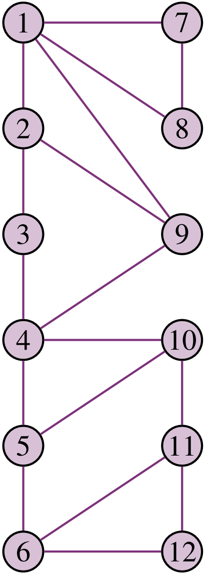
Using Depth-First Search (continued)

George Mertzios

george.mertzios@durham.ac.uk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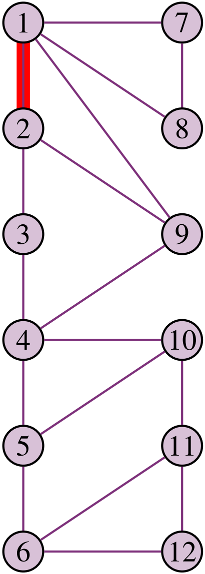
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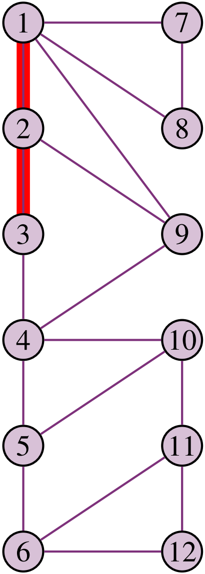
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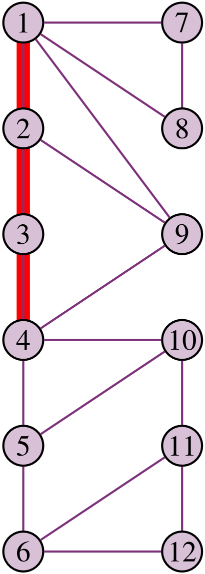
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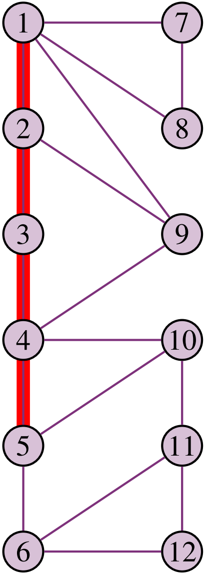
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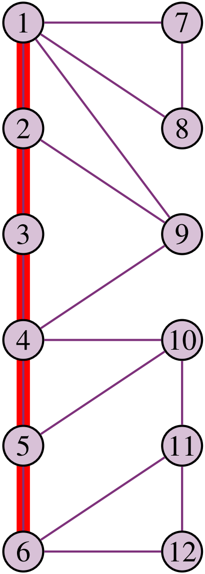
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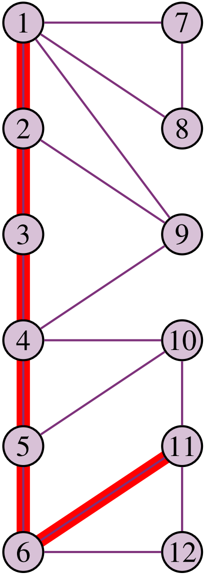
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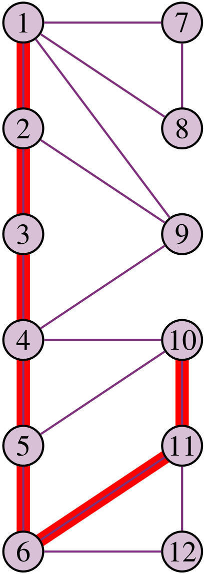
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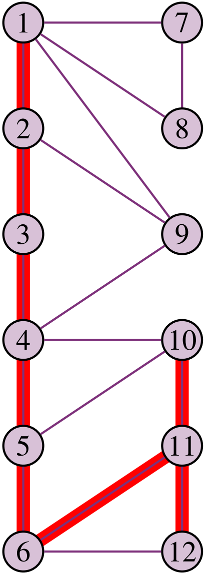
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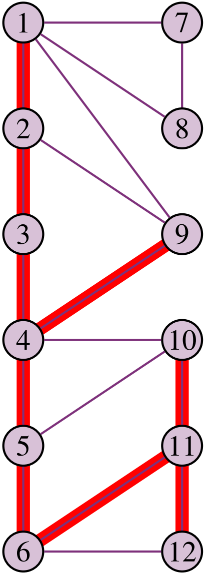
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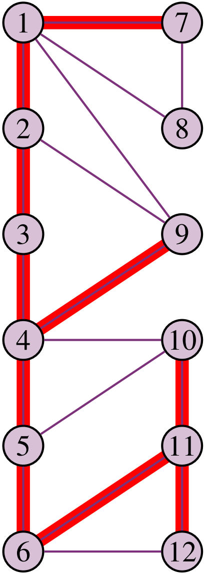
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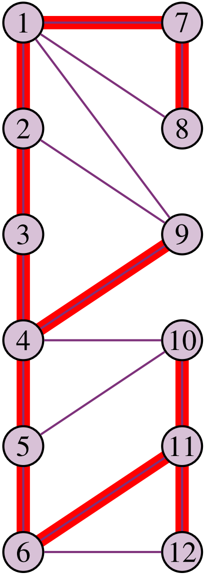
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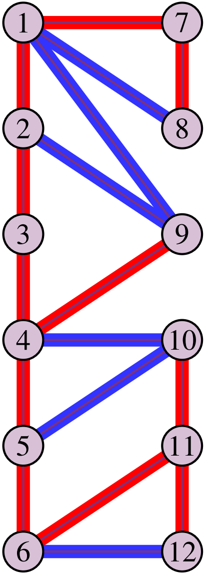
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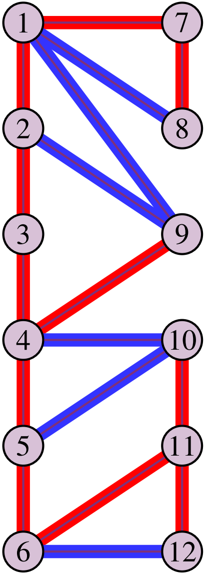
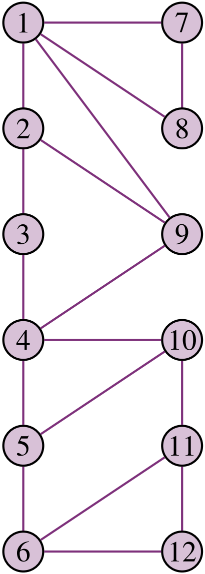
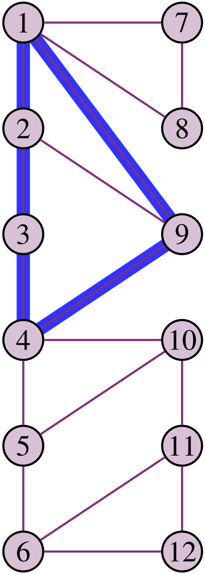


