

Manhattan distance (also known as L1 norm):

If you have two points $P1(x1,y1)$ and $P2(x2,y2)$, in a 2D Cartesian plane, the Manhattan distance between them is given by:

Euclidean distance (also known as L2 norm)

For two points $P1(x1,y1)$ and $P2(x2,y2)$, in a 2D Cartesian plane, the Euclidean distance is given by:

**#To find Manhattan and Euclidean Distance between two specified nodes of a graph.
Graph will be represented as adjacency list.**

```
import math

def manhattan_distance(node0, node1):
    return abs(node0[0] - node1[0]) + abs(node0[1] - node1[1])

def euclidean_distance(node1, node2):
    return math.sqrt((node0[0] - node1[0])**2 + (node0[1] - node1[1])**2)

def create_graph():
    graph = {
        (0, 0): [(0, 1), (1, 0)],
        (0, 1): [(0, 0), (1, 1)],
        (1, 0): [(0, 0), (1, 1)],
        (1, 1): [(1, 0), (0, 1)]
    }
    return graph

def main():
    graph = create_graph()
    node0 = (0, 0)
    node1 = (1, 1)
    manhattan_dist = manhattan_distance(node0, node1)
    print(f"The Manhattan distance between {node0} and {node1} is {manhattan_dist}")
    euclidean_dist = euclidean_distance(node0, node1)
    print(f"The Euclidean distance between {node0} and {node1} is {euclidean_dist:.2f}")

main()
```