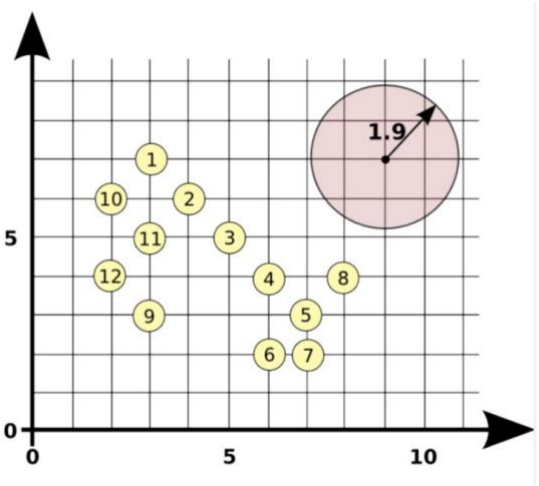
COMP4433 Data Mining and Data Warehousing

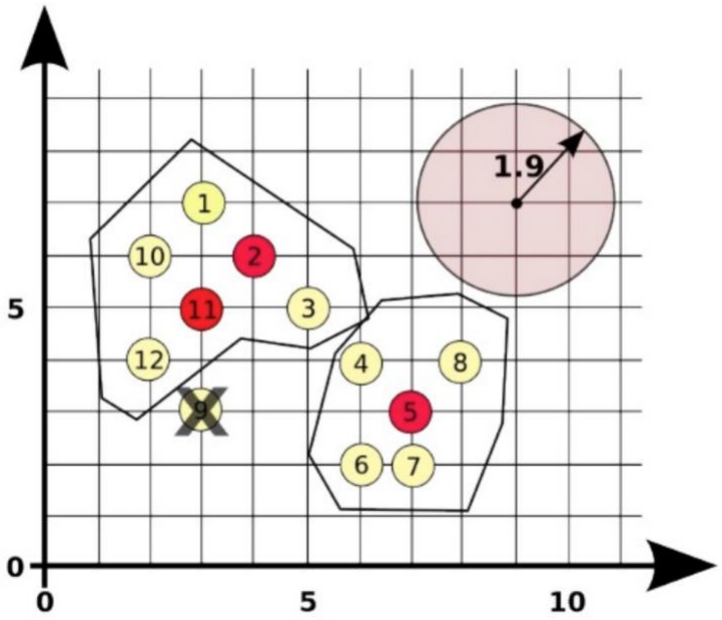
Tutorial Questions on Spatial Clustering (with answers)

1. By using ε=1.9 and MinPts=4, apply DBSCAN to the following 12 points (data).



a) Indicate the clusters found.
b) Label the points as core, border or noise.

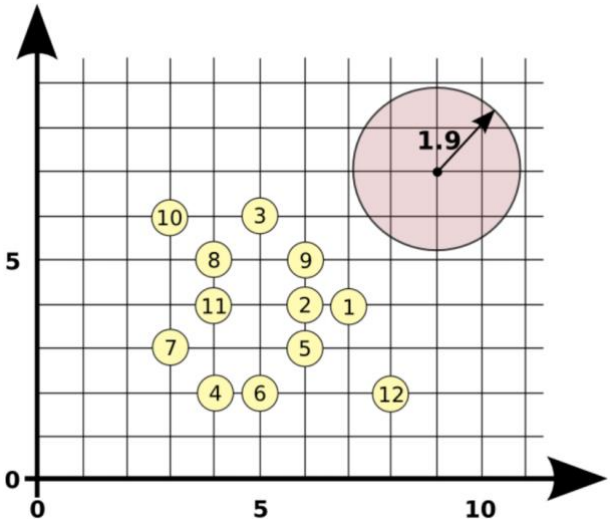
Answer:



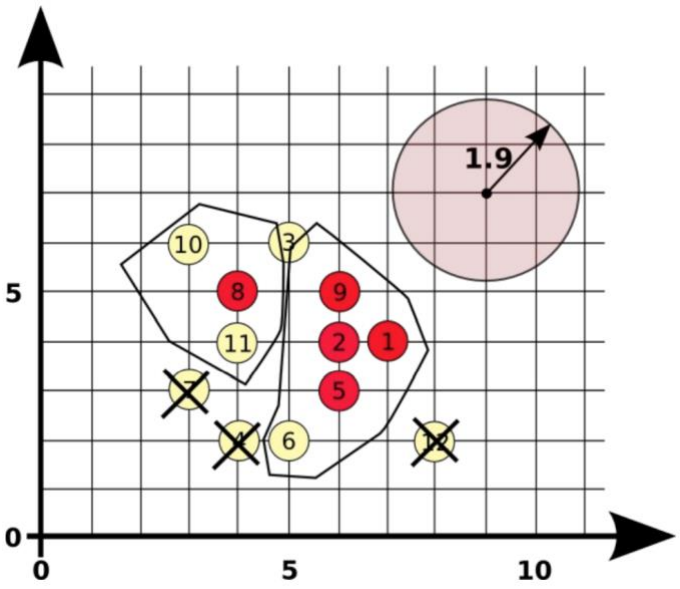
Pt.	#Pts	Core pt
1	3	
2	4	Y
3	3	
4	3	
5	5	Y
6	3	
7	3	
8	2	
9	2	
10	3	
11	4	Y
12	3	

Core points: 2, 5, 11 (in red)
Border points: 1, 10, 12, 3 (in yellow) of left cluster; 4, 6, 7, 8 (in yellow) of right cluster
Noise point: 9 (with a cross)
Clusters: See the 2 bounded regions.

2. Redo Q.1 for the following data.



Answer



Pt.	#Pts	Core pt
1	4	Y
2	4	Y
3	3	
4	3	
5	4	Y
6	3	
7	3	
8	4	Y
9	4	Y
10	2	
11	3	
12	1	

Core points: 1, 2, 5, 8, 9 (in red)
Border points: 3, 6,10, 11 (in yellow)
Noise point: 4, 7, 12 (with a cross)
Clusters: See the 2 bounded regions. Note here that pt. 3 may belong to the left cluster or the right cluster, depending on the order of core pts 8 & 9 being selected.