

Week 4-2 : Inline Functions, Default Arguments, Function Overloading

Part3. Function Overloading

Criteria for determining function call on C++ : ①Function name, ② Parameter Information

Different parameter, same named function can be defined, this is overloading

```
int number(int num)
{
    num++;
    return num;
}

int number(int a, int b)
{
    return a+b;
}
```

Two functions have the same function name, number, but they show different parameters. When a number of parameters or type of parameter is different, this can be an example of overloading.

```
int number(int num)
{
    num++;
    return num;
}

void number(int num)
{

}
```

Functions which have same function name, same parameter, different return type are not overloading.

Overloading condition : ①Function name, ②Parameter Information

[Exercise]

1. Show the main function below. and make overloading swap functions.

```
int main(void)
{
    int num1=10, num2=20;
    swap(&num1, &num2);
    cout<<num1<<' '<<num2<<endl;

    char ch1='A', ch2='Z';
    swap(&ch1, &ch2);
    cout<<ch1<<' '<<ch2<<endl;
    return 0;
}
```

2. Main function is using default parameter. Change that function to overloading function.

```
#include <iostream>
using namespace std;
void Show(int num1, int num2=0);

int main(void)
{
    cout<<"[1, 1] : "<<endl;
    Show(1, 1);
    cout<<"[1, D] : "<<endl;
    Show(1);
    return 0;
}

void Show(int num1, int num2)
{
    cout<< num1<<','<<num2<<endl;
}
```

3. Using function overloading, make a function which can print out cups of extra shot added coffee

[no extra shot]

```
C:\windows\system32\cmd.exe
**Input your money**
2000
**Kinds of coffee** (1:americano, 2:caffe-latte)
1
**extra show** (y/n)
n
10 cups of coffee
계속하려면 아무 키나 누르십시오 . . .
```

[extra shot]

```
C:\windows\system32\cmd.exe
**Input your money**
2000
**Kinds of coffee** (1:americano, 2:caffe-latte)
1
**extra show** (y/n)
y
**the number of shots** (1 or 2)?
2
5 cups of coffee
계속하려면 아무 키나 누르십시오 . . .
```