

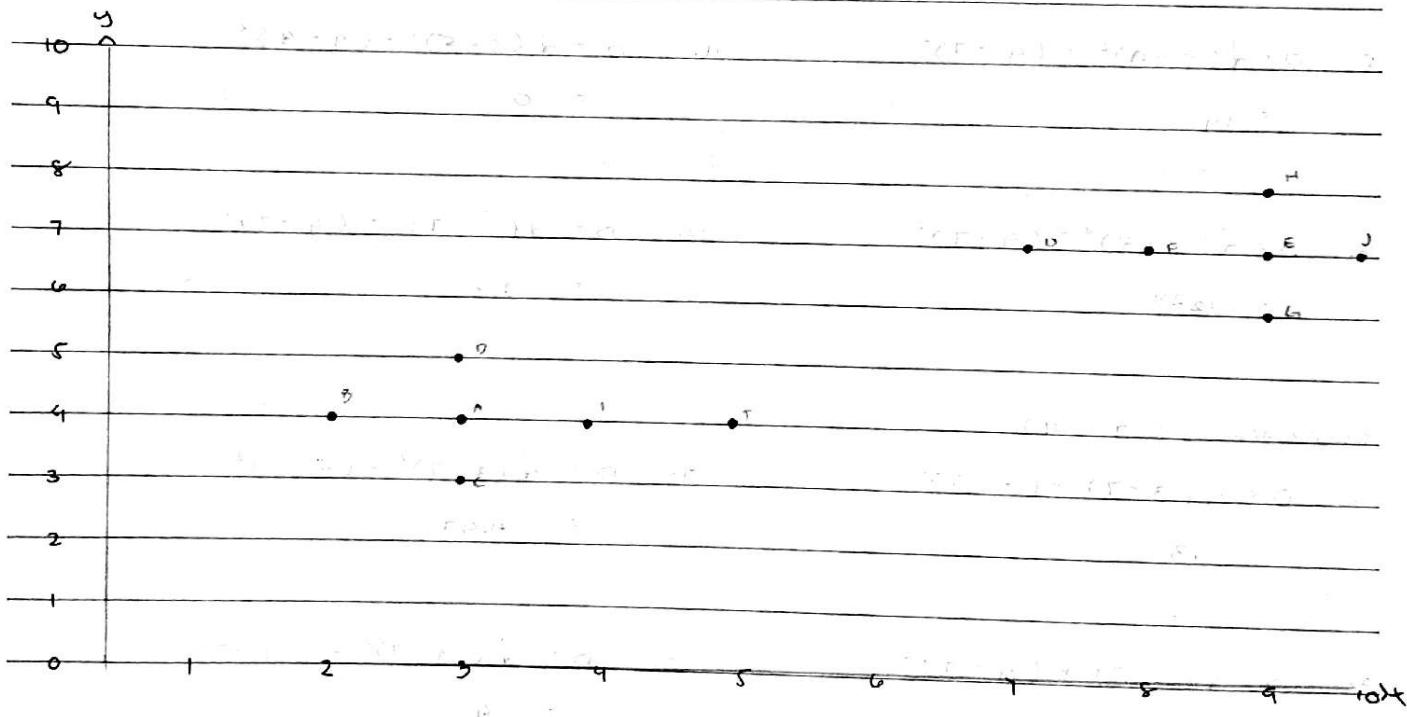
NO.:
DATE:

PAULOS, RAE S. COM232 EXERCISE 3

CASINO CUSTOMERS

CUSTOMER	(X)	(Y)
	Avg Bet (USD)	Visits per Month
A	3	4
B	2	4
C	3	3
D	3	5
E	9	7
F	8	7
G	9	6
H	9	8
I	9	4
J	10	7
K	5	4
L	7	6

1. CREATE A SCATTER PLOT



2. PAIRWISE EUCLIDEAN DISTANCE

FORMULA = $D = \sqrt{(x_1 - x)^2 + (y_1 - y)^2}$

CUSTOMER T (5, 4)

