

ROUTING ALGORITHM (JAVA)

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1  INPUT: A graph  $G = (V, E)$ , a set of distances between the locations  $\{a_{ij} : (i, j) \in V\}$ , an
2          origin  $s \in V$ , a destination  $t \in V$ .
3          Weight of the orders, Pickup and Drop Locations, Capacity of the truck, pickup times.

4  INITIALIZE: rem_drop[V], feasible[V], U=source node.

5  for each vertex V in graph do begin
6      |   visited[V]  $\leftarrow$  false
7  end for

8  for each neighbour vertex v of U in graph do begin
9      |   if (time_taken  $\geq$  pickup_time[v]) , then
10     |       add v to the feasible[] list
11     |   end if
12 end for

13 visited[U] = true
14 ver = vertex in feasible[] with minimum distance from U
15 if (node v contains drop order), then
16     |   remove drop_order[v] from the truck
17 end if

18 if (weight[v]  $\geq$  truck_capacity), then
19     |   for each vertex i in rem_drop do begin
20     |       |   x  $\leftarrow$  vertex with min distance from i
21     |       |   add x to the route
22     |   end for
23     |   print route
24     |   print truck_capacity
25     |   update the remaining nodes to next truck
26 end if

27 if (weight[v] != 0) and (weight[v] < truck_capacity), then
28     |   add the vertex v to the route
29     |   add the weight[v] to the truck
30     |   add drop location and weight of v to rem_drop
31 end if

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34 **OUTPUT:**

35 (i) The route containing locations

36 (ii) Capacity of the truck

37 (iii) File output containing locations, weight of orders and trucks.