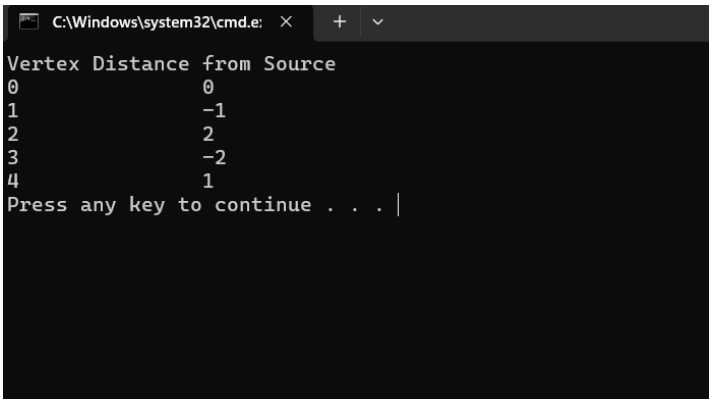
109) Bellman Ford algorithm

CODE:

```
class Edge:
    def __init__(self, u, v, weight):
        self.u = u
        self.v = v
        self.weight = weight

def bellman_ford(edges, V, E, source):
    dist = [float('inf')] * V
    dist[source] = 0

    for _ in range(V - 1):
        for edge in edges:
            u, v, weight = edge.u, edge.v, edge.weight
            if dist[u] != float('inf') and dist[u] + weight < dist[v]:
                dist[v] = dist[u] + weight

    for edge in edges:
        u, v, weight = edge.u, edge.v, edge.weight
        if dist[u] != float('inf') and dist[u] + weight < dist[v]:
            print("Graph contains negative weight cycle")
            return

    print("Vertex Distance from Source")
    for i in range(V):
        print(f"{i}\t\t{dist[i]}")

if __name__ == "__main__":
    V = 5
    E = 8

    edges = [
        Edge(0, 1, -1),
        Edge(0, 2, 4),
        Edge(1, 2, 3),
        Edge(1, 3, 2),
        Edge(1, 4, 2),
        Edge(3, 2, 5),
        Edge(3, 1, 1),
        Edge(4, 3, -3)
    ]

    source = 0

    bellman_ford(edges, V, E, source)
```

OUTPUT:




TIME COMPLEXITY : O(V*E)