

Algorithm_hw3

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- Problem 1 :

1. recursive algorithm

```
int C(int n, int k) {  
    if (n ≥ 0 and k == 0)  
        then return 1;  
    else if (n == 0 and k > 0)  
        then return 0;  
    else if (n == k)  
        then return 1;  
    else if (n > 0 and k > 0)  
        then return C(n-1, k-1) + C(n-1, k);  
}
```

- Problem 2 :

2. Dynamic Programming

(n, k 가 50 이하의 정수라고 가정)

Pseudo Code :

```
int subset[51][51];
```

```
int C(int n, int k) {
```

```
    if (subset[n][k] != 0)
```

```
        then return subset[n][k];
```

```
    else if (n ≥ 0 and k == 0) {
```

```
        then subset[n][k] = 1;
```

```
        return 1;
```

```
    }
```

```
    else if (n == 0 and k > 0) {
```

```
        then subset[n][k] = 0;
```

```
        return 0;
```

```
    }
```

```
    else if (n == k) {
```

```
        then subset[n][k] = 1;
```

```
        return 1;
```

```
    }
```

```
    else {
```

```
        then subset[n][k] = C(n-1, k-1) + C(n-1, k);
```

```
        return subset[n][k];
```

```
    }
```

```
}
```