

```

1 //
2 // There are N men and N women, both numbered 1,2,...,N.
3 // For each i,j (1≤i,j≤N), the compatibility of Man i and Woman j is given as an integer a[i][j]
4 // If a[i][j] = 1, Man i and Woman j are compatible; otherwise not.
5 // Taro is trying to make N pairs, each consisting of a man and a woman who are compatible.
6 // Here, each man and each woman must belong to exactly one pair.
7 // Find the number of ways in which Taro can make N pairs, modulo 10^9 + 7
8 //
9 // Time Complexity: O(2^N * N^2)
10 //
11
12 #include <bits/stdc++.h>
13 #define ll long long
14
15 using namespace std;
16
17 const int MOD = 1e9 + 7;
18 const int maxSetCount = (1 << 21) + 1;
19
20 bool match[25][25];
21 int dp[maxSetCount][21];
22 int n;
23
24 int main() {
25     cin >> n;
26
27     // memset the dp
28     for (int i = 0; i < maxSetCount; i++) {
29         for (int j = 0; j < n; j++) {
30             dp[i][j] = 0;
31         }
32     }
33
34     for (int i = 0; i < n; i++) {
35         for (int j = 0; j < n; j++) {
36             cin >> match[i][j];
37         }
38     }
39
40     int full_set = (1 << n) - 1;
41
42     // base case
43     for (int i = 0; i < n; i++) {
44         dp[0][i] = 1;
45     }
46
47     for (int set = 0; set < (1 << n); set++) {
48         int count = __builtin_popcount(set);
49         for (int last = 0; last < n; last++) {
50             if (((1 << last) & set) == 0 && match[last][count]) {
51                 int next_set = set ^ (1 << last);
52
53                 for (int i = 0; i < n; i++) {
54                     dp[next_set][i] = (dp[next_set][i] + dp[set][last]) % MOD;
55                 }
56             }
57         }
58     }
59
60     cout << dp[full_set][0] << endl;
61     return 0;
62 }

```