UM–SJTU Joint Institute

VE477 Intro to Algorithms

Homework 3

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Question 1   Hamilton Path

A Hamilton Path is a path that visit each vertex in a graph exactly once.

(1)

Not done yet.

(2)

Not done yet.

(3)

Algorithm 1: Hamilton Algorithm

Input   : An undirected graph G
Output: The Hamilton Path in G

1 Function Hamilton(G)**:**
2 | $L \leftarrow []$;
3 | $S \leftarrow$ nodes with no coming edges;
4 | **if** *S size >1* **then**
5 | | **return** *No result*
6 | **end if**
7 | **while** $S \neq \varnothing$ **do**
8 | | remove n from S;
9 | | Append n to tail of L;
10 | | **for** *node m with an edge e from n to m* **do**
11 | | | remove e from graph.
12 | | **end for**
13 | **end while**
14 | **if** *Graph has other edges* **then**
15 | | **return** *No result*
16 | **end if**
17 | **else**
18 | | **return** L
19 | **end if**
20 end