No. _____
Date _____

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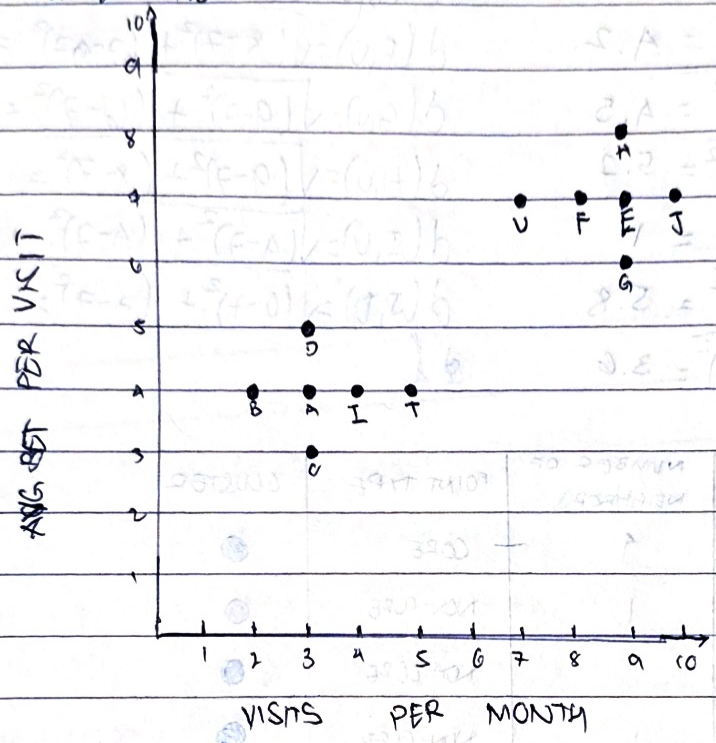
COM252
EXERCISE :5

1) CREATE A SCATTER PLOT



2) COMPUTE ALL PAIRWISE EUCLIDEAN DISTANCES BETWEEN CUSTOMERS.

3) CREATE A FULL DISTANCE MATRIX -

	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 (4,9)	J (10,7)	T (5,9)	U (7,7)
A(3,4)	0	1	1	1	6.7	5.8	6.3	7.2	1	7.6	2	5
B(2,4)	1	0	1.4	1.4	7.6	6.7	7.2	8	2	8.5	3	5.8
C(3,3)	1	1.4	0	2	7.2	6.4	6.7	7.8	1.4	8	2.2	5.7
D(3,5)	1	1.4	2	0	6.3	5.3	6	6.7	1.4	7.2	2.2	4.8
E(9,7)	6.7	7.6	7.2	6.3	0	1	1	1	5.8	1	5	2
F(8,7)	5.8	6.7	6.4	5.3	1	0	1.4	1.4	5	2	4.2	1
G(9,6)	6.3	7.2	6.7	6	1	1.4	0	2	5.3	1.4	4.5	2.2
H(9,8)	7.2	8	7.8	6.7	1	1.4	2	0	6.4	1.4	5.7	2.2
I(4,9)	1	2	1.4	1.4	5.8	5	5.3	6.4	0	6.7	1	4.2
J(10,7)	7.6	8.5	8	7.2	1	2	1.4	1.4	6.2	0	5.8	3
T(5,9)	2	3	2.2	2.2	5	4.2	4.5	5.7	1	5.8	0	3.6
U(7,7)	5	5.8	5.7	4.8	2	1	2.2	2.2	4.2	3	3.6	0

2)

$d(A,T) = \sqrt{(3-5)^2 + (4-4)^2} = 2$

$d(B,T) = \sqrt{(2-5)^2 + (4-4)^2} = 3$

$d(C,T) = \sqrt{(3-5)^2 + (3-4)^2} = 2.2$

$d(D,T) = \sqrt{(3-5)^2 + (5-4)^2} = 2.2$

$d(E,T) = \sqrt{(9-5)^2 + (7-4)^2} = 5$

$d(F,T) = \sqrt{(8-5)^2 + (7-4)^2} = 4.2$

$d(G,T) = \sqrt{(9-5)^2 + (6-4)^2} = 4.5$

$d(H,T) = \sqrt{(9-5)^2 + (8-4)^2} = 5.7$

$d(I,T) = \sqrt{(4-5)^2 + (4-4)^2} = 1$

$d(J,T) = \sqrt{(10-5)^2 + (7-4)^2} = 5.8$

$d(U,T) = \sqrt{(7-5)^2 + (7-4)^2} = 3.6$

$d(A,U) = \sqrt{(3-7)^2 + (4-7)^2} = 5$

$d(B,U) = \sqrt{(2-7)^2 + (4-7)^2} = 5.8$

$d(C,U) = \sqrt{(3-7)^2 + (3-7)^2} = 5.7$

$d(D,U) = \sqrt{(3-7)^2 + (5-7)^2} = 4.5$

$d(E,U) = \sqrt{(9-7)^2 + (7-7)^2} = 2$

$d(F,U) = \sqrt{(8-7)^2 + (7-7)^2} = 1$

$d(G,U) = \sqrt{(9-7)^2 + (6-7)^2} = 2.2$

$d(H,U) = \sqrt{(9-7)^2 + (8-7)^2} = 2.2$

$d(I,U) = \sqrt{(4-7)^2 + (4-7)^2} = 4.2$

$d(J,U) = \sqrt{(10-7)^2 + (7-7)^2} = 3$

A, S, 6, = 8)

CUSTOMER	NEIGHBOURS WITHIN	NUMBER OF NEIGHBORS	POINT TYPE	CLUSTER
A	B, C, D, I	4	CORE	●
B	A	1	NON-CORE	●
C	A	1	NON-CORE	●
D	A	1	NON-CORE	●
E	F, G, H, J	4	CORE	□
F	E, U	2	CORE	□
G	E	1	NON-CORE	□
H	E	1	NON-CORE	□
I	A, T	2	CORE	●
J	E	1	NON-CORE	□
T	I	1	NON-CORE	●
U	F	1	NON-CORE	□