

## Exercise 1

```
#include <stdio.h>

void main()
{
    char c[6];                // Define an array to store the five characters entered
    char c1, c2, c3, c4, c5;  // Five variables for storing results

    // A bool value used to determine if the input characters are all English letters (1 is true 0
    // is false)
    int pd = 1;

    printf("Input the values of c1~c5:");
    // Input characters
    scanf("%c,%c,%c,%c,%c", &c[1], &c[2], &c[3], &c[4], &c[5]);

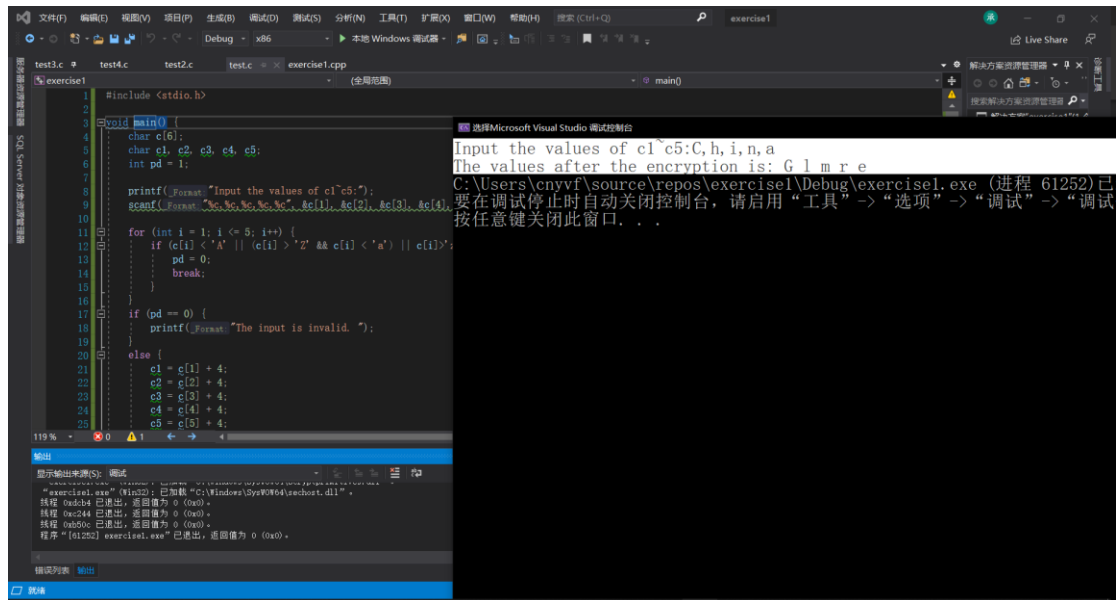
    // The for loop iterates through each character of the input
    for (int i = 1; i <= 5; i++)
    {
        // Determine if the character entered is upper or lower case, if not then pd=0
        if (c[i] < 'A' || (c[i] > 'Z' && c[i] < 'a') || c[i] > 'z')
        {
            pd = 0;
            break;
        }
    }
    if (pd == 0)
    {
        // If this variable is 0, then the characters entered are not all English letters
        printf("The input is invalid. ");    // Prompt for input error in this case
    }
    else
    {
        // If the input values are all English letters, the ASCII value of each element of the
        // array is added by 4 and assigned to the corresponding variable
        c1 = c[1] + 4;
        c2 = c[2] + 4;
        c3 = c[3] + 4;
        c4 = c[4] + 4;
        c5 = c[5] + 4;
        // Formatting the output corresponding variables
    }
}
```

```

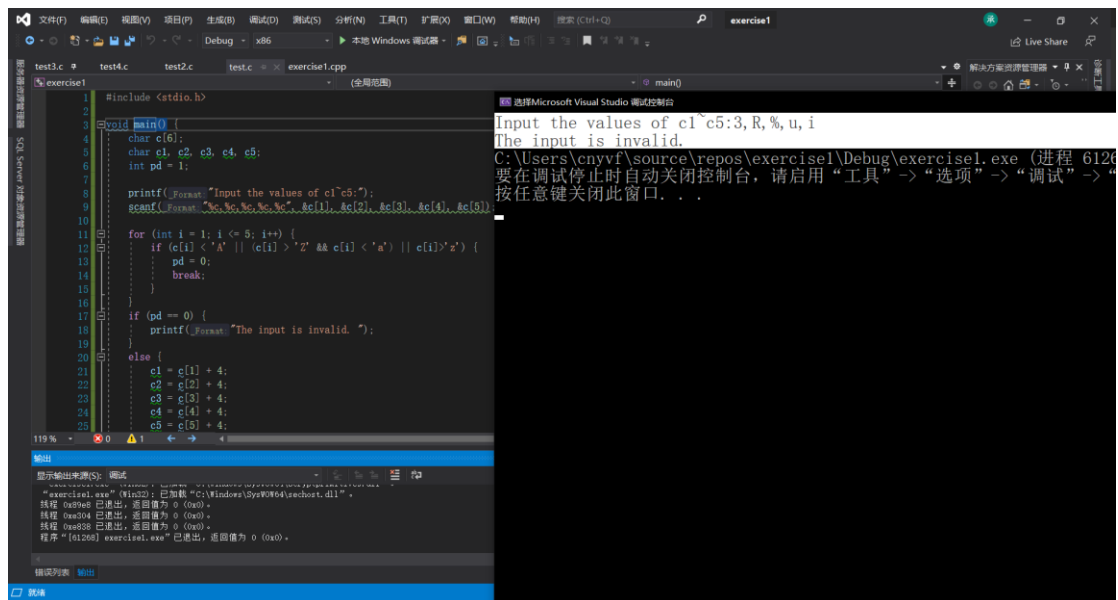
printf("The values after the encryption is: %c %c %c %c %c", c1, c2, c3, c4, c5);
}
}

