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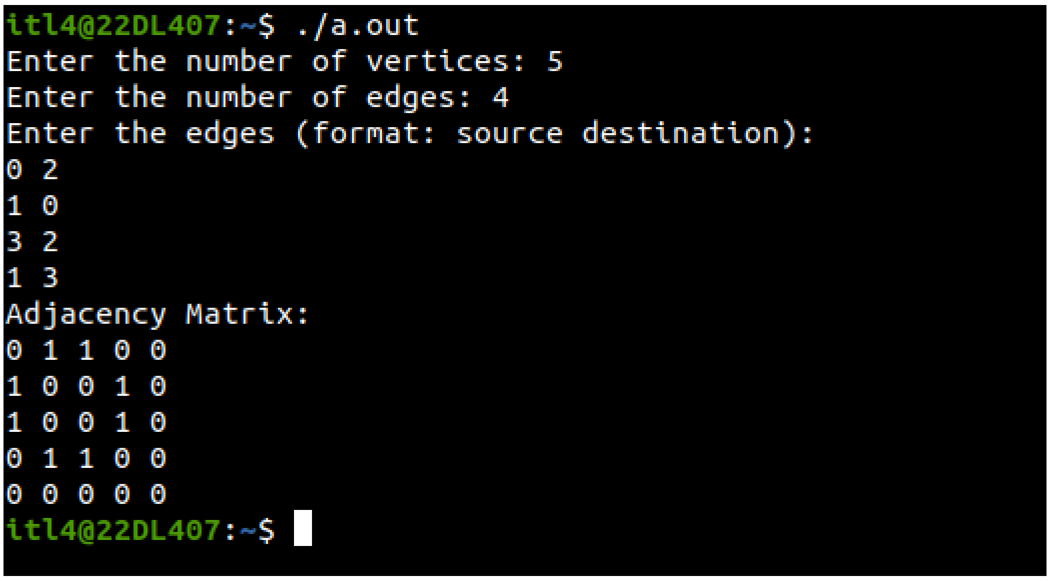
Roll No. 18

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

// Function to create a graph with 'vertices' vertices
int** createGraph(int vertices) {
    int** graph = (int**)malloc(vertices * sizeof(int*));
    for (int i = 0; i < vertices; ++i) {
        graph[i] = (int*)malloc(vertices * sizeof(int));
        for (int j = 0; j < vertices; ++j) {
            graph[i][j] = 0; // Initialize all elements to 0 (no edges)
        }
    }
    return graph;
}

// Function to add an edge to the graph
void addEdge(int** graph, int src, int dest) {
    // For an undirected graph, mark both src->dest and dest->src as 1
    graph[src][dest] = 1;
    graph[dest][src] = 1;
}

// Function to display the adjacency matrix
void displayAdjacencyMatrix(int** graph, int vertices) {
    printf("Adjacency Matrix:\n");
    for (int i = 0; i < vertices; ++i) {
        for (int j = 0; j < vertices; ++j) {
            printf("%d ", graph[i][j]);
        }
        printf("\n");
    }
}

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

    int** graph = createGraph(vertices);

    printf("Enter the edges (format: source destination):\n");
    for (int i = 0; i < edges; ++i) {
        int src, dest;
        scanf("%d %d", &src, &dest);
        addEdge(graph, src, dest);
    }
    displayAdjacencyMatrix(graph, vertices);

    // Free memory
    for (int i = 0; i < vertices; ++i) {
        free(graph[i]);
    }
    free(graph);

    return 0;
}
```



```
itl4@22DL407:~$ ./a.out
Enter the number of vertices: 5
Enter the number of edges: 4
Enter the edges (format: source destination):
0 2
1 0
3 2
1 3
Adjacency Matrix:
0 1 1 0 0
1 0 0 1 0
1 0 0 1 0
0 1 1 0 0
0 0 0 0 0
itl4@22DL407:~$
```