Friend's Pairing in C++

```cpp
#include <iostream>
#include <vector>

using namespace std;

int main() {
    int n = 3;

    vector<int> dp(n + 1);
    dp[1] = 1;
    dp[2] = 2;

    for (int i = 3; i <= n; i++) {
        dp[i] = dp[i - 1] + dp[i - 2] * (i - 1);
    }

    cout << dp[n] << endl;

    return 0;
}
```

Dry Run:

Input:

n = 3

Initialization:

dp[1] = 1
dp[2] = 2

Loop Execution:

Step 1: i = 3

dp[3] = dp[2] + dp[1] * (3 - 1)
    = 2 + 1 * 2
    = 2 + 2
    = 4

Final Result:

dp[3] = 4

Output:-
4