

```

1  #include <bits/stdc++.h>
2  using namespace std;
3
4  double V[16][16];
5  vector<pair<int,int> > P;
6  int n;
7
8  double dp[20][1 << 16];
9
10 inline double calc(int i,int j){
11     return sqrt((P[i].first-P[j].first)*(P[i].first-P[j].first) + (P[i].second -
12     P[j].second)*(P[i].second - P[j].second));
13 }
14 double solve(int current, int mask){
15     if(mask == ((1<<(n+1))-1)){
16         return V[current][0];
17     }
18     if(dp[current][mask]!=-1) return dp[current][mask];
19     double ans = 1e9 + 10;
20     for(int i=1;i<=n;i++){
21         if(!(mask & (1<<i)))
22             ans = min(solve(i,mask | (1<<i))+V[current][i],ans);
23     }
24     return dp[current][mask] = ans;
25 }
26
27 main(){
28     ios base::sync with stdio(0);
29     cin.tie(0);
30     int x,y,a,b;
31     while(cin >> n and n){
32         P.clear();
33         for(int i=0;i<=n;i++){
34             for(int j=0;j<=(1<<(n+1));j++){
35                 dp[i][j] = -1;
36             }
37         }
38         cin >> x >> y;
39         P.push back(make pair(x,y));
40         for(int i=1;i<=n;i++){
41             cin >> a >> b;
42             P.push back(make pair(a,b));
43         }
44         for(int i=0;i<=n;i++){
45             for(int j=0;j<=n;j++){
46                 V[i][j] = calc(i,j);
47             }
48         }
49         cout << fixed << setprecision(2) << solve(0,1) << endl;
50     }
51 }
52
53
54
55
56

```