/*bellman ford*/

```
#include <stdio.h>
#include <limits.h>

void bellmanFord(int graph[100][100], int V, int E, int src) {
    int dist[V];

    // Initialize distances from src to all other vertices as INFINITE
    for (int i = 0; i < V; i++)
        dist[i] = INT_MAX;
    dist[src] = 0;

    // Relax all edges |V| - 1 times. A simple shortest path from src
    // to any other vertex can have at most |V| - 1 edges
    for (int i = 0; i < V - 1; i++) {
        for (int j = 0; j < E; j++) {
            int u = graph[j][0];
            int v = graph[j][1];
            int weight = graph[j][2];
            if (dist[u] != INT_MAX && dist[u] + weight < dist[v])
                dist[v] = dist[u] + weight;
        }
    }

    // Check for negative-weight cycles. If we get a shorter path,
    // then there is a cycle.
    for (int i = 0; i < E; i++) {
        int u = graph[i][0];
        int v = graph[i][1];
        int weight = graph[i][2];
        if (dist[u] != INT_MAX && dist[u] + weight < dist[v]) {
```

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            printf("Graph contains negative weight cycle");
            return;
        }
    }

    // Print distances
    printf("Vertex   Distance from Source\n");
    for (int i = 0; i < V; i++)
        printf("%d \t\t %d\n", i, dist[i]);
}

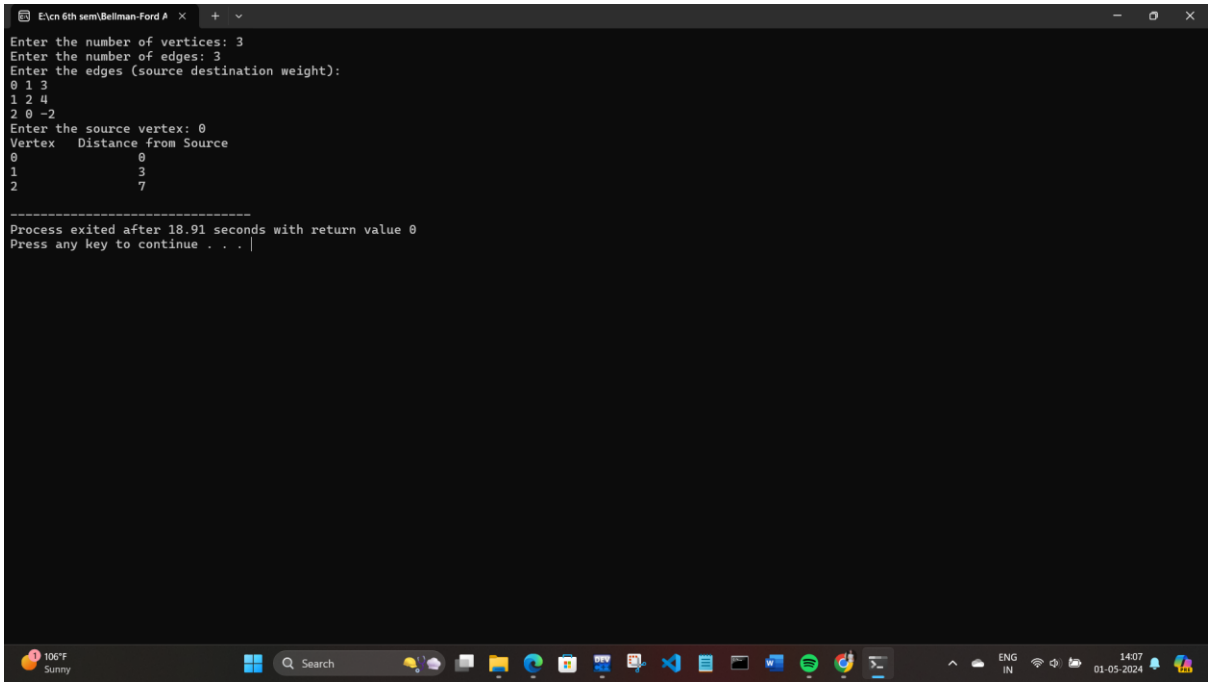
int main() {
    int V, E, src;
    printf("Enter the number of vertices: ");
    scanf("%d", &V);
    printf("Enter the number of edges: ");
    scanf("%d", &E);

    int graph[100][100];
    printf("Enter the edges (source destination weight):\n");
    for (int i = 0; i < E; i++) {
        scanf("%d %d %d", &graph[i][0], &graph[i][1], &graph[i][2]);
    }

    printf("Enter the source vertex: ");
    scanf("%d", &src);

    bellmanFord(graph, V, E, src);

    return 0;
}
```


E:\cn 6th sem\Bellman-Ford A
Enter the number of vertices: 3
Enter the number of edges: 3
Enter the edges (source destination weight):
0 1 3
1 2 4
2 0 -2
Enter the source vertex: 0
Vertex Distance from Source
0 0
1 3
2 7
Process exited after 18.91 seconds with return value 0
Press any key to continue . . .
106°F
Sunny
Search
ENG
IN
14:07
01-05-2024