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```
where TRUNC(Data_X/100) BETWEEN TRUNC(:target_x/100)) - :threshold
             AND TRUNC(:target_x/100)) + :threshold
TRUNC(Data_Y/100) BETWEEN TRUNC(:target_y/100)) - :threshold
       and
                                       AND TRUNC(:target_y/100)) + :threshold
order by sqrt(sqr(Data_x - :target_x) + sqr(Data_y - :target_y))
```

You can then set: threshold to basically eliminate a large set of blocks of points from the query. I reckon if the values for the functional index (i.e. 100) and the threshold are set correctly, you'll see the query use the function-based index to get a small set of candidates, instead of calculating the distance for every single point in the table.

The downside is that if :threshold is too low, the query might return no rows. On the other hand, that might be a useful feature, depending on your needs.

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answered Apr 4 '11 at 13:55 ey Kemp **43.8k** • 10 • 75 • 117

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It's still probably more efficient to do a binary back-off of the threshold until you get the k nearest neighbors than to calculate the distance to every other point every time. In other words, if you don't get enough points with a threshold of 1, try 2, 4, 8, 16, etc. until you get k rows returned. If you do this, however, be aware that you may need to go one step beyond the point where you get k rows to ensure that you get the k closest points. If the distance to the k-th closest point in a particular iteration is > threshold , there could be closer points outside the bounding box. – Justin Cave Apr 4 '11 at 15:24

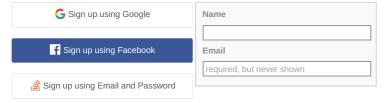
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