A (2, 1)

also implemention
rapid miner

B (1, 2)

C (4, 3)

D (5, 1)

E (3, 4)

F (1, 6)

DO this question with Single Link.

- In single link → choose min value
- In complete link → choose Max value
- In Average link → choose Average value

Agglomerative Clustering

A(2,1) , B(1,2) , C(4,3)

D(5,1) , E(3,4) , F(1,6).

	A	B	C	D	E	F
A	0					
B	1.414	0				
C	2.828	3.162	0			
D	3	4.123	2.236	0		
E	3.162	2.828	1.414	3.605	0	
F	5.099	4	4.242	6.403	2.828	0

Since it's a single link so we are looking
for minimum value. In above clusters
the minimum value is 1.414 and
it appears twice so we will
merge A, B and C with E
with B

	A, B	C, E	D	F
A, B	0			
C, Ē	2.828	0		
D	3	2.236	0	
F	4	2.828	6.403	0

Calculations:-

For $(C, E), (A, B)$ Point Value:-

$$= d [(C, E), (A, B)]$$

$$= d(C, A), d(C, B), d(E, A), d(E, B)$$

$$min = (2.828, 3.162, 3.162, 2.828)$$

$$= 2.828$$

For $[(D, (A, B)]$ point values-

$$= d(D, A), d(D, B)$$

$$= min (3, 4.123)$$

$$\boxed{= 3}$$

For $[F, (A, B)]$ point value:-

$d [F, (A, B)]$ point value:-

$= d (F, A), d (F, B)$

$= min (5.099, 4)$

$= 4$

For $[D, (C, E)]$ point value:-

$= d (D, C), d (D, E)$

$= d (2.236, 3.605)$

$= min (2.236, 3.605)$

$= 2.236$

For $[F, (C, E)]$ value:-

$d (F, C), d (F, E)$

$= d (4.242, 2.828)$

for F, D

$d (F, D)$

$= 6.403$

2.236 is minimum among all so we are merging D with ((C,E)

	A,B	C,D,E	F
A,B	0		
C,D,E	2.828	0	
F	4	2.828	0

For $[(C,E,D), (A,B)]$ point

$= d[(C,E,A,B)], (D,A,B)]$
$= min(2.828, 3)$

for $[F, (A,B)]$

$d[F(A,B)$
$= min(4)$

for $[F, (C,D,E)]$

$$d\left[(F, C, E), (F, D)\right]$$

$$\min(2.828, 6.403)$$
$$= 2.828$$

So 2.828 is minimum among all so we are merging C, D, E with A, B and C, D, E with F

	(A, B), (C, D, E)	(C, D, E), F
(AB, (C, D, E)	0	
(C, D, E), F)	2.828	0

Dendogram :-