

Lab 8 Part I

结构体简单练习

Problem 1. 理解下面程序。

```
struct Pixel
{
    int C, R;
};
void Display(Pixel P)
{
    cout << "Col "<< P.C << " Row " << P.R << endl;
}
int main()
{
    Pixel X = {40,50}, Y, Z;
    Z = X;
    X.C += 10;
    Y = Z;
    Y.C += 10;
    Y.R += 20;
    Z.C -= 15;
    Display(X);
    Display(Y);
    Display(Z);

    return 0;
}
```

Problem 2. 理解下面程序。

```
struct Play
{
    int score, bonus;
};
void calculate(Play &P, int N = 10)
{
    P.score++;
    P.bonus += N;
}
int main()
{

```

```

        Play PL = {10, 15};
        calculate(PL, 5);
        cout << PL.score << ":" << PL.bonus << endl;
        calculate(PL);
        cout << PL.score << ":" << PL.bonus << endl;
        calculate(PL, 15);
        cout << PL.score << ":" << PL.bonus << endl;

        return 0;
}

```

Problem 3. 理解下面程序。

```

struct MyBox
{
    int length, breadth, height;
};
void dimension (MyBox M)
{
    cout << M.length << "x" << M.breadth << "x";
    cout << M.height << endl;
}
int main ()
{
    MyBox B1 = {10, 15, 5}, B2, B3;
    ++B1.height;
    dimension(B1);
    B3 = B1;
    ++B3.length;
    B3.breadth++;
    dimension(B3);
    B2 = B3;
    B2.height += 5;
    B2.length--;
    dimension(B2);

    return 0;
}

```

Problem 4. 改正下面程序中的错误。

```

struct Pixels
{
    int color, style;
}

```

```

void showPoint(Pixels P)
{
    cout << P.color, P.style << endl;
}

int main()
{
    Pixels Point1 = (5, 3);
    showPoint(Point1);
    Pixels Point2 = Point1;
    color.Point1 += 2;
    showPoint(Point2);

    return 0;
}

```

Problem 5. 定义结构体，实现复数，并定义函数，实现复数的加、减、乘、除运算。

5

210000-211000 之间的随机数，姓名是一串随机英文字符，长度 10-20 之间，成绩随机分布在 45-100 之间）；按照字母顺序，打印出至少有一门不及格的学生名单。`#include<iostream>`

```

using namespace std;
struct student {
    int id;
    char* name;
    int score1;
    int score2;
    int score3;
};
int main() {
    student Stu[20];
    int len[20];
    char alp[52];

    for (int i = 0; i < 26; i++) {
        alp[i] = (char)(i + 65);
    }
    for (int i = 26; i < 52; i++) {
        alp[i] = (char)(i + 71);
    }
    for (int i = 0; i < 20; i++) {
        srand((unsigned)time(NULLptr));
        Stu[i].id = 210001 + rand() % 1000;
    }
}

```