**Outlier Detection via LOF**

**Manhattan - k = 2**

|  |  |  |
| --- | --- | --- |
| **Rank** | **ID** | **LOF** |
| 1 | 562 | 635.0 |
| 2 | 491 | 441.9 |
| 3 | 561 | 258.3 |
| 4 | 206 | 234.7 |
| 5 | 156 | 229.9 |

**Euclidean - k = 3**

|  |  |  |
| --- | --- | --- |
| **Rank** | **ID** | **LOF** |
| 1 | 67 | 194.0 |
| 2 | 562 | 192.3 |
| 3 | 152 | 165.7 |
| 4 | 273 | 165.0 |
| 5 | 161 | 152.0 |

**Outlier Detection via Cell-Based**

1. Setting D = 10 and M = 10 we find 17 outliers.

[442, 463, 512, 542, 573, 467, 345, 652, 306, 310, 615, 149, 154, 653, 493, 203, 352]

1. Setting D = 5 and M = 5 we find 20 outliers.

[694, 512, 542, 498, 225, 35, 401, 632, 120, 619, 355, 433, 569, 576, 381, 154, 508, 139, 10, 387]

1. Setting D = 5 and M = 10 we find 36 outliers.

[30, 571, 672, 239, 34, 332, 567, 248, 540, 498, 497, 35, 632, 80, 86, 316, 599, 210, 138, 411, 501, 690, 619, 355, 433, 197, 423, 274, 678, 286, 397, 508, 399, 139, 244, 314]

1. Setting D = 10 and M = 5 we find 19 outliers.

[463, 530, 177, 573, 467, 451, 602, 306, 400, 485, 310, 154, 231, 653, 61, 281, 24, 253, 201]

We can conclude that increasing D decreases the likelihood of a point being an outlier and increasing M increases the likelihood of a point being an outlier.

Results seem to suggest that the number of outliers increases with an increase in M and decreases with an increase in D.

However, changes in the point to cell mapping can greatly change the results. The algorithm I used started the mapping at (0, 0). As a test, I changed the origin point which also changed all my results. The relationship between M, D, and the number of outliers seems to be highly dependent on how the cell map is drawn.