Friend's Pairing in C++

```
#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 with Iteration Table

Initial State

```
dp = [?, 1, 2]  // (dp[0] is unused)
```

Iterating from `i = 3` to `n = 3`

`i`	Calculation	Updated `dp[i]`
3	`dp[3] = dp[2] + dp[1] * (3 - 1)`	`dp[3] = 2 + 1 * 2 = 4`

Final `dp` Array

```
dp = [?, 1, 2, 4]
```

Final Output

```
4
```

Output:-
4