

**Algorithm:** Level numbering (**can be done using BFS only**)

**Input:** A simple connected undirected graph  $G = (V, E)$

**Output:** An array indexed with vertices containing level order.

Initialize a queue  $Q$

Initialize an array  $Level[1..n]$  with value -1.

Pick a starting vertex  $s$

$Level[s] \leftarrow 0$

$Q.add(s)$

**while**  $Q \neq \emptyset$  **do**

$v \leftarrow Q.dequeue()$

$level \leftarrow Level[v] + 1$

**for** all vertex  $w$  adjacent to  $v$  with  $Level[w] == -1$

$Level[w] \leftarrow level$

$Q.add(w)$

**return**  $Level$

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