Algorithm 1: DBSCAN

Data: A set $S = \{\mathbf{c}_i\}$ with N elements
Input: parameters: ε, m
Result: A cluster set $C = \left\{\bar{C}_k\right\}$

1 $C_1 \leftarrow \{1\}, C \leftarrow \{C_1\}$;
2 **for** $i \leftarrow 2$ **to** N **do**
3 **for** *class set* C_k **in** C **do**
4 **for** j **in** C_k **do**
5 $D_{ij} \leftarrow |\mathbf{c}_i - \bar{\mathbf{c}}_j|$;
6 **if** $D_{ij} < \varepsilon$ **then** `// belong to` C_k
7 $C_k \leftarrow C_k \cup \{i\}$;
8 go to line 2;
9 **end**
10 **end**
11 **end**
12 $C_{|C|+1} \leftarrow \{i\}, C \leftarrow C \cup \left\{C_{|C|+1}\right\}$; `// new class`
13 **end**
14 $\bar{C} \leftarrow \{C_1\}$;
15 **for** $i \leftarrow 2$ **to** $|C|$ **do**
16 **for** *class set* C_k **in** C **do**
17 **for** *class set* $\bar{C}_l$ **in** $\bar{C}$ **do**
18 $\bar{D}_{kl} = \min\left\{D_{ij} \text{ for } i \text{ in } C_k, j \text{ in } \bar{C}_l\right\}$;
19 **if** $\bar{D}_{kl} \leq \varepsilon$ **then** `// merge classes`
20 $\bar{C}_l \leftarrow \bar{C}_l \cup C_k$;
21 **else** `// create new class`
22 $\bar{C} \leftarrow \bar{C} \cup \{C_k\}$;
23 **end**
24 **end**
25 **end**
26 $\bar{C} \leftarrow \bar{C} \cup \{C_i\}$;
27 **end**
28 **for** *class set* C_k **in** $\bar{C}$ **do**
29 **if** $|C_k| < m$ **then** `// remove small classes`
30 $\bar{C} \leftarrow \bar{C} \backslash \{C_k\}$;
31 **end**
32 **end**