

# Spatial Clustering in Databases: A Survey

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November 8, 2012

## 1 Introduction

### 1.1 Open Source

## 2 Asymptotic Evaluation

### 2.1 Generalized Search Tree

### 2.2 DBSCAN

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**Algorithm 1** The DBSCAN spatial clustering algorithm

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```
1: procedure DBSCAN( $D, \epsilon, MinPts$ )                       $\triangleright D$  set of points is unclassified
2:    $clusterID = 0$ 
3:   for  $i \leftarrow 1, n$  do
4:      $p \leftarrow D[i]$ 
5:      $p.visited \leftarrow true$                                        $\triangleright$  Mark  $p$  as visited
6:     if  $p.clusterID = UNCLASSIFIED$  then
7:       if EXPANDCLUSTER( $D, p, clusterID, \epsilon, MinPts$ ) then
8:          $clusterID \leftarrow nextID(clusterID)$ 
9:       end if
10:    end if
11:  end for
12: end procedure

13: procedure EXPANDCLUSTER
14: end procedure
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**Algorithm 2** BIRCH

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1: **procedure** BIRCH  
2: **end procedure**

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## **2.3 BIRCH**

## **2.4 Fuzzy K-Means**

# **3 Empirical Evaluation**

## **3.1 Testing Environment**

To maintain the reproducibility of our results the authors decided to implement the empirical analysis using entirely open-source software.

## **3.2 Results**

# **4 Discussion and Conclusion**