```cpp
/****************************************************************************
File name: Matrix.h
Description: Class Matrix
****************************************************************************/

#pragma once
#include <iostream>
#include <iomanip>
#include <string>

#define OVERFLOWED 1E-12

class Matrix
{
public:
    Matrix(double** items, int m, int n);    // copy Matrix from Array
    Matrix(int m, int n);                     // m*n zero Matrix
    Matrix(int n);                            // n*n unit Matrix
    Matrix(const Matrix &);                   // copy Matrix
    Matrix(double* items, int m, int n);      // copy Matrix from Array
    ~Matrix();                                // Destructor

    int getRowNum() const;                    // get number of rows
    int getColNum() const;                    // get number of cols

    Matrix Trans() const;                     // Transpose
    Matrix Inverse();                         // Inverse
    Matrix getSubMatrix(int startRow, int endRow, int startColumn, int endColumn);
                                              // get SubMatrix

    double get(int i, int j) const;           // get element
    void set(int i, int j, double val);       // set element

    Matrix operator +(const Matrix &m);       // plus
    Matrix operator -(const Matrix &m);       // minus
    Matrix operator *(const Matrix &m);       // multiply
    Matrix operator *(const double f);        // multiply by constant
    Matrix& operator=(const Matrix& m);       // copy Matrix


    friend std::ostream& operator <<(std::ostream &os, const Matrix &m);
                                              // overloading

private:
    double *item;                             // point to the first element in Matrix
    int rowNum;                               // number of rows
    int colNum;                               // number of cols

private:
                                              // Elementary Transformation
    void RowSwap(int i, int j, double multiply);
    void RowSwap(int i, int j);
    void FlowOver();
};
```