实验三

1.

```
# include <iostream>
using namespace std;

void fun()
{
    int n, count=0;
    cout<<"输入 n: ";
    cin>>n;
    for (int i = 0; i <= n/5; i++)
    {
        for (int j = 0; j <= (n-(5*i))/2; j++)
        {
            count++;
            int k = n - (5*i) - (2*j);
            cout<<i<<" * 5 + "<<j<<" * 2 + "<<k<<" = "<<n<<endl;
        }
    }
    cout<<"一共有 "<<count<<" 种兑换方法"<<endl;
}

int main(int argc, char const *argv[])
{
    fun();
    return 0;
}
```

运行结果:

2.

```
# include <iostream>
# include <vector>
using namespace std;

void fun2()
{
    int minSize, maxSize, n, fishSize[51], min, max;

    cout<<"fish's minSize and maxSize: ";
    cin>>minSize>>maxSize;
    cout<<"fish number n: ";
    cin>>n;
    cout<<"fish's size: ";
    for (int i = 0; i < n; i++) {
        cin>>fishSize[i];
    }
```

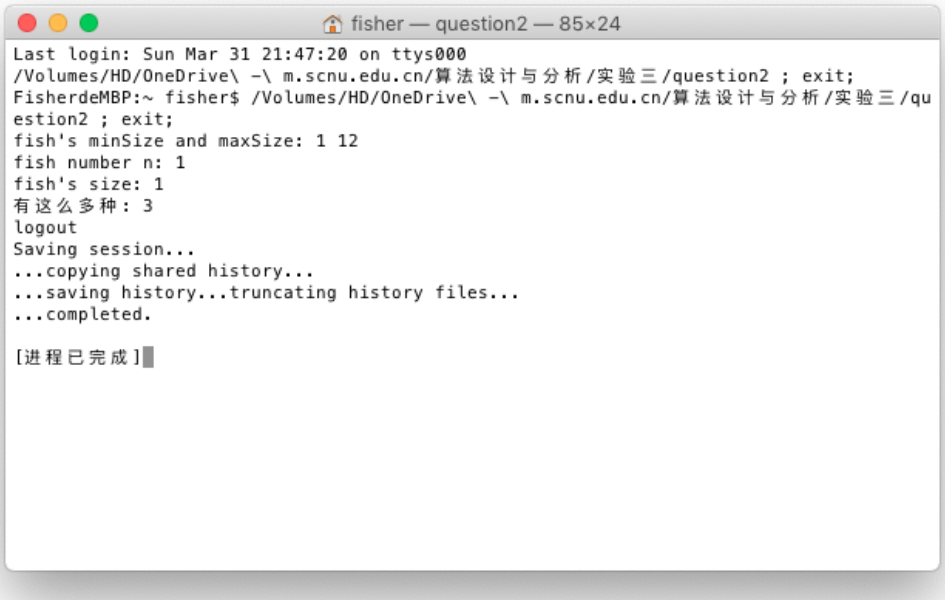
```
    if (n>0) {
        min = fishSize[0]*2;
        max = fishSize[0]*10;
    }

    for (int i = 1; i < n; i++) {
        if (fishSize[i]*2 < min) {
            min = fishSize[i]*2;
        }
        if (fishSize[i]*10 > max) {
            max = fishSize[i]*10;
        }
    }

    cout<<"有这么多种: "<<maxSize-minSize-(max-min)<<endl;
}

int main(int argc, char const *argv[])
{
    fun2();
    return 0;
}
```

运行结果:



3.

```
# include <iostream>
using namespace std;

void fun3()
{
    int n, a[1001], maxArea=0;

    cout<<"输入 n: ";
    cin>>n;
    cout<<"输入高度: ";
    for (int i = 0; i < n; i++) {
        cin>>a[i];
    }

    for (int i = 0; i < n; i++)
    {
```

```
            int area = a[i];

            // 向前找矩形，直到找到的矩形比当前矩形小
            for (int j = i-1; j >= 0; j--)
            {
                if (a[j] >= a[i]) {
                    area += a[i];
                } else {
                    break;
                }
            }

            // 向后找矩形，直到找到的矩形比当前矩形小
            for (int j = i+1; j < n; j++)
            {
                if (a[j] >= a[i]) {
                    area += a[i];
                } else {
                    break;
                }
            }

            if (area > maxArea)
            {
                maxArea = area;
            }
        }

        cout<<"maxArea: "<<maxArea<<endl;
}

int main(int argc, char const *argv[])
{
```

```
    fun3();
    return 0;
}
```

运行结果：