```

Case1: The input value is five English letters.



Case2: The input value is not five English letters.



## Exercise 2

```
#include <stdio.h>
```

```
void main()
```

```
{
```

```
    double x,y; // Define the variable x and the result y
```

```
    printf("Please input the factor x > ");
```

```
    scanf("%lf", &x); // Input variable x
```

```
    // Identify the interval where x is located and perform the corresponding y operation
```

```
    if(x<1)
```

```
    {
```

```
        y = x;
```

```
    }
```

```
    else if(x>=1&&x<10)
```

```
    {
```

```
        y = x * 2 - 1;
```

```
    }
```

```
    else
```

```
    {
```

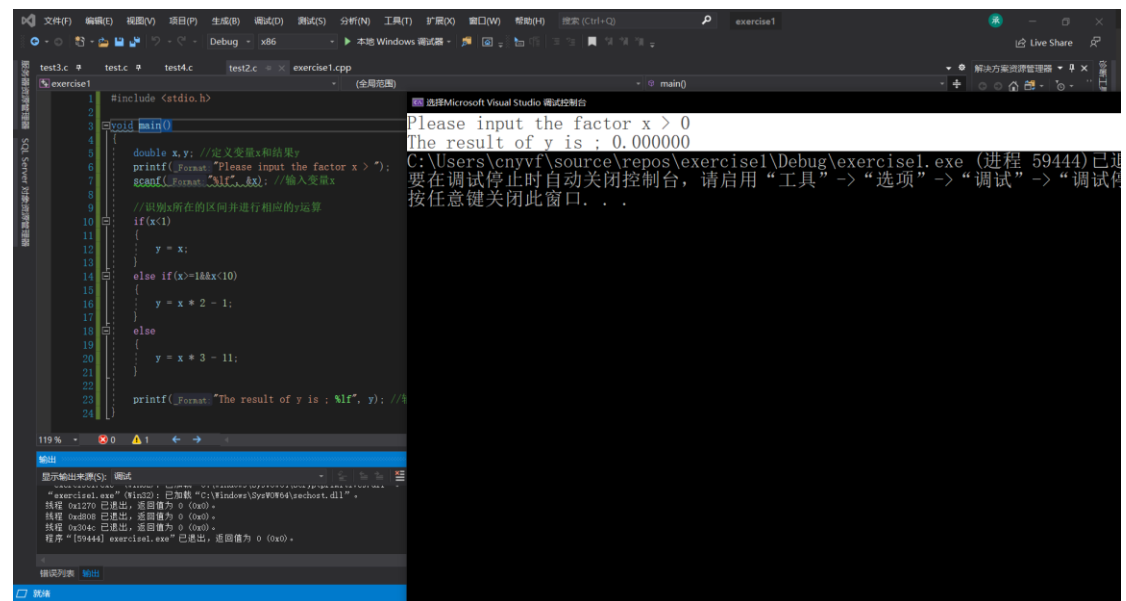
```
        y = x * 3 - 11;
```

```
    }
```

```
    printf("The result of y is ; %lf", y); // Output result y
```

```
}
```

