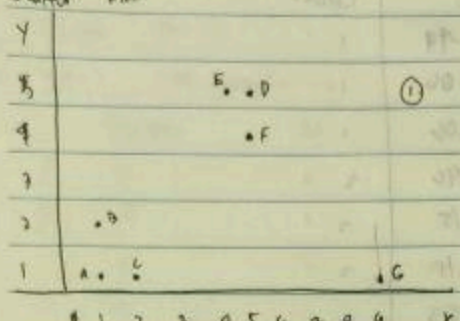
Stephen Acc F.Sy

Part A 1-2

Scatter Plot




②

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| A | 0 | 1 | 1 | 5.67 | 9 | 5 | 8 |
| B | 1 | 0 | 1.41 | 5 | 9.79 | 9.97 | 8.06 |
| C | 1 | 1.41 | 0 | 5 | 9.47 | 3.16 | 7.07 |
| D | 5.67 | 5 | 5 | 0 | 1 | 1 | 5.67 |
| E | 5 | 9.79 | 9.47 | 1 | 0 | 1.41 | 6.90 |
| F | 5 | 9.97 | 3.16 | 1 | 1.41 | 0 | 5 |
| G | 8 | 8.06 | 7.07 | 5.67 | 6.90 | 5 | 0 |

Part B K means

Using K = 2

A and D are randomly selected ①

| Data point | x | y | $d_1$ | $d_2$ | cluster |
|---|---|---|---|---|---|
| A | 1 | 1 | 0 | 5.67 | 1 |
| B | 1 | 2 | 1 | 5 | 1 |
| C | 2 | 1 | 1 | 5 | 1 |
| D | 5 | 5 | 5.67 | 0 | 2 |
| E | 9 | 5 | 5 | 1 | 2 |
| F | 5 | 9 | 5 | 1 | 2 |
| G | 9 | 1 | 8 | 5.67 | cluster 2 |

Cluster #1 mean = (1.33, 1.33)

Cluster 2 mean = (7.67, 4.67)

5.75 3.75

②

VICTORY

Stephen Ace F.Sy

NO.:
DATE:

DB scan

epx = 1

NO.:
DATE:

(3)

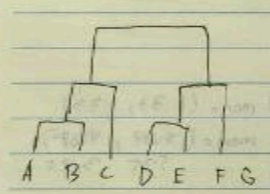
| Data point | x | y | $d_1$ | $d_2$ | cluster | $d_2$ | Cluster |
|---|---|---|---|---|---|---|---|
| A | 1 | 1 | ~~5.19~~ 0.97 | ~~0.97~~ | | 5.44 | 1 |
| B | 1 | 2 | 0.75 | ~~4.59~~ | | 5.06 | 1 |
| C | 2 | 1 | 0.75 | ~~4.59~~ | | 5.06 | 1 |
| D | 5 | 5 | 5.19 | ~~0.97~~ | | 1.46 | 2 |
| E | 4 | 5 | 4.59 | ~~0.75~~ | | 2.15 | 2 |
| F | 5 | 4 | 4.59 | 0.75 | | 2.15 | 2 |
| G | 4 | 1 | 7.68 | 5.68 | | 4.23 | 2 |

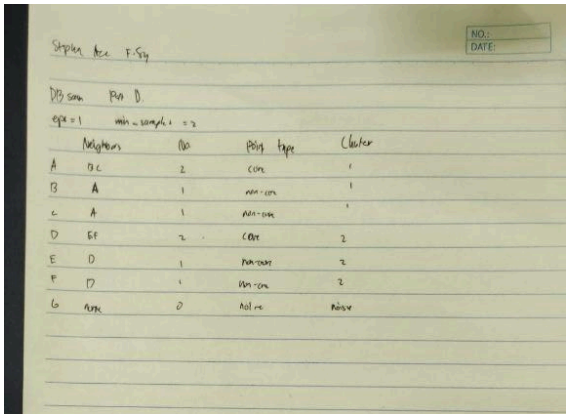
Part C.

| Merge order | C1 | C2 | avg distance |
|---|---|---|---|
| 1st | A~~B~~ | B | 1 |
| 2nd | ~~DB~~ AB | C | 1 |
| 3rd | ~~BE~~ D | E | 1 |
| 4th | ~~ABC~~ DE | F | 1 |
| 5th | ABC | DEF | 4.29 |
| 6th | A'BCDEF | G | 5 |

(1)

(2)





NO.:
DATE:

Stephen Ace F-54

DB scan Part D.

eps = 1 min_sample = 2

| | Neighbors | No | Point type | Cluster |
|---|---|---|---|---|
| A | BC | 2 | core | 1 |
| B | A | 1 | non-core | 1 |
| C | A | 1 | non-core | 1 |
| D | EF | 2 | core | 2 |
| E | D | 1 | non-core | 2 |
| F | D | 1 | non-core | 2 |
| G | none | 0 | noise | noise |