1. $D = \sqrt{(5 - 3)^2 + (4 - 4)^2}$
= 2

7. $D = \sqrt{(5 - 9)^2 + (4 - 6)^2}$
= 4.24

2. $D = \sqrt{(5 - 2)^2 + (4 - 4)^2}$
= 3

8. $D = \sqrt{(5 - 9)^2 + (4 - 8)^2}$
= 5.66

3. $D = \sqrt{(5 - 3)^2 + (4 - 3)^2}$
= 2.24

9. $D = \sqrt{(5 - 9)^2 + (4 - 4)^2}$
= 1

4. $D = \sqrt{(5 - 3)^2 + (4 - 5)^2}$
= 2.24

10. $D = \sqrt{(5 - 10)^2 + (4 - 7)^2}$
= 5.83

5. $D = \sqrt{(5 - 9)^2 + (4 - 7)^2}$
= 5

11. $D = \sqrt{(5 - 5)^2 + (4 - 4)^2}$
= 0

6. $D = \sqrt{(5 - 8)^2 + (4 - 7)^2}$
= 4.24

12. $D = \sqrt{(5 - 7)^2 + (4 - 7)^2}$
= 3.4

CUSTOMER U (7, 7)

1. $D = \sqrt{(3 - 7)^2 + (4 - 7)^2}$
= 5

4. $D = \sqrt{(3 - 7)^2 + (5 - 7)^2}$
= 4.47

2. $D = \sqrt{(2 - 7)^2 + (4 - 7)^2}$
= 5.83

5. $D = \sqrt{(9 - 7)^2 + (7 - 7)^2}$
= 2

3. $D = \sqrt{(3 - 7)^2 + (3 - 7)^2}$
= 5.66

6. $D = \sqrt{(8 - 7)^2 + (7 - 7)^2}$
= 1

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$$7. D = \sqrt{(9-7)^2 + (6-7)^2} \\ = 2.24$$

$$10. D = \sqrt{(10-7)^2 + (7-7)^2} \\ = 3$$

$$8. D = \sqrt{(9-7)^2 + (8-7)^2} \\ = 2.24$$

$$11. D = \sqrt{(5-7)^2 + (4-7)^2} \\ = 3.6$$

$$9. D = \sqrt{(4-7)^2 + (4-7)^2} \\ = 3$$

$$12. D = \sqrt{(7-7)^2 + (7-7)^2} \\ = 0$$

3. CREATE A FULL DISTANCE MATRIX

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A	0	1	1	1	6.7	5.8	6.3	7.2	1	7.6	2	5		
B	1	0	1.4	1.41	7.6	6.7	7.2	8	2	8.5	3	5.83		
C	1.4	0	2	7.2	6.4	6.7	7.8	1.41	8	2.24	5.66			
D	1	1.41	2	0	6.3	5.3	6	6.7	1.41	7.2	2.24	4.47		
E	6.7	7.6	7.2	6.3	0	1	1	1	5.8	1	5	2		
F	5.8	6.7	6.4	5.3	1	6	1.4	1.41	5	2	4.24	1		
G	6.3	7.2	4.7	6	1	1.4	0	2	5.3	1.4	4.47	2.24		
H	7.2	8	7.8	6.7	1	1.4	2	0	6.9	1.41	5.66	2.24		
I	1	2	1.41	1.41	5.8	5	5.3	6.4	0	6.7	1	3		
J	7.6	6.5	8	7.2	1	2	1.41	1.4	6.7	0	5.83	3		
K	2	3	2.24	2.24	5	4.24	4.47	5.66	1	5.83	0	3.6		
L	5	5.83	5.66	4.47	2	1	2.24	2.24	3	3	3.6	0		

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4. NEIGHBOURS BASED ON GPS

CUSTOMER	NEIGHBOURS	# OF NEIGHBOURS	POINT TYPE	CLUSTER
A	B, C, D, I	4	CORE	GREEN
B	A	1	NON-CORE	GREEN
C	A	1	NON-CORE	GREEN
D	A	1	NON-CORE	GREEN
E	F, G, H, J	4	CORE	BLUE
F	E, I, O	2	CORE	BLUE
G	E	1	NON-CORE	BLUE
H	E	1	NON-CORE	BLUE
I	A, T	2	CORE	GREEN
J	E	1	NON-CORE	BLUE
K	T	1	NON-CORE	GREEN
L	O	1	NON-CORE	BLUE
M	P	1	NON-CORE	GREEN
N	R	1	NON-CORE	GREEN
O	S	1	NON-CORE	GREEN
P	R	1	NON-CORE	GREEN
Q	S	1	NON-CORE	GREEN
R	S	1	NON-CORE	GREEN
S	T	1	NON-CORE	GREEN
T	R	1	NON-CORE	GREEN
U	V	1	NON-CORE	GREEN
V	W	1	NON-CORE	GREEN
W	X	1	NON-CORE	GREEN
X	Y	1	NON-CORE	GREEN
Y	Z	1	NON-CORE	GREEN
Z	U	1	NON-CORE	GREEN