### Case1: When x is less than 1

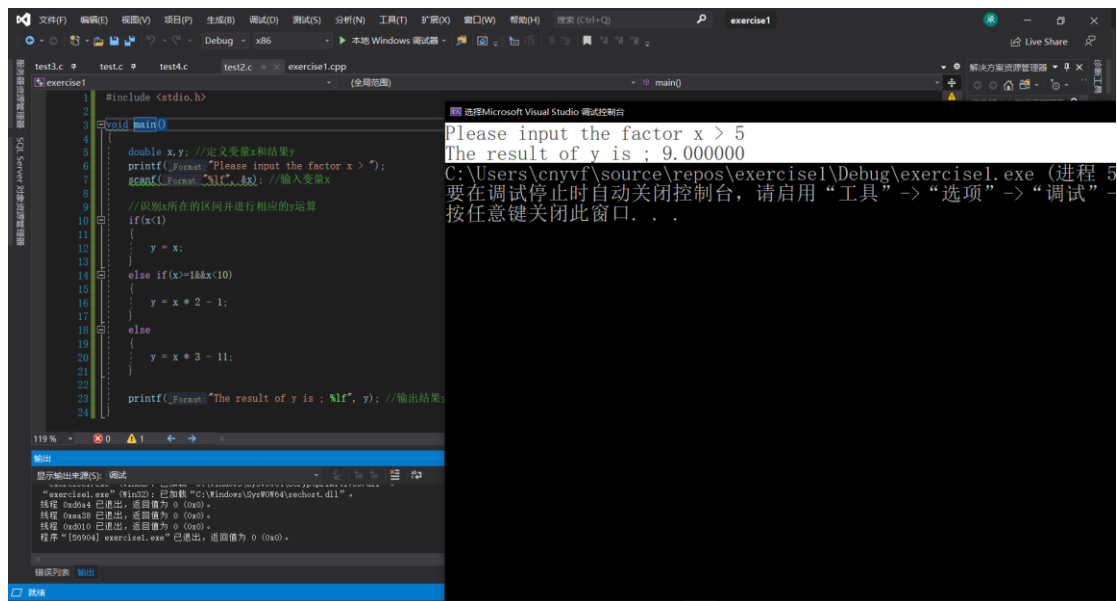


```
1 #include <stdio.h>
2
3 void main()
4 {
5     double x,y; //定义变量x和结果y
6     printf("Please input the factor x > ");
7     scanf("%lf", &x); //输入变量x
8
9     //识别x所在的区间并进行相应的y运算
10    if(x<1)
11    {
12        y = x;
13    }
14    else if(x>=1&&x<10)
15    {
16        y = x * 2 - 1;
17    }
18    else
19    {
20        y = x * 3 - 11;
21    }
22
23    printf("The result of y is ; %lf", y); //
24 }
```

Please input the factor x > 0  
The result of y is ; 0.000000

C:\Users\cnvfv\source\repos\exercisel\Debug\exercisel.exe (进程 59444) 已通  
要在调试停止时自动关闭控制台, 请启用“工具”->“选项”->“调试”->“调试停  
按任意键关闭此窗口。...

