

Graph ADT

Consider the following graph representing the streets in a city

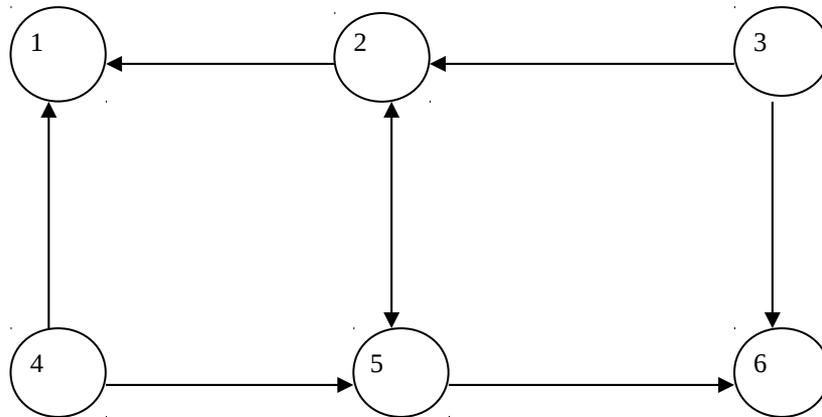


Figure 1: Street Map Graph

1. Complete the following table of properties of the graph with True/False

Property	True/False
Directed	
Cyclic	
Connected	
Weighted	

2. For node 2 in Figure 1,
 - What is the in-degree?
 - What is the out-degree?
 - What nodes are adjacent to 2?
 - What nodes are adjacent from 2?
 - Give a path to node 6.
 - Are there any more paths to node 6?
3. Draw an adjacency matrix representation of the graph in Figure 1.
4. Draw an adjacency list representation of the graph in Figure 1.
5. Write a method `boolean existsEdge(int i, int j)` for the Adjacency Matrix Digraph (`AdjacencyDigraph`) class in the notes.
6. Write the `int outDegree(int i)` and `int inDegree(int i)` methods for the Adjacency List Digraph (`LinkedDigraph`) class in the notes. **Hint:** use a list search method for `inDegree`.