76.Closest Pair

AIM: Python program to find the closest pair

PROGRAM:

```
import math


def distance(p1, p2):
    return math.sqrt((p1[0] - p2[0]) ** 2 + (p1[1] - p2[1]) ** 2)


def closest_pair(points):
    min_distance = float('inf')
    closest_pair = None
    n = len(points)
    for i in range(n):
        for j in range(i + 1, n):
            d = distance(points[i], points[j])
            if d < min_distance:
                min_distance = d
                closest_pair = (points[i], points[j])
    return min_distance, closest_pair
points = [(2, 3), (12, 30), (40, 50), (5, 1), (12, 10), (3, 4)]
min_distance, pair = closest_pair(points)
print("Closest pair:", pair, "with distance:", min_distance)
```

OUTPUT:

```
Closest pair: ((2, 3), (3, 4)) with distance:
    1.4142135623730951
```

TIME COMPLEXITY: O(n log n)