Case2: When x is greater than or equal to one and less than ten



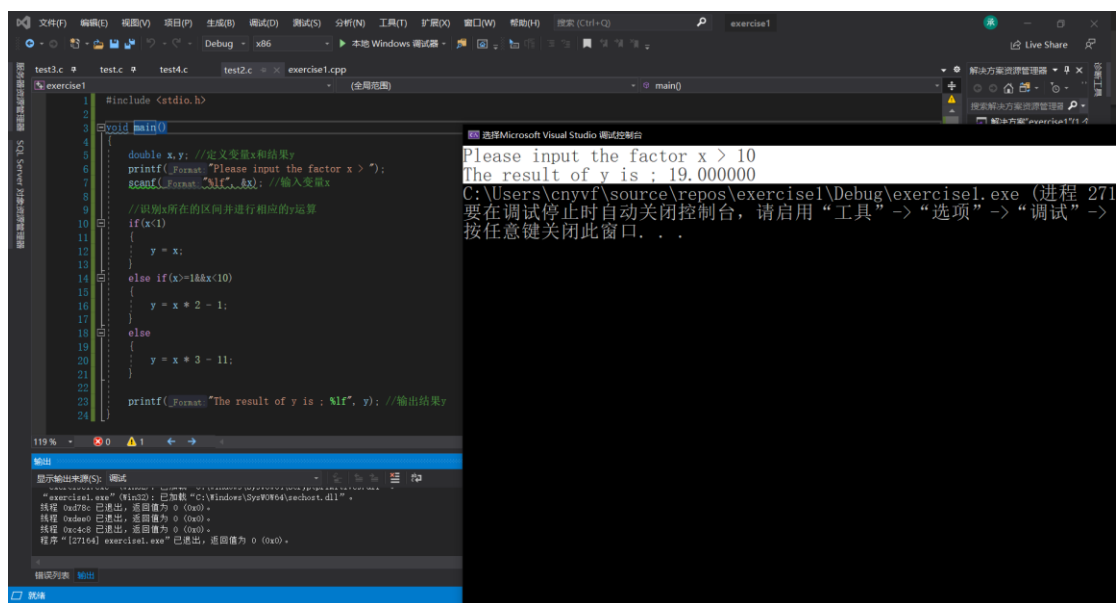
```
#include <stdio.h>

void main()
{
    double x,y; //定义变量x和结果y
    printf(_Format_ "Please input the factor x > ");
    scanf(_Format_ "%lf",&x); //输入变量x
    //识别x所在的区间并进行相应的y运算
    if(x<1)
    {
        y = x;
    }
    else if(x>=1&&x<10)
    {
        y = x * 2 - 1;
    }
    else
    {
        y = x * 3 - 11;
    }

    printf(_Format_ "The result of y is : %lf", y); //输出结果
}
```

Please input the factor x > 5  
The result of y is ; 9.000000  
C:\Users\cnyvf\source\repos\exercisel\Debug\exercisel.exe (进程 5...)  
要在调试停止时自动关闭控制台, 请启用“工具”->“选项”->“调试”->“按任意键关闭此窗口...”

Case3: When x is greater than or equal to 10



```
#include <stdio.h>

void main()
{
    double x,y; //定义变量x和结果y
    printf(_Format_ "Please input the factor x > ");
    scanf(_Format_ "%lf",&x); //输入变量x
    //识别x所在的区间并进行相应的y运算
    if(x<1)
    {
        y = x;
    }
    else if(x>=1&&x<10)
    {
        y = x * 2 - 1;
    }
    else
    {
        y = x * 3 - 11;
    }

    printf(_Format_ "The result of y is : %lf", y); //输出结果
}
```

Please input the factor x > 10  
The result of y is ; 19.000000  
C:\Users\cnyvf\source\repos\exercisel\Debug\exercisel.exe (进程 271...)  
要在调试停止时自动关闭控制台, 请启用“工具”->“选项”->“调试”->“按任意键关闭此窗口...”

