BITS Pilani, Dubai Campus

Dubai International Academic City, Dubai

I Semester 2020-21

CS F222 Discrete Structures for Computer Science

Assignment - I

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Section No: 2

Ques No: 21

Ques Statement: Given a graph and a positive integer n, write a program to determine whether the graph has a cycle of length n.

Where my solution can be used:

Hamiltonian cycles: If there exists a [cycle](https://www.gatevidyalay.com/walk-in-graph-theory/) in the connected graph that contains all the vertices of the graph, then that cycle is called as a Hamiltonian circuit/cycle.

It has real applications in such diverse fields as computer graphics, electronic circuit design, mapping genomes, and operations research.

Example: Schools use Hamiltonian cycles to plan the best route to pick up students from across the district. Here students may be considered nodes, the paths between them edges, and the bus wishes to travel a route that will pass each student’s house exactly once.

Here using my code, the bus driver can check if there exists a Hamiltonian cycle of length n (for n number of students) or not.