

Code(Recursion & Factorial)

```
#include <iostream>
using namespace std;
int choose(int n, int k);
int factorial(int n);
int combination(int n, int k);

int recursion_n = 0;
int factorial_n = 0;

int main()
{
    int n, k;
    cout << "Type N:";
    cin >> n;
    cout << "Type K:";
    cin >> k;

    cout << "choose: " << choose(n, k) << " with " << recursion_n << " times" << endl;
    cout << "combination: " << combination(n, k) << " with " << factorial_n << " times"
    << endl;
}

int choose(int n, int k)
{
    recursion_n++;
    if (k == 1)
        return n;
    else if (n == k)
        return 1;
    else
        return choose(n - 1, k - 1) + choose(n - 1, k);
}

int factorial(int n)
{
    factorial_n++;
    if (n <= 1)
    {
        return 1;
    }
    else {
        return n * factorial(n - 1);
    }
}

int combination(int n, int k)
{
    return factorial(n) / (factorial(n - k) * factorial(k));
}
```

