

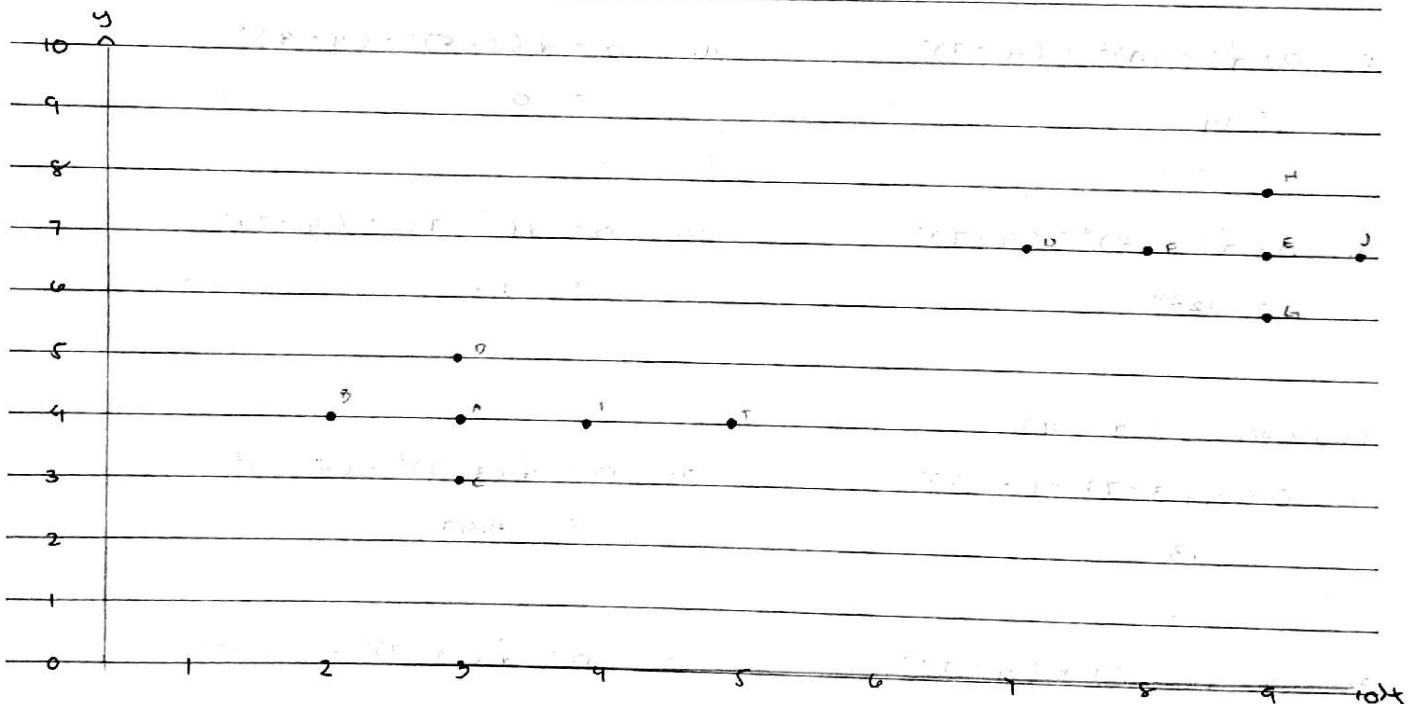
NO.:
DATE:

PAULOS, RAE S. COM232 EXERCISE 3

CASINO CUSTOMERS

CUSTOMER	(X) AVG BET (USD)	(Y) 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	4	4
J	10	7
K	5	4
L	7	7

1. CREATE A SCATTER PLOT



2. PAIRWISE EUCLIDEAN DISTANCE

$$\text{FORMULA} = D = \sqrt{(A_1 - x)^2 + (B_1 - y)^2}$$

CUSTOMER T (5, 4)

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

$$= 2$$

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

$$= 4.47$$

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

$$= 3$$

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

$$= 5.66$$

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

$$= 2.24$$

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

$$= 1$$

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

$$= 2.24$$

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

$$= 5.83$$

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

$$= 5$$

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

$$= 0$$

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

$$= 4.24$$

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

$$= 3.6$$

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	T	U
A	0	1	1	1	6.7	5.8	6.3	7.2	1	7.6	2	5
B	1	0	1.4	1.4	7.6	6.7	7.2	8	2	8.5	3	5.83
C	1	1.4	0	2	7.2	6.4	6.7	7.8	1.4	8	2.24	5.66
D	1	1.4	2	0	6.3	5.3	6	6.7	1.4	7.2	2.24	4.47
E	6.7	7.6	7.2	6.3	0	1	1	1	5.8	1	5.1	2
F	5.8	6.7	6.4	5.3	1	0	1.4	1.4	5	2	4.24	1
G	6.3	7.2	6.7	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	6.4	1.4	5.66	2.24
I	1	2	1.4	1.4	5.8	5	5.3	6.4	0	6.7	1	3
J	7.6	8.5	8	7.2	1	2	1.4	1.4	6.7	0	5.83	3
T	2	3	2.24	2.24	5	4.24	4.47	5.66	1	5.83	0	3.6
U	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 OPS

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	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
T	I	1	NON-CORE	GREEN
U	F	1	NON-CORE	BLUE