NORTH THINNING NEIGHBORS COUNT 5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CASE 1** | | |  | **CASE 2** | | |  | **CASE 3** | | |  | **CASE 4** | | |
| **0** | **0** | **1** |  | **0** | **0** | **0** |  | **0** | **0** | **1** |  | **0** | **0** | **1** |
| **0** | **X** | **1** |  | **1** | **X** | **1** |  | **1** | **X** | **0** |  | **1** | **X** | **1** |
| **1** | **0** | **1** |  | **1** | **1** | **1** |  | **1** | **1** | **1** |  | **0** | **1** | **1** |
| **CASE 5** | | |  | **CASE 6** | | |  | **CASE 7** | | |  | **CASE 8** | | |
| **0** | **0** | **1** |  | **0** | **0** | **1** |  | **1** | **0** | **0** |  | **1** | **0** | **0** |
| **1** | **X** | **1** |  | **1** | **X** | **1** |  | **0** | **X** | **1** |  | **1** | **X** | **0** |
| **1** | **0** | **1** |  | **1** | **1** | **0** |  | **1** | **1** | **1** |  | **1** | **1** | **1** |
| **CASE 9** | | |  | **CASE 10** | | |  | **CASE 11** | | |  | **CASE 12** | | |
| **1** | **0** | **0** |  | **1** | **0** | **0** |  | **1** | **0** | **0** |  | **1** | **0** | **1** |
| **1** | **X** | **1** |  | **1** | **X** | **1** |  | **1** | **X** | **1** |  | **0** | **X** | **0** |
| **0** | **1** | **1** |  | **1** | **0** | **1** |  | **1** | **1** | **0** |  | **1** | **1** | **1** |
| **CASE\_13** | | |  | **CASE 14** | | |  | **CASE 15** | | |  | **CASE 16** | | |
| **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |
| **0** | **X** | **1** |  | **0** | **X** | **1** |  | **0** | **X** | **1** |  | **1** | **X** | **1** |
| **0** | **1** | **1** |  | **1** | **0** | **1** |  | **1** | **1** | **0** |  | **1** | **0** | **0** |
| **CASE\_17** | | |  | **CASE\_18** | | |  | **CASE\_19** | | |  | **CASE\_20** | | |
| **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |
| **1** | **X** | **1** |  | **1** | **X** | **0** |  | **1** | **X** | **1** |  | **1** | **X** | **0** |
| **0** | **1** | **0** |  | **0** | **1** | **1** |  | **0** | **1** | **0** |  | **1** | **1** | **0** |

NORTH THINNING NEIGHBORS COUNT 6

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CASE 1** | | |  | **CASE 2** | | |  | **CASE 7** | | |
| **0** | **0** | **1** |  | **1** | **0** | **0** |  | **1** | **0** | **1** |
| **1** | **X** | **1** |  | **1** | **X** | **1** |  | **0** | **X** | **1** |
| **1** | **1** | **1** |  | **1** | **1** | **1** |  | **1** | **1** | **1** |
| **CASE 3** | | |  | **CASE 4** | | |  |  | | |
| **1** | **0** | **1** |  | **1** | **0** | **1** |  |  |  |  |
| **1** | **X** | **0** |  | **1** | **X** | **1** |  |  |  |  |
| **1** | **1** | **1** |  | **0** | **1** | **1** |  |  |  |  |
| **CASE 5** | | |  | **CASE 6** | | |  |  | | |
| **1** | **0** | **1** |  | **1** | **0** | **1** |  |  |  |  |
| **1** | **X** | **1** |  | **1** | **X** | **1** |  |  |  |  |
| **1** | **0** | **1** |  | **1** | **1** | **0** |  |  |  |  |

