```cpp
#include <iostream>

using namespace std;
/*
 ! arrary[row][column]
*/
float cal(float test[][3], int a);

char grade(float aaa);


int main()
{
    int x = 0;

    float score[10][3];

    cout << "num stu : ";

    cin >> x;


    for (int i = 0; i < x; i++)

    {

        cout << "Plz input stu " << i + 1 << endl;


        for (int j = 0; j < 3; j++)

        {

            cout << "test " << j + 1 << " : ";

            cin >> score[i][j];

        }

    }


    for (int i = 0; i < x; i++)

    {

        float average = cal(score, i);
```

```cpp
        cout << "success " << i + 1 << " " << average << "\t" << grade ( average ) << endl;

    }


    return 0;

}


float cal(float test[][3], int a)

{


    return (test[a][0] * 0.3) + (test[a][1] * 0.3) + (test[a][2] * 0.4);

}


char grade(float aaa)

{

    char bbb;

    if (aaa >= 80)

        bbb = 'A';

    else if (aaa >= 70 && aaa < 80)

        bbb = 'B';

    else if (aaa >= 60 && aaa < 70)

        bbb = 'C';

    else if (aaa >= 50 && aaa < 60)

        bbb = 'D';

    else

        bbb = 'F';

    return bbb;

}
```

```cpp
แมททริก
#include <iostream>
#include <iomanip>

using namespace std;

void demoAdd() {
    int a[2][3]{
            {7,  6,  8},
            {20, 25, 10}
    };
    int b[][3]{
            {5,  8,  1},
            {10, 20, 30}
    };
    int c[2][3];

    size_t rows = sizeof(a) / sizeof(a[0]);
    size_t cols = sizeof(a[0]) / sizeof(a[0][0]);

    int d[rows][cols];
//    cout << rows << endl;
//    cout << cols << endl;
    for (int i = 0; i < rows; i++) {
        for (int j = 0; j < cols; j++) {
            c[i][j] = a[i][j] + b[i][j];
            cout << setw(4) << c[i][j] << " |";
        }
        cout << endl;
    }
}

void demoIdentityMatrix() {
    int a[3][3];
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            if (i == j) {
                a[i][j] = 1;
            } else {
                a[i][j] = 0;
            }
            cout << setw(4) << a[i][j] << " |";
        }
        cout << endl;
    }
}
```

```
}

void demoIdentityMatrix2() {
    int a[3][3] = {0};
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            if (i == j) {
                a[i][j] = 1;
            }
            cout << setw(4) << a[i][j] << " |";
        }
        cout << endl;
    }
}

int main(int argc, char *argv[]) {
//    demoAdd();
//    demoIdentityMatrix();
    demoIdentityMatrix2();
    return 0;
}
```

การหาค่า sum min max ในอะเรย์

```
#include <iostream>

using namespace std;

int main() {
    double s[] = {9, 8, 7.5, 10, 6, 2.5, 5};
    double sum = 0;
//    double d = 10.5;
//    cout << sizeof(d) << endl;
//    cout << sizeof(s) << endl;
//    cout << sizeof(s[0]) << endl;
    int cnt = sizeof(s)/sizeof(s[0]);
    double min = s[0];
    double max = s[0];
    for (int i = 0; i < cnt; ++i) {
        sum = sum + s[i];
        if (s[i] < min) {
            min = s[i];
        }
        if (s[i] > max) {
            max = s[i];
```

```
        }
    }
    cout << "cnt = " << cnt << endl;
    cout << "sum = " << sum << endl;
    cout << "avg. = " << sum / cnt << endl;
    cout << "min. = " << min << endl;
    cout << "max. = " << max << endl;
    return 0;
}
```

อะเรย์ 2มิติ

```cpp
#include <iostream>
#include <iomanip>

using namespace std;

void demo1() {
    int a[]{7, 6, 8}; // C++11 uniform initialization
    int b[3]{20, 25, 10};
    int c[2][3]; // 2-dimensional array
    c[0][0] = 7;
    c[0][1] = 6;
    c[0][2] = 8;
    c[1][0] = 20;
    c[1][1] = 25;
    c[1][2] = 10;
    int d[2][3]{
            {7,  6,  8},
            {20, 25, 10}
    };
    const int totalCols = 4;
    int e[][totalCols]{
            {7,  6,  8,  10},
            {20, 25, 10, 99}
    };
    cout << sizeof(e) << endl;
    cout << sizeof(e[0]) << endl;
    cout << sizeof(e[0][0]) << endl;
    size_t rows = sizeof(e) / sizeof(e[0]);
//    size_t cols = sizeof(e[0]) / sizeof(e[0][0]);
    for (int i = 0; i < rows; ++i) {
        for (int j = 0; j < totalCols; ++j) {
            cout << "e[" << i << "][" << j << "] = " << setw(3) << e[i][j] <<
"   ";
```

```
            }
            cout << endl;
        }

//      for (int i = 0; i < 2; ++i) {
//          for(int j=0;j<3;++j) {
//              cout << "e[" << i << "][" << j << "] = " << setw(3) << e[i][j] <<
" ";
//          }
//          cout << endl;
//      }
}

int main() {
    demo1();
    return 0;
}
```

การหา size ใน อะเรย์

```
#include <iostream>

using namespace std;

void demo1() {
    double a[]{5, 7.2, 10, 3, 2, 1};
    cout << sizeof(a) << endl;
    cout << sizeof(a[0]) << endl;
    cout << "-------------" << endl;
    int sz = sizeof(a) / sizeof(a[0]);
    for (int i = 0; i < sz; i++) {
        cout << a[i] << endl;
    }
}

int main() {
    demo1();
    return 0;
}
```