## Exercise 3

```
#include <stdio.h>

void main()
{
    double totsalarY = 0; // Total salary
    double workTime = 0; // Working hours
    double taxMoney = 0; // Taxes
    double getMoney = 0; // Net income

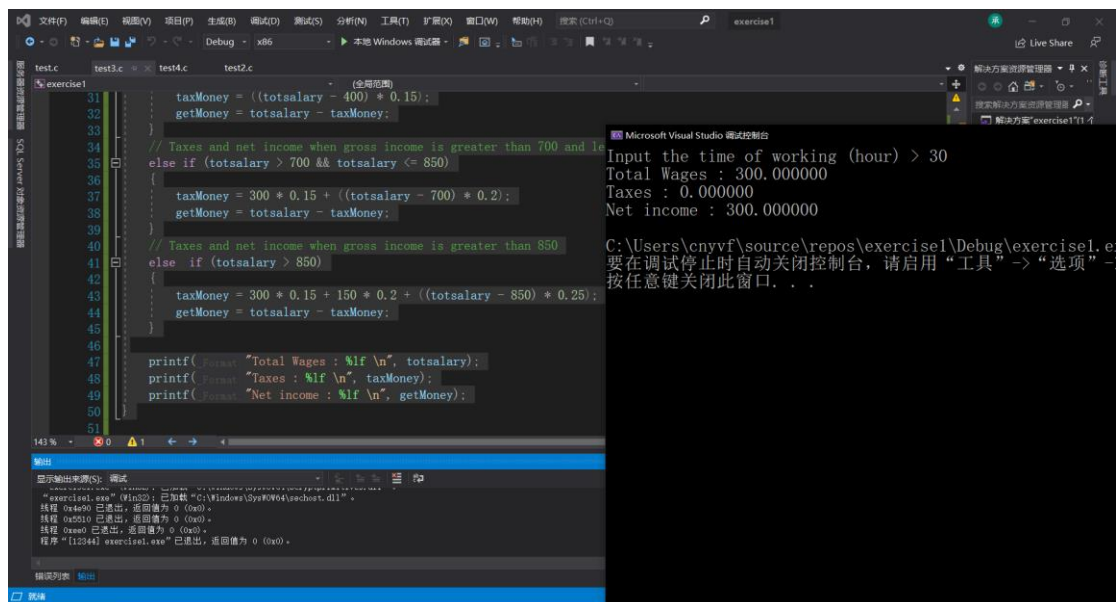
    printf("Input the time of working (hour) > ");
    scanf("%lf", &workTime); // Input working time
    // Calculate the total revenue when the working hours are greater than
40
    if (workTime > 40)
    {
        totsalarY = (40 * 10.0) + ((workTime - 40) * 1.5 * 10.0);
    }
    // Calculate the total revenue when the working hours are less than 40
    else
    {
        totsalarY = workTime * 10;
    }
    //Taxes and net income when gross income is less than 400
    if(totsalarY<=400)
    {
        taxMoney = 0;
        getMoney = totsalarY - taxMoney;
    }
    //Taxes and net income when income is greater than 400 and less than or
equal to 700
    else if (totsalarY > 400 && totsalarY <= 700)
    {
        taxMoney = ((totsalarY - 400) * 0.15);
        getMoney = totsalarY - taxMoney;
    }
    // Taxes and net income when gross income is greater than 700 and less
than or equal to 850
    else if (totsalarY > 700 && totsalarY <= 850)
    {
        taxMoney = 300 * 0.15 + ((totsalarY - 700) * 0.2);
    }
}
```

```

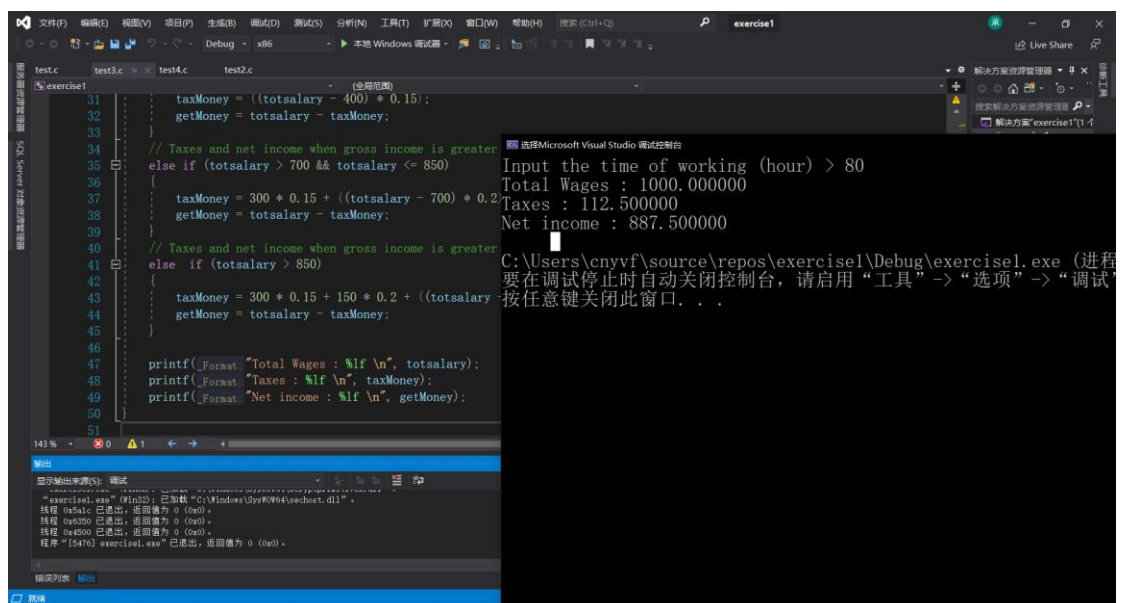
    getMoney = totalsalary - taxMoney;
}
// Taxes and net income when gross income is greater than 850
else if (totalsalary > 850)
{
    taxMoney = 300 * 0.15 + 150 * 0.2 + ((totalsalary - 850) * 0.25);
    getMoney = totalsalary - taxMoney;
}
printf("Total Wages : %lf \n", totalsalary);
printf("Taxes : %lf \n", taxMoney);
printf("Net income : %lf \n", getMoney);
}

