Start: ①

A.ClId = Unclassified

ExpandCluster (DB, A, 1, 1.1, 3)
Start: \( \text{A} \)

Seeds := RQ (A, 1.1)
Cluster 1: A, B, C

Cluster 2:

Cluster 3:

For all o in Seeds: o.ClId := ClusterId
Remove starting object from Seeds

Cluster 1: A, B, C
Cluster 2:
Cluster 3:
While Seeds != empty do
RQ (B, 1.1) = {A, B, D}

A.ClId = 1. finished
B.ClId = 1. finished
D.ClId = Unclassified →
    Seeds += D
    D.ClId = 1

Remove B from Seeds
While Seeds != empty do
RQ (C, 1.1) = {A, C, D}

A.ClId = 1. finished
C.ClId = 1. finished
D.ClId = 1. finished

Remove C from Seeds
While Seeds != empty do
RQ (D, 1.1) = {B, C, D}
B.ClId = 1. finished
C.ClId = 1. finished
D.ClId = 1. finished
Remove D from Seeds
Cluster 1: A, B, C, D

Cluster 2:

Cluster 3:

Start: E

E.ClId = Unclassified

ExpandCluster (DB, E, 2, 1.1, 3) = false

E.ClId := Noise

Cluster 1: A, B, C, D

Cluster 2:

Cluster 3:
Start:  F

F.ClId = Unclassified

ExpandCluster (DB, F, 2, 1.1, 3)
RQ (F, 1.1) = {F,G} → false

F.ClId := Noise

Cluster 1:  A, B, C, D
Cluster 2:
Cluster 3:
Clusters:

Cluster 1: A, B, C, D
Cluster 2: 
Cluster 3: 

Start: G

G.ClId = Unclassified

ExpandCluster (DB, G, 2, 1.1, 3)
RQ (G, 1.1) = {F, G, H}

Noise

Seeds

Unclassified

Cluster 1: A, B, C, D
Cluster 2: 
Cluster 3: 
Cluster:  F, G, H

Forall o in Seeds:
o.ClId := ClusterId
Remove G from Seeds

Cluster 1:  A, B, C, D
Cluster 2:  F, G, H
Cluster 3:
While Seeds != empty do
RQ (F, 1.1) = {F, G}
|Neighbors| < MinPts
Remove F from Seeds

Cluster 1: A, B, C, D
Cluster 2: F, G, H
While Seeds != empty do
RQ (H, 1.1) = {G, H, I, J}

G.ClId = 2. finished
H.ClId = 2. finished
I.ClId = Unclassified → Seeds += I
J.ClId = Unclassified → Seeds += J
I.ClId := J.ClId := 2

Remove H from Seeds
Point:  I
While Seeds != empty do
RQ (I, 1.1) = {H, I}
|Neighbors| < MinPts
Remove I from Seeds

Cluster 1:  A, B, C, D
Cluster 2:  F, G, H, I, J
Cluster 3:
Point: J

While Seeds != empty do
RQ (J, 1.1) = {H, J}

|Neighbors| < MinPts
Remove J from Seeds

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3:
Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3:

Start: K
K.ClId = Unclassified
ExpandCluster (DB, K, 3, 1.1, 3) = false
K.ClId := Noise

Unclassified
LMNOPQRST
Noise
EK
Seeds
K

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3:
Unclassified

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3:

Start: L
L.CIlId = Unclassified
ExpandCluster (DB, L, 3, 1.1, 3) = false
L.CIlId := Noise

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3:
Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3: 

Start: \(\text{M}\)

\[\text{M.ClId} = \text{Unclassified}\]

\[\text{ExpandCluster (DB, M, 3, 1.1, 3)}\]

\[\text{RQ (M, 1.1)} = \{\text{M, O}\} \rightarrow \text{false}\]

\[\text{M.ClId} := \text{Noise}\]
Start:  \(N\)  \hspace{1cm} \text{Cluster: } \{N, O, Q\}

\(N.Clld = \text{Unclassified}\)

ExpandCluster \((DB, N, 3, 1.1, 3)\)
\(RQ (M, 1.1) = \{N, O, Q\}\)

For all \(o \in \text{Seeds}\):
\(o.Clld := \text{ClusterId}\)
Remove \(N\) from Seeds

Cluster 1:  A, B, C, D
Cluster 2:  F, G, H, I, J
Cluster 3:  N, O, Q
Point: O

While Seeds != empty do
RQ (O, 1.1) = {M, N, O, P, R}

M.ClId = Noise → M.ClId := 3
N. ClId = 3. finished
O.ClId = 3. finished
P.ClId = Unclassified → Seeds += P, P.ClId := 3
R.ClId = Unclassified → Seeds += R, R.ClId := 3

Remove O from Seeds

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3: M, N, O, P, Q, R
Point: \(P\)

While Seeds \(!=\) empty do

\[ \text{RQ} (P, 1.1) = \{O, P, S\} \]

\(O.\text{ClId} = 3. \) finished

\(P.\text{ClId} = 3. \) finished

\(S.\text{ClId} = \text{Unclassified} \rightarrow \text{Seeds} \leftarrow S, S.\text{ClId} := 3 \)

Remove P from Seeds

Cluster 1: A, B, C, D

Cluster 2: F, G, H, I, J

Cluster 3: M, N, O, P, Q, R, S
Point: Q

While Seeds != empty do
  RQ (Q, 1.1) = {N, Q, R}
  N.ClId = 3. finished
  Q.ClId = 3. finished
  R.ClId = 3. finished

Remove Q from Seeds

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3: M, N, O, P, Q, R, S
Point: $\mathbf{R}$

While Seeds $\neq$ empty do
RQ (R, 1.1) = {O, Q, R, S, T}

O.ClId = 3. finished
Q.ClId = 3. finished
R.ClId = 3. finished
S.ClId = 3. finished
T.ClId = Unclassified → Seeds += T; T.ClId := 3

Remove R from Seeds

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3: M, N, O, P, Q, R, S, T
Point: S

While Seeds != empty do
RQ (S, 1.1) = {P, R, S}
P.ClId = 3. finished
R. ClId = 3. finished
S.ClId = 3. finished
Remove S from Seeds

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3: M, N, O, P, Q, R, S, T
Point: T

While Seeds != empty do
RQ (T, 1.1) = {R, T}
|Neighbors| < MinPts
Remove T from Seeds

Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3: M, N, O, P, Q, R, S, T
Cluster 1: A, B, C, D
Cluster 2: F, G, H, I, J
Cluster 3: M, N, O, P, Q, R, S, T