

ch6.



Function2

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Content

0. Last class Review
1. Recursion Function
2. Call by Value
3. Call by Reference
4. Practice
5. Assignments

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0. Last class Review

1. Recursive Function

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

int input(int dan);
int gugudan(int input);
void print(int num1, int num2, int num3);

int main() {
    int num = 0;
    gugudan(input(num));

    return 0;
}

int input(int dan) {
    while (dan == 0) {
        cout << "Input : ";
        cin >> dan;

        if (dan < 10 && dan > 0) {
            return dan;
        }
        else {
            cout << "error" << endl;
            dan = 0;
        }
    }
}

int gugudan(int input) {
    int result;

    for (int i = 1; i < 10; i++) {
        result = input * i;

        print(input, i, result);
    }

    return 0;
}

void print(int num1, int num2, int num3) {
    cout << num1 << " * " << num2 << " = " << num3 << endl;

    return;
}
```

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재귀함수

함수가 자기 자신을 호출하는 것을
재귀 함수라 한다.

반복문으로 충분히 나타낼 수 있지만,
재귀함수를 사용하는 것은
직관적으로 알기 쉬워서이다!!

재귀함수

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저번주 과제 재귀써서
푼 친구들 있던데,

재귀를 안 쓴 사람 & 과제를 안 한 사람은
지금 한번 해보기!!!

Call by Value (값에 의한 호출)

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```
...  
void func1(int a, int b) {  
    int temp = a;  
    a = b;  
    b = temp;  
  
    return ;  
}  
  
int main() {  
    int num1 = 10;  
    int num2 = 20;  
  
    cout << "befor : " << num1 << ", " << num2 << endl;  
    func1(num1, num2);  
    cout << "after: " << num1 << ", " << num2 << endl;  
  
    return 0;  
}
```

Call by Reference (참조에 의한 호출)

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```
...  
void func2(int *a, int *b) {  
    int temp = *a;  
    *a = *b;  
    *b = temp;  
  
    return ;  
}  
  
int main() {  
    int num1 = 10;  
    int num2 = 20;  
  
    cout << "befor : " << num1 << ", " << num2 << endl;  
    func2(&num1, &num2);  
    cout << "after: " << num1 << ", " << num2 << endl;  
  