```

### Case1: Working hours less than forty



### Case2: Working hours more than forty



## Exercise 4

```
#include <stdio.h>

double ka, kb, kc; // The mass of each type of goods required
double ma, mb, mc; // Unit price of each type of goods
double discount=0; // Discount
double totMoney=0; // Total amount of money needed in the end
double fa, fb, fc; // Final total discounted price per item
double totMass=0; // Total mass
double shipCharge=0; // Shipping Fee

// Define and display unit price
void printfPerMoney()
{
    ma = 1.25;
    mb = 0.65;
    mc = 0.89;
    printf("Artichokes:$1.25 per pound\n");
    printf("Beets:$0.65 per pound\n");
    printf("Carrots:$0.89 per pound\n");
}

// The user enters the desired amount
void inputMass()
{
    printf("How many artichokes do you need (pound) > ");
    scanf("%lf", &ka);
    printf("How many beets do you need (pound) > ");
    scanf("%lf", &kb);
    printf("How many carrots do you need (pound) > ");
    scanf("%lf", &kc);
}

// Operation process
void calculateMoney()
{
    totMass = ka + kb + kc; // Total mass

    // Calculate the total price of each of the original items
    fa = ka * ma;
    fb = kb * mb;
```

```

fc = kc * mc;

totMoney = fa + fb + fc; // Original total price

// Calculate discount
if(totMoney>100)
{
    discount = 0.05;
    fa = fa * (1 - discount);
    fb = fb * (1 - discount);
    fc = fc * (1 - discount);
    totMoney = fa + fb + fc;
}

// Calculate shipping and handling charges
if(totMass<=5)
{
    shipCharge = 3.5;
}
else if(totMass>5&&totMass<20)
{
    shipCharge = 10;
}
else
{
    shipCharge = (0.1 * totMass + 8);
}

totMoney += shipCharge; // Calculate the total discounted price
}

// Show output results
void printfFinal()
{
    printfPerMoney();
    printf("-----\n");
    if(discount!=0)    printf("The discount about this order is : %lf \n", discount);
    printf("The total pounds of the order is : %lf \n", totMass);
    printf("The shipping charges of this order is : %lf \n", shipCharge);
    printf("The total price of artichokes within this order is(after discount(if have)) : %lf \n",
fa);
    printf("The total price of beets within this order is(after discount(if have)) : %lf \n", fb);
    printf("The total price of carrots within this order is(after discount(if have)) : %lf \n", fc);
    printf("-----\n");
}

```



```

        printf("The total price of this order is : %lf \n", totMoney);
    }

void main()
{
    printfPerMoney();
    inputMass();
    calculateMoney();
    printf("\n");
    printf("-----");
    printf("\n");
    printfFinal();
}

```

### Case1: Total mass less than 5

```

Microsoft Visual Studio 调试控制台
exercisel

34 void calculateMoney()
35 {
36     totMass = ka + kb + kc;
37     //计算原始各项目的金额
38     fa = ka * ma;
39     fb = kb * mb;
40     fc = kc * mc;
41
42     Artichokes:$1.25 per pound
43     totMoney = fa + fb + fc;
44     Beets:$0.65 per pound
45     Carrots:$0.89 per pound
46
47     //计算折扣
48     if (totMoney > 100)
49     {
50         discount = 0.05;
51         fa = fa * (1 - disc);
52         fb = fb * (1 - disc);
53         fc = fc * (1 - disc);
54         totMoney = fa + fb + fc;
55     }
56     //计算运费和手续费
57     if (totMass <= 5)
58     {
59         shipCharge = 3.5;
60     }
61
62     The total pounds of the order is : 3.000000
63     The shipping charges of this order is : 3.500000
64     The total price of artichokes within this order is (after discount(if have)) : 1.250000
65     The total price of beets within this order is (after discount(if have)) : 0.650000
66     The total price of carrots within this order is (after discount(if have)) : 0.890000
67
68     -----
69     The total price of this order is : 6.290000
70
71 C:\Users\cnv\source\repos\exercisel\Debug\exercisel.exe (进程 60296) 已退出，代码为 0。
72 要在调试停止时自动关闭控制台，请启用“工具”->“选项”->“调试”->“调试停止时自动关闭控制台”。
73 按任意键关闭此窗口。 . . .
74
75 输出
76 显示输出来源(S): 调试
77 进程: exercisel.exe (进程: 60296)
78 "exercisel.exe" (Win32): 已加载 "C:\Windows\System32\user32.dll"
79 线程 0x50c 已退出，返回值为 0 (0x0)。
80 线程 0x50e 已退出，返回值为 0 (0x0)。
81 线程 0x50f 已退出，返回值为 0 (0x0)。
82 程序 "[60296] exercisel.exe" 已退出，返回值为 0 (0x0)。
83
84 错误列表 输出
85
86 调试
87 添加新源代码管理

