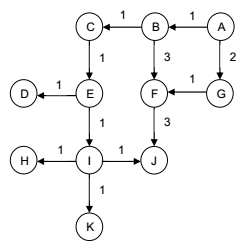
Facultad de Ingeniería en Electricidad y ComputaciónArtificial Intelligence

Homework # 1. Blind Search Mechanisms:

Work as a group and answer each of the following questions. You must report only one  
document as a group, and place it in SIDWeb 4.0, section “Trabajos”.

DO NOT send the homework via email.

1. Consider the following graph, where nodes are labelled alphabetically and links have associated costs. Answer the following questions:



1. List the nodes in the order they would be visited when performing depth first search for K, starting from A, showing what is in the open and close lists. **Assume that neighbors of the same node are visited in alphabetical order**

**BREATH FIRST**

|  |  |  |
| --- | --- | --- |
| Open =[A] | Closed = [] | X= |
| Open = [B,G] | Closed =[A] | X=A |
| Open = [G,C,F] | Closed= [B,A] | X=B |
| Open = [C,F] | Closed= [G,B,A] | X=G |
| Open = [F,E] | Closed= [C,G,B,A] | X=C |
| Open = [E,J] | Closed= [F,C,G,B,A] | X=F |
| Open = [J,D,I] | Closed= [E,F,C,G,B,A] | X=E |
| Open = [D,I] | Closed= [J,E,F,C,G,B,A] | X=J |
| Open = [I] | Closed= [D,J,E,F,C,G,B,A] | X=D |
| Open = [H,K] | Closed= [I,D,J,E,F,C,G,B,A] | X=I |
| Open = [K] | Closed= [H,I,D,J,E,F,C,G,B,A] | X=H |
| Open = [] | Closed= [H,I,D,J,E,F,C,G,B,A] | X=K |

RETURN SUCCESS

1. Do the same for breath first search for K, starting from A, showing what is in the open and close lists.

**DEPTH FIRST**

|  |  |  |
| --- | --- | --- |
| Open =[A] | Closed = [] | X= |
| Open =[B,G] | Closed = [A] | X=A |
| Open =[C,F,G] | Closed = [B,A] | X=B |
| Open =[E,F,G] | Closed = [C,B,A] | X=C |
| Open =[D,I,F,G] | Closed = [E,C,B,A] | X=E |
| Open =[I,F,G] | Closed = [D,E,C,B,A] | X=D |
| Open =[H,J,K,F,G] | Closed = [I,D,E,C,B,A] | X=I |
| Open =[J,K,F,G] | Closed = [H,I,D,E,C,B,A] | X=H |
| Open =[K,F,G] | Closed = [J,H,I,D,E,C,B,A] | X=J |
| Open =[F,G] | Closed = [J,H,I,D,E,C,B,A] | X=K |

RETURN SUCCESS

1. The decision for doing DATA or GOAL DRIVEN search is generally based on the structure of the problem. As a group, discuss and report the conclusions about the characteristics of the structure that the problems should have. Report at least 3 characteristics for data driven and 3 for goal driven search.

**DATA DRIVEN SEARCH**

1. Don't know the goal of the problem, but we know some data or facts of the problem.
2. Through legal rules we can do tree pruning to reach the goal. Algorithm finishes when a goal has been reached. Sometimes algorithm finishes there aren't spaces.
3. First we cannot determine the hypothesis and the goal. It's difficult provide a goal and hypothesis which lead to the problem solution.

**GOAL DRIVEN SEARCH**

1. Start with the objectives of the problem or hypothesis.
2. There are some rules which match with problem facts and they produce conclusions.
3. While continuous in solving the problem, acquires new data.

**Members**

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**References**

G. Luger and W. Stubblefield, *Artificial intelligence Structures and strategies for complex problem solving*, 6th ed. Redwood City, Calif.: Pearson Education., pp. 93-96