#include <bits/stdc++.h>

using namespace std;

#define V 4

int travllingSalesmanProblem(int graph[][V], int s) {

vector<int> vertex;

for (int i = 0; i < V; i++)

if (i != s)

vertex.push\_back(i);

int min\_path = INT\_MAX;

do {

int current\_pathweight = 0;

int k = s;

for (int i = 0; i < vertex.size(); i++) {

current\_pathweight += graph[k][vertex[i]];

k = vertex[i];

}

current\_pathweight += graph[k][s];

min\_path = min(min\_path, current\_pathweight);

} while (next\_permutation(vertex.begin(), vertex.end()));

return min\_path;

}

int main() {

int graph[V][V];

cout << "Enter the adjacency matrix of the graph (size 4x4):\n";

for (int i = 0; i < V; i++) {

for (int j = 0; j < V; j++) {

cin >> graph[i][j];

}

}

int s;

cout << "Enter the starting vertex (0 to " << V - 1 << "): ";

cin >> s;

cout << "The minimum path cost is: " << travllingSalesmanProblem(graph, s) << endl;

return 0;

}