

Quiz4

Full name:

CSU ID:

Question 1 (3 points) Pseudocode for Dijkstra algorithm

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Algorithm DIJKSTRA
Input:  $G, w, s$ 
Output: labelled shortest path for each vertex
1 INITIALIZE-SINGLE-SOURCE( $G, s$ )  $\triangleright$  set 0 to  $s$ ,  $\infty$  to other vertices
2  $S = \emptyset$ 
3  $Q = G.V$ 
4 while  $Q \neq \emptyset$  do
5    $u = \text{EXTRACT-MIN}(Q)$ 
6    $S = S \cup \{u\}$ 
7   for each vertex  $v \in G.Adj[u]$  do
8     RELAX( $u, v, w$ )
9   end
10 end
  
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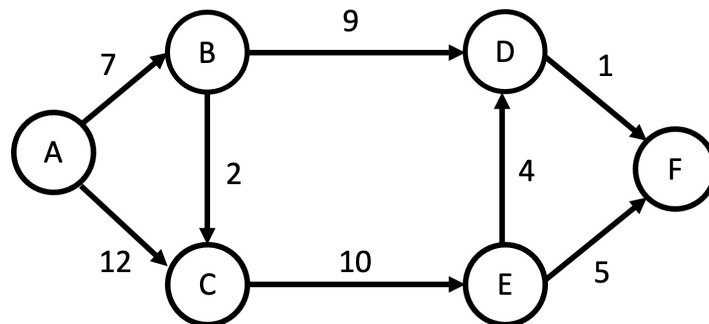
Please write down the pseudocode for the RELAX operation (hint: update the distance and the parent's pointer)

Algorithm RELAX

Input: u, v, w

Output: relaxed edge

Question 2 (5 points) Dijkstra for finding the shortest path. Illustrate all the intermediate steps and complete the final distance table.



B	C	D	E	F