    return 0;  
}
```

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func1 vs func2

차이점을 알겠나?

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무엇을 참조(???)???

Ch02에서 배운
*컴퓨터 구조*를 생각해보자!!!

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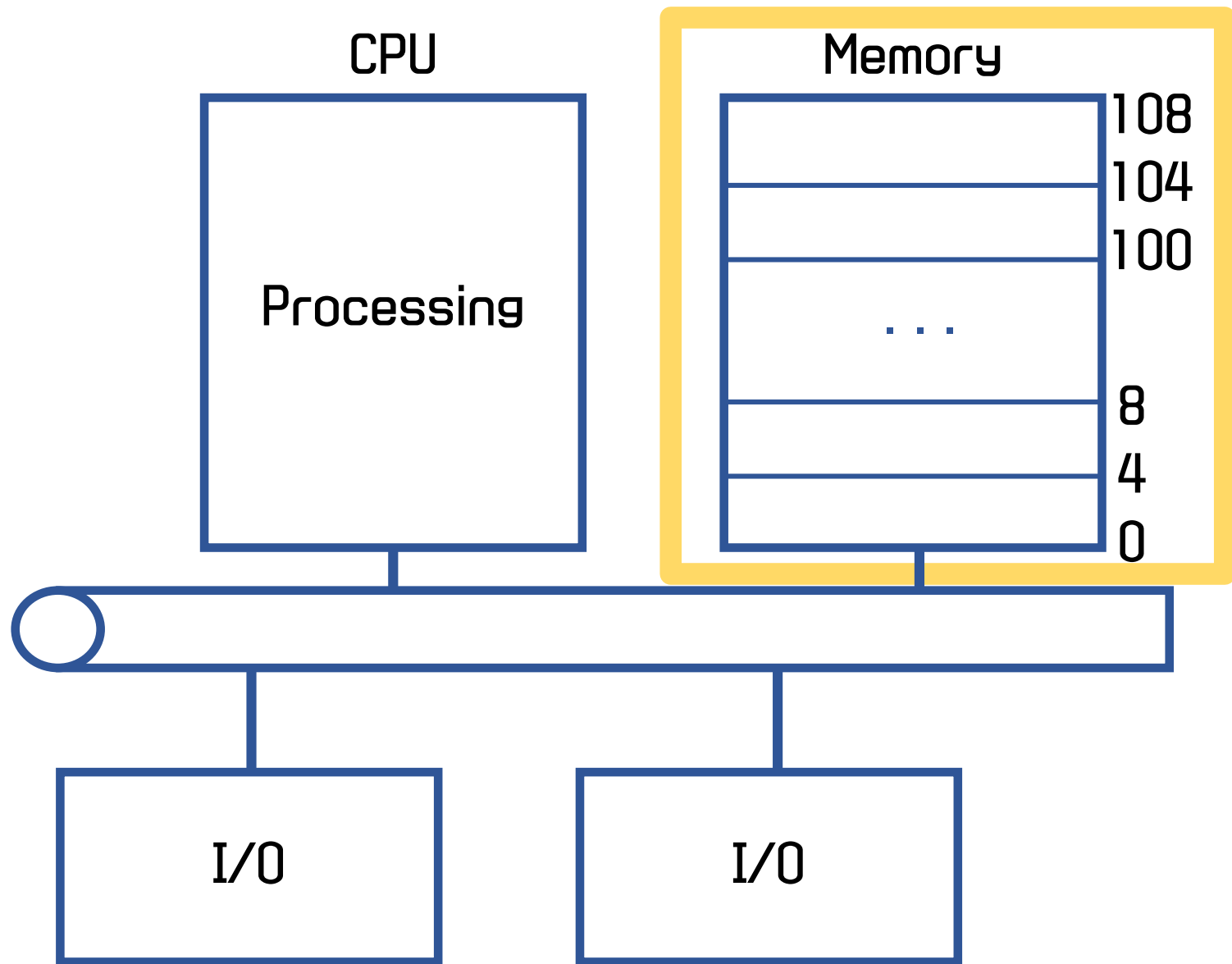
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이것만은 꼭 이해 !!!

✖

: 메모리 주소를 가리킨다

&

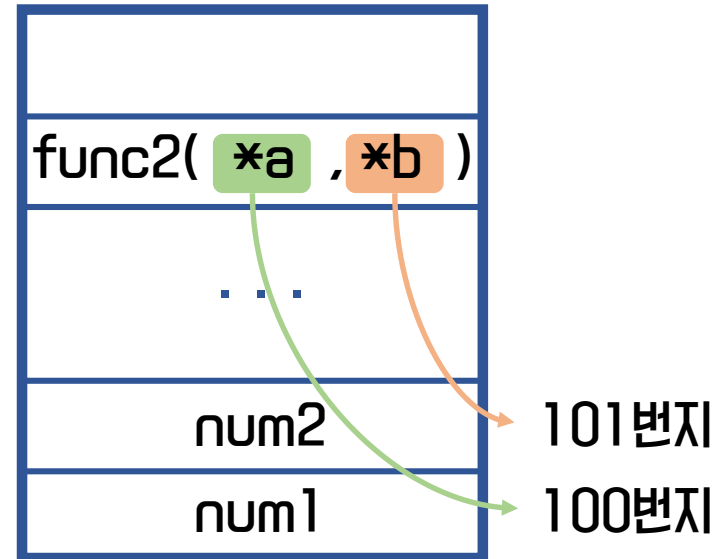
: 메모리 주소를 받는다

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이것만은 꼭 이해 !!!

```
...  
void func1(int *a, int *b) {}  
  
int main() {  
    ...  
    func1(&num1, &num2);  
    return 0;  
}
```



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Practice

위에 예제 코드 보지 말고
직접 코딩해보기

func1: *call by value* 이용 swap
func2: *call by reference* 이용 swap

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Assignment)

재귀를 써서 Factorial 함수 만들기

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Assignment 뽀너스)

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D-Day 계산하는 함수 만들기!!!!!!!!!!!!!!

(참고로 내가 1학년때 이거하느라 개고생)
(시간 남는 사람만 해봐 ㅋㅋㅋㅋㅋㅋ)

Thank you
