

Tiling with Dominoes in C++

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

using namespace std;

int main() {
    int n = 2;

    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];
    }

    cout << dp[n] << endl;

    return 0;
}
```

Given:

- $n = 2$

We create a dp vector of size $n+1 = 3$ and initialize the base cases:

- $dp[1] = 1$
- $dp[2] = 2$

Initial dp Table:

i\dp	0	1	2
i=0	0		
i=1		1	
i=2			2

At this point:

- $dp[0] = 0$ (this entry is not used)
- $dp[1] = 1$
- $dp[2] = 2$

For Loop Execution:

The for loop iterates from $i = 3$ to n . But, since $n = 2$, the loop condition $i = 3 \leq 2$ is **false**, so the loop doesn't run.

Final dp Table:

The table remains unchanged from initialization:

i\dp	0	1	2
i=0	0		
i=1		1	
i=2			2

Final Output:

The program prints $dp[n]$, where $n = 2$, so $dp[2] = 2$ is printed.

Output:-
2