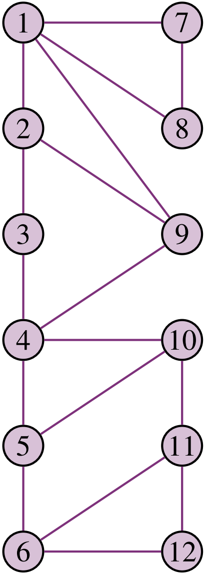
- Every edge in an undirected graph is either a tree edge or a back edge.



- Every edge in an undirected graph is either a tree edge or a back edge.
- A graph is connected if each pair of vertices is joined by a path.



- Every edge in an undirected graph is either a tree edge or a back edge.
- A graph is connected if each pair of vertices is joined by a path.
- A cycle is a sequence of edges that start and end at the same vertex.



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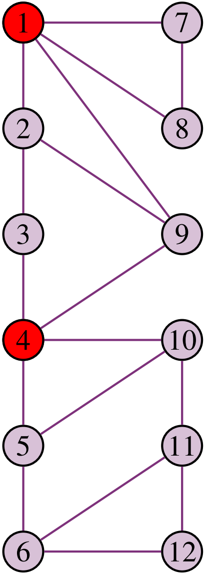
- A cycle is a sequence of edges that start and end at the same vertex.
- An articulation point is a vertex whose removal disconnects the graph.



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Using Depth-First Search

Can we adapt Depth-First Search to obtain algorithms that

- check whether a graph is connected?
- discover a cycle in a graph (or conclude that none exists)?
- find all the articulation points in a graph?