

Learning Systems – Assignment 4 Dynamic Programing

Lukas Schnittcher Ernest Pokropek

Report

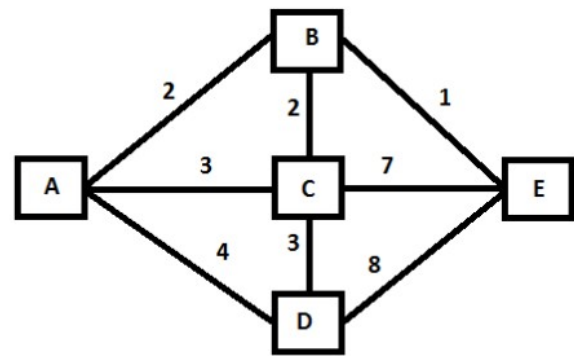


Figure 1: The graph for a small problem

Startnode E

Node	Distance
E	0
B	∞ 1
C	∞ 3
D	∞ 6
A	∞ 3

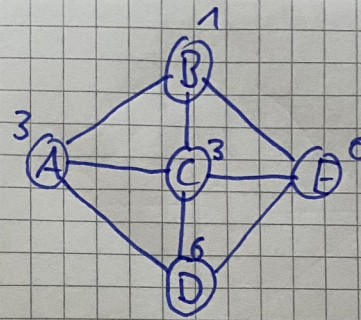
1. 1.1 Select edge to shortest Neighbour
 $\Rightarrow E \rightarrow B, 1$
 1.2 update distance

2.1 Select edge to shortest Neighbour
 $\Rightarrow E \rightarrow C, 7$
 2.1.1 is Distance over B shorter?
 $E \rightarrow B + B \rightarrow C < E \rightarrow C \Rightarrow$ update distance for C
 $C \Rightarrow 1 + 2 = 3$

3.1 Select edge to Neighbour
 $E \rightarrow D, 8$
 3.1.1 is Distance over C shorter?
 $E \rightarrow B + E \rightarrow C + C \rightarrow D < E \rightarrow D \Rightarrow$ update distance for D
 $D = 3 + 3 = 6$

4.1 Select shortest edge to unvisited Neighbour
 $B \rightarrow A, 2$
 4.1.1 is Distance over C or D shorter?
 $E \rightarrow C + C \rightarrow A > E \rightarrow B + B \rightarrow A \Rightarrow$ update distance
 $E \rightarrow D + D \rightarrow A > E \rightarrow B + B \rightarrow A$
 $A = 1 + 2 = 3$

Node	Distance
E	0
B	1
C	3
D	6
A	3



Shortest Path to E

A → B → E

B → E

C → B → E

D → C → B → E