NORTH THINNING NEIGHBORS COUNT 4

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CASE 1** | | |  | **CASE 2** | | |  | **CASE 3** | | |  | **CASE 4** | | |
| **0** | **0** | **0** |  | **0** | **0** | **0** |  | **0** | **0** | **0** |  | **0** | **0** | **0** |
| **0** | **X** | **1** |  | **1** | **X** | **0** |  | **1** | **X** | **1** |  | **1** | **X** | **1** |
| **1** | **1** | **1** |  | **1** | **1** | **1** |  | **0** | **1** | **1** |  | **1** | **0** | **1** |
| **CASE 5** | | |  | **CASE 6** | | |  | **CASE 7** | | |  | **CASE 8** | | |
| **0** | **0** | **0** |  | **0** | **0** | **1** |  | **0** | **0** | **1** |  | **0** | **0** | **1** |
| **1** | **X** | **1** |  | **0** | **X** | **0** |  | **0** | **X** | **1** |  | **0** | **X** | **1** |
| **1** | **1** | **0** |  | **1** | **1** | **1** |  | **0** | **1** | **1** |  | **1** | **0** | **1** |
| **CASE 9** | | |  | **CASE 10** | | |  | **CASE 11** | | |  | **CASE 12** | | |
| **0** | **0** | **1** |  | **0** | **0** | **1** |  | **0** | **0** | **1** |  | **0** | **0** | **1** |
| **0** | **X** | **1** |  | **1** | **X** | **0** |  | **1** | **X** | **1** |  | **1** | **X** | **0** |
| **1** | **1** | **0** |  | **0** | **1** | **1** |  | **1** | **0** | **0** |  | **1** | **0** | **1** |
| **CASE\_13** | | |  | **CASE 14** | | |  | **CASE 15** | | |  | **CASE 16** | | |
| **0** | **0** | **1** |  | **0** | **0** | **1** |  | **0** | **0** | **1** |  | **1** | **0** | **1** |
| **1** | **X** | **1** |  | **1** | **X** | **0** |  | **1** | **X** | **1** |  | **0** | **X** | **0** |
| **0** | **1** | **0** |  | **1** | **1** | **0** |  | **0** | **0** | **1** |  | **0** | **1** | **1** |
| **CASE\_17** | | |  | **CASE\_18** | | |  | **CASE\_19** | | |  | **CASE\_20** | | |
| **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |
| **0** | **X** | **1** |  | **0** | **X** | **1** |  | **0** | **X** | **0** |  | **0** | **X** | **1** |
| **1** | **0** | **0** |  | **0** | **1** | **0** |  | **1** | **0** | **1** |  | **0** | **0** | **1** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CASE 21** | | |  | **CASE 22** | | |  | **CASE 23** | | |  | **CASE 24** | | |
| **1** | **0** | **1** |  | **1** | **0** | **0** |  | **1** | **0** | **0** |  | **1** | **0** | **0** |
| **0** | **X** | **0** |  | **1** | **X** | **0** |  | **1** | **X** | **0** |  | **1** | **X** | **1** |
| **1** | **1** | **0** |  | **1** | **1** | **0** |  | **0** | **1** | **1** |  | **1** | **0** | **0** |
| **CASE 25** | | |  | **CASE 26** | | |  | **CASE 27** | | |  | **CASE 28** | | |
| **1** | **0** | **0** |  | **1** | **0** | **0** |  | **1** | **0** | **0** |  | **1** | **0** | **1** |
| **1** | **X** | **0** |  | **1** | **X** | **1** |  | **1** | **X** | **1** |  | **1** | **X** | **0** |
| **1** | **0** | **1** |  | **0** | **1** | **0** |  | **0** | **0** | **1** |  | **0** | **0** | **1** |
| **CASE 29** | | |  | **CASE 30** | | |  | **CASE 31** | | |  | **CASE 32** | | |
| **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |  | **1** | **0** | **1** |
| **1** | **X** | **0** |  | **1** | **X** | **0** |  | **1** | **X** | **0** |  | **1** | **X** | **1** |
| **0** | **1** | **0** |  | **0** | **0** | **1** |  | **1** | **0** | **0** |  | **0** | **0** | **0** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* |
| **0** | **0** | **0** | **0** | **X** | **1** | **1** | **1** | **1** |
| **0** | **0** | **0** | **1** | **X** | **0** | **1** | **1** | **1** |
| **0** | **0** | **0** | **1** | **X** | **1** | **0** | **1** | **1** |
| **0** | **0** | **0** | **1** | **X** | **1** | **1** | **0** | **1** |
| **0** | **0** | **0** | **1** | **X** | **1** | **1** | **1** | **0** |
| **0** | **0** | **1** | **0** | **X** | **0** | **1** | **1** | **1** |
| **0** | **0** | **1** | **0** | **X** | **1** | **0** | **1** | **1** |
| **0** | **0** | **1** | **0** | **X** | **1** | **1** | **0** | **1** |
| **0** | **0** | **1** | **0** | **X** | **1** | **1** | **1** | **0** |
| **0** | **0** | **1** | **1** | **X** | **0** | **0** | **1** | **1** |
| **0** | **0** | **1** | **1** | **X** | **1** | **1** | **0** | **0** |
| **0** | **0** | **1** | **1** | **X** | **1** | **0** | **1** | **0** |
| **0** | **0** | **1** | **1** | **X** | **0** | **1** | **0** | **1** |
| **0** | **0** | **1** | **1** | **X** | **0** | **1** | **1** | **0** |
| **0** | **0** | **1** | **1** | **X** | **1** | **0** | **0** | **1** |
| **1** | **0** | **1** | **0** | **X** | **0** | **0** | **1** | **1** |
| **1** | **0** | **1** | **0** | **X** | **1** | **1** | **0** | **0** |
| **1** | **0** | **1** | **0** | **X** | **1** | **0** | **1** | **0** |
| **1** | **0** | **1** | **0** | **X** | **0** | **1** | **0** | **1** |
| **1** | **0** | **1** | **0** | **X** | **0** | **1** | **1** | **0** |
| **1** | **0** | **1** | **0** | **X** | **1** | **0** | **0** | **1** |
| **1** | **0** | **0** | **1** | **X** | **0** | **0** | **1** | **1** |
| **1** | **0** | **0** | **1** | **X** | **1** | **1** | **0** | **0** |
| **1** | **0** | **0** | **1** | **X** | **1** | **0** | **1** | **0** |
| **1** | **0** | **0** | **1** | **X** | **0** | **1** | **0** | **1** |
| **1** | **0** | **0** | **1** | **X** | **0** | **1** | **1** | **0** |
| **1** | **0** | **0** | **1** | **X** | **1** | **0** | **0** | **1** |
| **1** | **0** | **1** | **1** | **X** | **0** | **0** | **0** | **1** |
| **1** | **0** | **1** | **1** | **X** | **0** | **0** | **1** | **0** |
| **1** | **0** | **1** | **1** | **X** | **0** | **1** | **0** | **0** |
| **1** | **0** | **1** | **1** | **X** | **1** | **0** | **0** | **0** |