

140)Closest pair of points

CODE:

```
import math

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

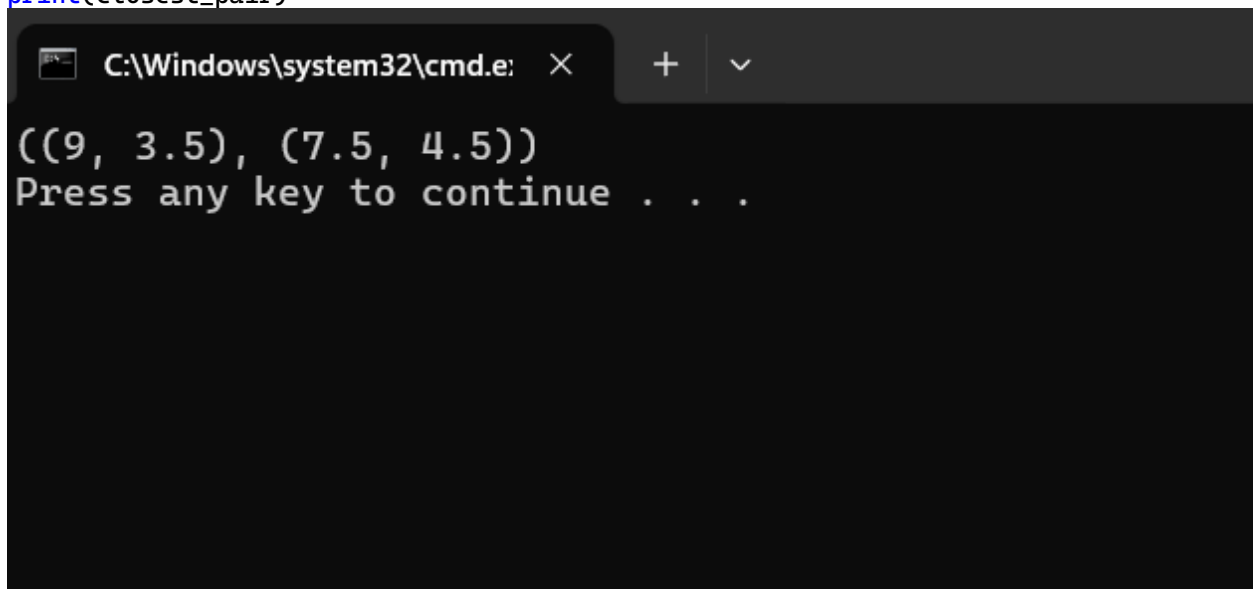
def closest_pair_brute_force(points):
    min_distance = float('inf')
    closest_pair = None

    for i in range(len(points)):
        for j in range(i + 1, len(points)):
            distance = euclidean_distance(points[i], points[j])
            if distance < min_distance:
                min_distance = distance
                closest_pair = (points[i], points[j])

    return closest_pair

# Sample set of points
points = [(10, 0), (11, 5), (5, 3), (9, 3.5), (15, 3), (12.5, 7), (6, 6.5), (7.5, 4.5)]

closest_pair = closest_pair_brute_force(points)
print(closest_pair)
```

A screenshot of a Windows command prompt window. The title bar shows the path 'C:\Windows\system32\cmd.e' with a close button. The window has a dark background. The output of the Python code is displayed in white text: '((9, 3.5), (7.5, 4.5))' followed by 'Press any key to continue . . .'.

```
C:\Windows\system32\cmd.e  X  +  v

((9, 3.5), (7.5, 4.5))
Press any key to continue . . .
```

TIME COMPLEXITY : $O(n^2)$