

## Week 3-2 : C++ Basics & Data Types

- Class declaration and making member function

interface between class and user

notice the variation of class data type/function

using \*.h file

- Definition of function

definition of concrete function processing ;the part to be written by programmer who want to make class

using \*.cpp file

```
/*Fishbread.h*/  
#include <iostream>  
class Fishbread  
{  
    public:  
    Fishbread(int argCost,string argContent);  
    ~Fishbread();  
    int GetCost();  
    void SetCost();  
    private:  
    int cost;  
    string content;  
};
```

```
/*Fishbread.cpp*/
#include "Fishbread.h"
Fishbread::Fishbread()
{
}
Fishbread::Fishbread(int argCost,string argContent)
{
    cost=argCost;
    ontent=argContent;
}
Fishbread::~~Fishbread()
{
    cout<<>>"eat Fishbread"<<endl;
}
...
...
```

```
/*main.cpp*/
#include "Fishbread.h"
int main()
{
    Fishbread fish1(500,"adzuki beans");
    cout<<"How much is it"<<fish1.GetCost()<<endl;
    fish1.SetCost(800);
    cout<<"How much is it"<<fish1.GetCost()<<endl;
    return 0;
}
```

- I/O

① output form

```
std::out << 'output things';
```

② line alignment

```
std::endl;
```

③ input form

```
std::cin>>'value';
```

```
#include <iostream>

int main(void)
{
    int year = 2015;
    std::cout<<year<<"Programming Class"<<std::endl;
    std::cout<<"practical training time"<<std::endl;
    return 0;
}
```

## Part2. Data Types

### Data types

long double

double

float

unsigned long int (synonymous with unsigned long)

long int (synonymous with long)

unsigned int (synonymous with unsigned)

int

unsigned short int (synonymous with unsigned short)

short int (synonymous with short)

unsigned char

char

bool

① char

```
char A = 'A';
```

② int

```
int A = 10;
```

③ float, double

```
float A = 12.34;
```

④ bool : data type which has true, false value. 0 is false, others are true value.

```
bool A = 0;  
bool A = false;
```

⑤ void : empty

⑥ enum : enumerate the data which are defined by user

```
enum season { SPRING, SUMMER, FALL, WINTER }
```

⑦ string : the collection of characters

```
string A = "hello";
```

⑧ pointer \*& : variable which has data's address

```
int *A // generate pointer variable
```

```
A = &B; //save a B's address at A
```

```
*A = 100; (save a 100 value at *A's address)
```

⑨ Array : the collection of the same type data

```
int A[200] = {1, 2, 3}
```

**[Exercise]**

1. using sizeof function, show the size of data type below.

```
long double
double
float
unsigned long int
long int
unsigned int
int
unsigned short int
short int
unsigned char
char
bool
enum season { SPRING, SUMMER, FALL, WINTER }
class Student{
public:
    int id;
    int age;
}
```

2. Make a 'Vending' class, which has 'cup' variable(private) and 'coffee' method. When you input money in the main(), print out a number of cups of coffee. The coffee's price is 200, when you input money less than 200, print out an error message.