

A point set (x_i, y_i) on two dimensions ($i = 0 \dots n - 1$, $n \geq 2$, $x_i \in \mathbb{R}$, $y_i \in \mathbb{R}$). Distance between two points $p = (x_i, y_i)$, $q = (x_j, y_j)$ is defined as the Euclidean distance as follows.

$$D(p, q) = ((x_i - x_j)^2 + (y_i - y_j)^2)^{1/2}$$

If $D(p, q) < r$ ($r \in \mathbb{R}^+$), the point p to q are called reachable. If there are k ($k \in \mathbb{N}^+$) point sequences in a point set, $n_1 = p$, $n_2, \dots, n_k = q$, n_i to n_{i+1} is reachable for any i ($i = 1, 2, \dots, k-1$), it's called that there's a path from p to q .

(1) When a point set is given, implement a function that returns the distance of the pair with the smallest distance.

(2) Implement the function reporting the number of points included in the rectangle $[x_{\min}, x_{\max}] \times [y_{\min}, y_{\max}]$. The points on the boundary of the rectangle are also subject to report.

(3) When r and two points in a point set are given, implement a function to judge whether there's a path between them.

Prefer the following programming languages.

Golang, C/C ++, Java