```
procedure PATHPLAN(vertex v, bool is_first){
1:    if (is_first){                        // special treatment of the first node
2:       create a new path as the current path;
3:       add v into the current path;
4:    }
5:    flag = false;
6:    foreach (vertex j of v's adjacent vertices){
7:       if (adjacency_matrix[v][j] ≠ 0){
8:          // label the unvisited edge as visited
9:          adjacency_matrix[v][j] =  adjacency_matrix[j][v] = 0;
10:          if (flag){
11:             // if backtracking occurs, v becomes the start node of another new path
12:             create a new path as the current path;
13:             add v into the current path; // v is the "fork vertex"
14:             add j into the current path; // j is the second node of the new path
15:          }
16:          else{
17:             add j into the current path; // follow the depth-first traversal
18:          }
19:          flag = PathPlan(v, false);    // recursive call
20:       }
21:   }
22:   return true;   // "nowhere to go", have to backtrack
23:}
```