)
        {}

        ~Z()
        {
                delete x_ptr;
                delete y_ptr;
        }

        Z(const X& x, const Y& y) : Z()
        {
                x_ptr = new X(x);
                y_ptr = new Y(y);
        }
};

int main()
{
        try
        {
                Z z{ X{}, Y{} };
        }
        catch (...)
        {
        }

}
```

Explain the code: What does the code do? The code is exception-safe. Why?