```

### Case2: Total mass more than 5 and less than 20

```
46 if (totMoney > 100)
47 {
48     discount = 0.05;
49     fa = fa * (1 - discount);
50     fb = fb * (1 - discount);
51     fc = fc * (1 - discount);
52     totMoney = fa + fb + fc;
53 }
54
55 //计算运费和手续费
56 if (totMass < 5)
57 {
58     shipCharge = 3.5;
59 }
60 else if (totMass > 5 && totMass < 20)
61 {
62     shipCharge = 10;
63 }
64 else
65 {
66     shipCharge = (0.1 * totMass + 8);
67 }
68
69 totMoney += shipCharge; //计算新总价
70
```

Artichokes:\$1.25 per pound  
Beets:\$0.65 per pound  
Carrots:\$0.89 per pound  
How many artichokes do you need (pound) > 5  
How many beets do you need (pound) > 5  
How many carrots do you need (pound) > 5

Artichokes:\$1.25 per pound  
Beets:\$0.65 per pound  
Carrots:\$0.89 per pound

The total pounds of the order is : 15.000000  
The shipping charges of this order is : 10.000000  
The total price of artichokes within this order is(after discount(if have)) : 6.250000  
The total price of beets within this order is(after discount(if have)) : 3.250000  
The total price of carrots within this order is(after discount(if have)) : 4.450000

The total price of this order is : 23.950000

C:\Users\cnvfv\source\repos\exercisel\Debug\exercisel.exe (进程 61296)已退出, 代码为 0。  
要在调试停止时自动关闭控制台, 请启用“工具”->“选项”->“调试”->“调试停止时自动关闭控制台”  
按任意键关闭此窗口。...

### Case3: Total mass more than 20

```
46 if (totMoney > 100)
47 {
48     discount = 0.05;
49     fa = fa * (1 - discount);
50     fb = fb * (1 - discount);
51     fc = fc * (1 - discount);
52     totMoney = fa + fb + fc;
53 }
54
55 //计算运费和手续费
56 if (totMass < 5)
57 {
58     shipCharge = 3.5;
59 }
60 else if (totMass > 5 && totMass < 20)
61 {
62     shipCharge = 10;
63 }
64 else
65 {
66     shipCharge = (0.1 * totMass + 8);
67 }
68
69 totMoney += shipCharge; //计算新总价
70
```

Artichokes:\$1.25 per pound  
Beets:\$0.65 per pound  
Carrots:\$0.89 per pound  
How many artichokes do you need (pound) > 8  
How many beets do you need (pound) > 8  
How many carrots do you need (pound) > 8

Artichokes:\$1.25 per pound  
Beets:\$0.65 per pound  
Carrots:\$0.89 per pound

The total pounds of the order is : 24.000000  
The shipping charges of this order is : 10.400000  
The total price of artichokes within this order is(after discount(if have)) : 10.000000  
The total price of beets within this order is(after discount(if have)) : 5.200000  
The total price of carrots within this order is(after discount(if have)) : 7.120000

The total price of this order is : 32.720000

C:\Users\cnvfv\source\repos\exercisel\Debug\exercisel.exe (进程 59652)已退出, 代码为 0。  
要在调试停止时自动关闭控制台, 请启用“工具”->“选项”->“调试”->“调试停止时自动关闭控制台”  
按任意键关闭此窗口。...

### Case4: Total money more than 100

