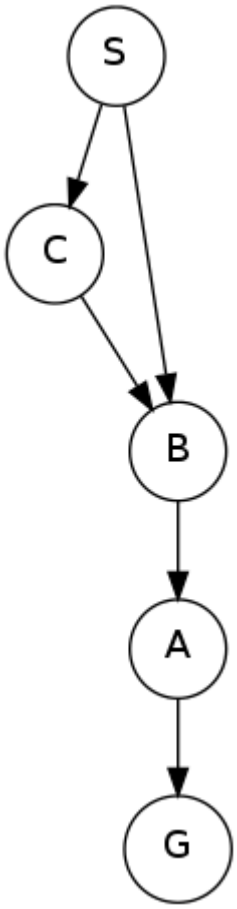
Quiz 1

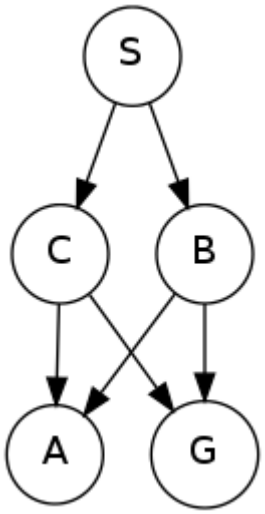
09 September 2017

For all the problems, assume that ties are broken alphabetically (so a partial plan S->X->A would be expanded before S->X->B and S->A->Z would be expanded before S->B->A). Your answer should be a string with S as your first character and G as your last character.

1. (10 points) DEPTH-FIRST SEARCH (**Using Tree Search**)
Consider a depth-first graph search on the graph below, where S is the start and G is the goal state. You may find it helpful to execute the search on scratch paper. Please write the final path returned by depth-first search. Your answer should be a string with S as your first character and G as your last character.



2. (10 points) BREADTH-FIRST GRAPH SEARCH (**Using Tree Search**)
Consider a breadth-first graph search on the graph below, where S is the start and G is the goal state. You may find it helpful to execute the search on scratch paper. Please write the final path returned by breadth-first search. Your answer should be a string with S as your first character and G as your last character.



3. (30 points) COMPARE SEARCH TREES
Consider the search space below, where S is the start node and G1 and G2 satisfy the goal test. Arcs are labeled with the cost of traversing them (so lower is better).

For each of the following search strategies, indicate which goal state is reached (if any) and list, in order, all the states popped off of the fringe list. When all else is equal, nodes should be removed from fringe in alphabetical order.

Breadth First (**Using Tree Search**)
Goal state reached: _____
States popped off the fringe: _____

Depth First (**Using Tree Search**)
Goal state reached: _____
States popped off fringe: _____

Uniform-Cost Search (**Using Tree Search**)
Goal state reached: _____
States popped off fringe: _____