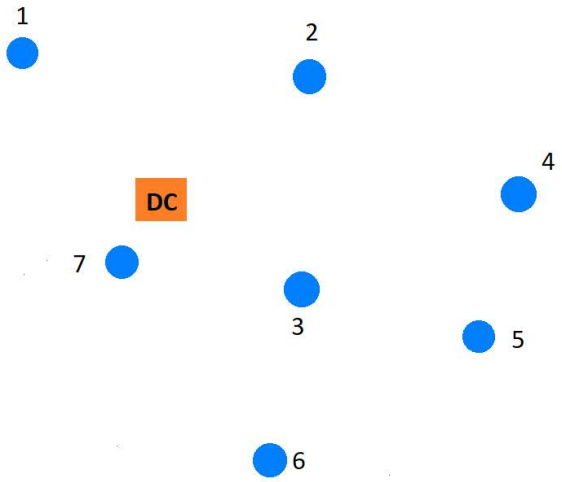
Graded Assignment 1 - Local routing II

You are routing your vehicles to deliver goods to seven customers. The figure below shows the locations (not to scale). Your DC is located where the orange box is and the customers are located where the blue circles are. The customers are identified with an ID.



These are the distances between the customer locations and the distribution centers in miles.

Distance	1	2	3	4	5	6	7	DC
1		16.3	16.5	20	19.6	17.9	9.3	12.7
2			7.2	14.9	16.6	16.6	12.7	11.5
3				8.9	10.1	11	10.8	9.8
4					7.3	13.4	19.1	17.5

5						12.9	16.4	16.1
6							9.4	17.4
7								3.6

These are the number of boxes the customers need.

Customer ID	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Demand (Boxes)	24	38	19	37	23	21	10

Vehicle routes

5/5 points (graded)

Consider that each of your trucks can carry, at most, 100 boxes per tour. **Use the Savings algorithm to design the routes.**

Tip: Remember that the Savings algorithm is a heuristic algorithm. This means that the solution provided by the Savings algorithm will not necessarily be the optimal solution to the problem.

How many tours do you need?

2 ✔

2

What are the savings (in distance traveled) compared to delivering directly from the DC to each customer?

Round your result to one decimal digit

78.9 ✔

78.9

In the following questions, you will be asked to describe the route/tour that includes certain customers. Please, for designing the routes, use exclusively the Savings algorithm. (Do not further optimize the paths obtained from the Savings algorithm using other methods. Provide the answer in the format that is specified.)

Please describe the tour including Customer 1.

Write the sequence of customers with a dash between the ID numbers (do not use spaces and do not include "DC"). For example, if the route goes from customer 5 to 2 to 6, write 5-2-6 or 6-2-5. Please remember to follow the order in which the customers are visited. In the above example, 2-5-6 or 2-6-5 would be considered wrong.

7-1-2 ✔

Please describe the tour including Customer 2.

Write the sequence of customers with a dash between the ID numbers (do not use spaces and do not include "DC"). For example, if the route goes from customer 5 to 2 to 6, write 5-2-6 or 6-2-5. Please remember to follow the order in which the customers are visited. In the above example, 2-5-6 or 2-6-5 would be considered wrong.

7-1-2 ✔

Please describe the tour including Customer 3.

Write the sequence of customers with a dash between the ID numbers (do not use spaces and do not include "DC"). For example, if the route goes from customer 5 to 2 to 6, write 5-2-6 or 6-2-5. Please remember to follow the order in which the customers are visited. In the above example, 2-5-6 or 2-6-5 would be considered wrong.

3-6-4-5 ✔

Please describe the tour including Customer 4.

Write the sequence of customers with a dash between the ID numbers (do not use spaces and do not include "DC"). For example, if the route goes from customer 5 to 2 to 6, write 5-2-6 or 6-2-5. Please remember to follow the order in which the customers are visited. In the above example, 2-5-6 or 2-6-5 would be considered wrong.

3-6-4-5 ✔

Please describe the tour including Customer 5.

Write the sequence of customers with a dash between the ID numbers (do not use spaces and do not include "DC"). For example, if the route goes from customer 5 to 2 to 6, write 5-2-6 or 6-2-5. Please remember to follow the order in which the customers are visited. In the above example, 2-5-6 or 2-6-5 would be considered wrong.

3-6-4-5 ✔

Please describe the tour including Customer 6.

Write the sequence of customers with a dash between the ID numbers (do not use spaces and do not include "DC"). For example, if the route goes from customer 5 to 2 to 6, write 5-2-6 or 6-2-5. Please remember to follow the order in which the customers are visited. In the above example, 2-5-6 or 2-6-5 would be considered wrong.

3-6-4-5 ✔

Please describe the tour including Customer 7.

Write the sequence of customers with a dash between the ID numbers (do not use spaces and do not include "DC"). For example, if the route goes from customer 5 to 2 to 6, write 5-2-6 or 6-2-5. Please remember to follow the order in which the customers are visited. In the above example, 2-5-6 or 2-6-5 would be considered wrong.

7-1-2 ✔

Submit You have used 2 of 2 attempts

✔ Correct (5/5 points)